HEALTH, ENGINEERING AND SCIENCE HANDBOOK 2012

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

DISCLAIMER

The information contained in Victoria University's 2012 Faculty of Health, Engineering and Science was current at 31 August 2011.

In today's university environment, changes to courses occur far more frequently than in the past. For current information on Victoria University's courses, readers are advised to access the University's online courses database at www.vu.edu.au/courses

If you have difficulty in accessing this material electronically, please phone (03) 9919 6100 for assistance.

IMPORTANT INFORMATION

The course details in this handbook (Plus details of all other Victoria University courses) can also be searched on the University's online courses database at www.vu.edu.au/courses

This handbook can be downloaded as a pdf file from the Victoria University website at www.vu.edu.au/courses/course-handbooks-and-guides

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HOW TO USE THIS HANDBOOK

Victoria University's 2012 Faculty of Health, Engineering and Science Handbook is designed to provide students with detailed information on course structures and subject details for undergraduate and postgraduate courses offered by the faculty in 2012.

NOTE: Courses available to International students are marked with the (I) symbol. The definition of fields used in course tables throughout this handbook include:

Credit Point – the number of credit points a subject contributes towards the total points needed to complete a course.

PLEASE NOTE

This handbook provides a guide to courses available within Victoria University's Faculty of Health, Engineering and Science in 2012. Although all attempts have been made to make the information as accurate as possible, students should check with the faculty that the information is accurate when planning their courses.

NOTE: Prospective students are strongly advised to search the University's online courses database at www.vu.edu.au/courses for the most up-to-date list of courses.

This handbook includes descriptions of courses that may later be altered or include courses that may not be offered due to unforseen circumstances, such as insufficient enrolments or changes in teaching personnel. The fact that details of a course are included in this handbook can in no way be taken as creating an obligation on the part of the University to teach it in any given year or in the manner described. The University reserves the right to discontinue or vary courses at any time without notice.

OTHER INFORMATION

Information about course fees, articulation and credit transfer, recognition of prior learning, admission and enrolment procedures, examinations, and services available to students can be accessed on the University's website or by contacting the University directly.

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SCHOOL OF ENGINEERING AND SCIENCE

Below are details of courses offered by the School of Engineering and Science in 2012.

This information is also available online on the University's searchable courses database at www.vu.edu.au/courses
NOTE: Courses available to international students are marked with the (I) symbol.

BACHELOR OF ENGINEERING (ARCHITECTURAL ENGINEERING)

Course Code: EBAE

Campus: Footscray Park.

This course is for Continuing students only.

About this course: This program is unique in Australia. Students specialise in the planning, design and construction of building environmental control, life safety or building structural systems. These systems make buildings safe places in which to live and work. The program focuses on sustainable design concepts.

Course Objectives: The course is designed to develop vocational skills for the engineering planning, design, construction, maintenance and management of building environmental and life safety systems. The basic objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge capped by specific theoretical and practical exposure to the design of building environmental and life safety systems; have the ability to communicate effectively, both orally and in writing, and work well in a team situation; have an understanding of community need for building infrastructure in the context of societal aspirations and expectations; are motivated to continually improve their knowledge base; and are immediately productive upon completion of the course and are thus attractive to prospective employers. The first two years of the degree program involves engineering fundamentals to provide a solid foundation for the applied engineering subjects in the following years of the course. Studies in architecture design practices and architectural history are developed in second and third year. These fundamentals provide students with the basis of understanding all developments in the profession of Architectural Engineering and Engineering in general as technology continually changes and the profession undergoes continual adjustment. The applied engineering subjects building structures, building environmental and life safety systems, and building project management are introduced. In the final two years of the program, students undertake a major in either environmental systems design or structural systems design. An optional integrated 12 weeks industry placement period is available in Architectural Engineering at the end of the third year of the course in a 'summer semester' subject. Architectural Engineering graduates will have enhanced skills for careers in: advanced environmental services system design; building renovation and refurbishment; building structures design; computer aided design and drawing; construction planning, management and project supervision; cost estimating and project feasibility; building energy audits and conservation studies; engineering consultation and investigations; facilities management and programming; interior lighting design; risk assessment for building system performance; support for preservation Architecture; and simulation of building environmental system performance.

Careers: Building or engineering companies in close co-operation with architects, engineers and other building professionals in the planning, design and construction of environmental or structural building systems; building facilities management.

Course Duration: 4 years.

Admission Requirements Year 12: VCE with a score of at least 22 in English and Mathematical Methods or Specialist Mathematics Units 3 and 4. Articulation from Associate Diploma or Diploma courses in Building Construction and Design or Engineering. Credit will be given to subjects passed to a sufficient level of competence. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English score of 5+.

COURSE STRUCTURE

The course is offered over four years on a full-time basis of 22 contact hours per week. Part-time study may be approved. The course however cannot be completed solely on a part-time basis.

Engineering subject codes commence with 'V'. Science subject codes commence with 'R'.

Year 1		
Semester One		
REP1001	ENGINEERING PHYSICS 1A	12
RMA1001	ENGINEERING MATHEMATICS 1A	12
VAN1011	EXPERIMENTATION AND COMPUTING	12
VAN1051	ENGINEERING PROFESSION	12
Semester Two		
REP1003	ENGINEERING PHYSICS 1C	12
RMA1002	ENGINEERING MATHEMATICS 1B	12
VAN1022	SOLID MECHANICS 1	12
VAN1032	INTRODUCTION TO DESIGN	12
Year 2		
Semester One		
VAA2031	ARCHITECTURAL HISTORY & DESIGN	12
VAN2021	SOLID MECHANICS 2	12
VAN2041	THERMOFLUIDS	12
VAN2061	ENGINEERING MATERIALS	12
Semester Two		
VAA2002	ELECTRICAL POWER SYSTEMS 1	12
VAC2022	BUILDING MATERIALS AND CONSTRUCTION	12
VAC2042	HYDRAULICS	12
VAN2032	ENGINEERING DESIGN	12
SERVICES STREAM		
Year 3		
Semester One		
VAA3001	ELECTRICAL POWER SYSTEMS 2	12
VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3071	HVAC SYSTEMS 1	12
VAA3081	BUILDING CONSTRUCTION AND LEGISLATION 1	12
Semester Two		
VAN3052	ENGINEERING MANAGEMENT	12
VAA3032	ENVIRONMENTALLY SUSTAINABLE DESIGN 2	12
VAA3042	HYDRAULIC SERVICES SYSTEMS	12
VAA3072	HVAC SYSTEMS 2	12
STRUCTURES STREAM		
Year 3		

Semester One

VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3081	BUILDING CONSTRUCTION AND LEGISLATION 1	12
VAC3021	STRUCTURAL ANALYSIS	12
VAC3061	GEOMECHANICS	12

Semester Two

VAA3042	HYDRAULIC SERVICES SYSTEMS	12
VAC3062	GEOTECHNICAL ENGINEERING	12
VAC3092	STRUCTURAL DESIGN	12
VAN3052	ENGINEERING MANAGEMENT	12

SERVICES STREAM

Year 4

Semester One

VAA4001	ARCHITECTURAL LIGHTING AND COMMUNICATIONS SYSTEMS	12
VAA4051	BUILDING QUANTITIES AND COSTS	6
VAA4071	HVAC SYSTEMS 3	6
VAN4011	ENGINEERING PROJECT 1	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12

Semester Two

VAA4032	ENVIRONMENTALLY SUSTAINABLE DESIGN 3	12
VAA4042	BUILDING FIRE SAFETY SYSTEMS	12
VAA4082	BUILDING CONSTRUCTION AND LEGISLATION 2	6
VAA4092	BUILDING SYSTEMS DESIGN AND CONSTRUCTION	6
VAN4012	ENGINEERING PROJECT 2	12

STRUCTURES STREAM

Year 4

Semester One

VAA4051	BUILDING QUANTITIES AND COSTS	6
VAC4021	STRUCTURAL ENGINEERING ANALYSIS AND DESIGN 1	12
VAN4011	ENGINEERING PROJECT 1	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAA4091	STRUCTURAL DYNAMICS 1	6

Semester Two

VAA4042	BUILDING FIRE SAFETY SYSTEMS	12
VAA4082	BUILDING CONSTRUCTION AND LEGISLATION 2	6
VAA4092	BUILDING SYSTEMS DESIGN AND CONSTRUCTION	6
VAC4022	STRUCTURAL ENGINEERING ANALYSIS AND DESIGN 2	12
VAN4012	ENGINEERING PROJECT 2	12

Other Course Specific Notes

Assessment in subjects is designed to monitor a student's progress and achievements as well as contribute to and enhance their learning. Normally a prescribed range of assessment methods is employed in any subject.

Assessment is by a combination of written assignments, tests, laboratory work and examinations.

Supplementary assessment is not normally available in any subject except at the discretion of the Head of School in exceptional circumstances.

Special Consideration in assessment may be granted on the grounds defined by the University Statutes.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

Degree with Honours

A Degree with Honours Program is offered concurrently with the fourth year of the ordinary Bachelor of Engineering program. Normally, students entering the final year of a full-time Bachelor of Engineering program (or its equivalent in part-time mode), will be offered honours candidacy, if they have achieved a minimum hour weighted average of 60 per cent over year levels 1 to 3, have not repeated a subject throughout levels 1 to 3 and have not been granted more than one year completion by compensation throughout the duration of the course. Fourth year honours degree gradings will be determined by the relevant Examiners Board on the basis of the hour weighted average for year level 4.

Industrial Experience

Students are required to undertake a 12 week industrial work experience period during their course. At the end of third year, students will have to undertake a 12 week (minimum) integrated industry placement program. It is intended that this program will meet the 12 week industrial work experience requirements imposed upon all accredited Engineering degree courses by Engineers Australia.

Professional Recognition

The Bachelor of Engineering in Architectural Engineering will be submitted for recognition by the Building Practitioners Board and Building Control Commission in Victoria. This submission is to meet the minimum academic qualification for registration as a Mechanical or Electrical Engineer, or as a Civil Engineer (Structures) as defined by the responsibilities of these categories of 'Engineer' in the Victorian Building Control Act. The degree satisfies the requirements for accreditation by The Institution of Engineers, Australia and will be submitted for accreditation by the Australian Institute of Building.

Overseas Exchange Program

Each year two students from Victoria University who are enrolled in either Architectural or Building Engineering, are able to undertake studies with full credit for one semester in the third year of the Architectural Engineering degree program at the University of Nebraska - Omaha (UNO), U.S.A.

University scholarships are available to assist students in undertaking this exchange. The program at UNO is one of the newest and best resourced Architectural Engineering degrees in the U.S.A., having commenced in 1999 within new propose built buildings and facilities.

Admission Requirements

The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are as follows:

BACHELOR OF ENGINEERING/BACHELOR OF LAWS

Course Code: EBBL

Campus: Footscray Park.

This course is for Continuing students only.

Course Objectives: The course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in both law and the appropriate field of engineering. The course will equip graduates to obtain employment in law, business and government, in major engineering organisations, at the Bar and elsewhere. It will improve learning by providing a fundamental framework for the application of legal and engineering concepts and ideas and their co-integration, which will ensure the students, are capable of engaging successfully in these professional areas in a commercial environment.

Course Duration: 6 years.

Admission Requirements Year 12: To qualify for admission to the course an applicant must have successfully completed a course of study at year 12 level or equivalent. In addition to satisfying the entry requirements for Australian resident students or demonstrating equivalence, overseas students must provide evidence of proficiency in the English language: International English Language Testing System - overall score of 6 and no individual band score less than 6.0.

COURSE STRUCTURE

The course is offered over six years on a full-time basis, or part-time equivalent. Each student must obtain 576 credit points through academic study to graduate. Subject to Grade Point Average (GPA), students undertaking the Bachelor of Laws and Bachelor of Laws combined degrees may receive their award with honours. In calculating a specified grade of honours, the following points shall be attributed to Bachelor of Laws units - Pass = 5 points; Credit = 6 points; Distinction = 7 points; High Distinction = 8 points. In calculating the GPA, those Bachelor of Laws units successfully completed by the student will be ranked in order commencing with 8 point units and ending with 5 point units (if applicable). The aggregate of points attributed to the first two thirds of units so listed shall then be calculated and a grade point average determined (aggregated so calculated by the number of units being the first two thirds of units in the list). Bachelor of Laws with 2B Honours - GPA of 7 or more and a Credit grade in the unit of study Advanced Legal Research Dissertation; Bachelor of Laws with 2A Honours - GPA of 7 or more and a Distinction grade in the unit of study Advanced Legal Research Dissertation; Bachelor of Laws with 1st Class Honours - GPA of 7.5 or more and a Distinction or better grade in the unit of study Advanced Legal Research Dissertation.Other Course Specific NotesEngineering Component: 288 credit points taken from an engineering specialisation, with at least 48 Credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BSc degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science as advised by the course coordinator.

Compulsory Law Units of Study

BLB2122	ADVOCACY AND COMMUNICATION	12
BLB1113	AUSTRALIAN ADMINISTRATIVE LAW	12
BLB1101	AUSTRALIAN LEGAL SYSTEM IN CONTEXT	12
BLB1118	CONSTITUTIONAL LAW	12
BLB1102	CONTRACTS 1	12
BLB1117	CONTRACTS 2	12
BLB2119	CORPORATIONS LAW 1	12
BLB2124	CORPORATIONS LAW 2	12
BLB3128	CRIMINAL LAW	12
BLB3127	DISPUTE RESOLUTION AND CIVIL PROCEDURE	12
BLB4136	EQUITY AND TRUSTS	12
BLB4139	EVIDENCE	12
BLB2126	FEDERAL CONSTITUTIONAL LAW	12
BLB3130	INTERVIEWING AND NEGOTIATION SKILLS	12
BLB3131	LAWYERS AND LEGAL ETHICS	12
BLB1114	LEGAL RESEARCH METHODS	12
BLB2121	LEGAL THEORY	12
BLB2120	LEGAL WRITING AND DRAFTING	12
BLB2125	REAL PROPERTY LAW	12
BLB1115	TORTS	12

Law Electives - Select four of the following:

BLB4144	EUROPEAN UNION LAW	12
BLB3136	FAMILY LAW IN SOCIETY	12
BLB4145	HUMAN RIGHTS LAW	12
BLB3129	INTELLECTUAL PROPERTY LAW	12
BLB4141	INTERNATIONAL TRADE LAW	12
BLB4140	PRIVACY AND MEDIA LAW	12
BBB3200	PROFESSIONAL LEGAL PRACTICE	12
BLB4143	PUBLIC INTERNATIONAL LAW	12
BLB3132	SECURITIES LAW	12
BLB3134	TAXATION LAW	12
BLB1125	TORTS 2	12
BLB2123	TRADE PRACTICES LAW AND POLICY	12
BLB4146	WILLS AND THE ADMINISTRATION OF ESTATES	12
BLB4142	ADVANCED LEGAL RESEARCH DISSERTATION	12
BLB4137	ASIAN LEGAL SYSTEMS	12
BLB4135	AUSTRALIAN EMPLOYMENT LAW	12
BLB3133	COMPARATIVE COMMERCIAL LAW	12
BLB4138	CONFLICT OF LAWS	12
BLB3138	CRIMINAL LAW 2	12

BACHELOR OF ENGINEERING (BUILDING SURVEYING)

Course Code: EBBS

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The Building Surveying degree involves Building Engineering coursework comprising specialised training in building legislation and basic training in structures, services and project management and fire engineering. The degree is an ideal one to combine with a law degree and to gain specialist skills in building law.

Course Objectives: The first part of the degree program involves subjects on engineering fundamentals which provide a solid foundation for the applied engineering subjects given in the later stages of the degree program. Furthermore, the fundamentals provide students with knowledge which will provide the basis of understanding all developments in the profession of Building Surveying Engineering and much engineering in general as technology continually changes and the profession undergoes continual structural adjustment. The applied engineering subjects include construction and legislation, structures, services, management and some studies in building foundations. In the final year of the program, the students undertake studies in performance-based regulations and fire engineering, which affects much of the building regulations. Graduates will have enhanced skills for a career in Building Surveying. With a little further study the graduates can obtain professional qualifications in Fire Engineering. Graduates are qualified for consulting, construction and project management. Graduates are qualified also to obtain employment in structures, and services.

Careers: Graduates of this course can administer acts, regulations, codes and standards applicable in the following areas of building: planning design documentation approval construction occupation alteration maintenance demolition

Course Duration: 4 years.

Admission Requirements Year 12: Prerequisites Units 3 and 4 Mathematical Methods or Specialist Mathematics, English

Admission Requirements VET: Articulation from Associate Diploma or Diploma courses in Building Surveying and Engineering. Credit will be given to subjects passed to a sufficient level of competence.

Admission Requirements Other: Applications may also be made under the University's alternative categories of entry including continuing difficulties during schooling, Aboriginal and Torres Straight Islanders or mature age (over 21 years of age).

COURSE STRUCTURE

The Building Surveying degree involves Building Engineering coursework comprising specialised training in building legislation and basic training in structures, services and project management and fire engineering. The degree is an ideal one to combine with a law degree and to gain specialist skills in building law.

Year 1 - Semester 1		
ACE1801	Engineering Communication	10
ENM1851	Engineering in Society	10
ENW1861	Principles of Materials Science 1 - Credit Points	
ENX1831	Engineering Experimentation	10
SMA1201	Mathematics 1AP	10
SPH1601	Physics 1SA	10
Year 1 - Semester 2		
ENC1812	Computing for Engineers	10
END1832	Engineering Graphics	10
ENS1822	Solid Mechanics 1	10
ENW1862	Principles of Materials Science 2	10
SMA1202	Mathematics 1AQ	10
SPH1602	Physics 1SB	10
Year 2 - Semester 1		
EAH2831	Architectural History & Design 1	10
END2831	Introduction to Design	10
ENF 2841	Fluid Mechanics 1	10
ENS2821	Solid Mechanics 2	10
ENT2881	Thermodynamics 1	10
SMA2801	Engineering Mathematics	10
Year 2 - Semester 2		
ECF2842	Hydraulics	10
EEP2882	Electrical Engineering 1	10
ENC2812	Engineering Computations 1	10
END2832	Engineering Design	10
ENM2852	Engineering Management 1	10
ENS2822	Solid Mechanics 3	10
Year 3 - Semester 1		
BMO3851	Engineering Management	10
EAB3841	Air Conditioning & Hydraulic Services 1	10
EAB3871	Electrical Power Distribution 1	10
EAH3831	Architectural History and Design 2	10
EBK3881	Building Construction & Legislation 1	10
ECS3821	Structural Analysis 1	10
Year 3 - Semester 2		
EAB3842	Air Conditioning & Hydraulic Services 2	10
EAB3872	Electrical Power Distribution 2	10
EAB3892	Fire Services	10
EAD3832	Architectural Engineering Design 1	10
ECD3892	Structural Engineering Design 1	10
ECS3822	Structural Analysis 2	10
Year 4 - Semester 1		
EAB4831	Services Engineering Design and Construction	10
EBK4881	Building Construction and Legislation 2	10
EBM4851	Quantities and Costs	10
ECP4810	Engineering Project	10
EQB5611	Risk Assessment and Human Behaviour	10
EQB5621	Fire Growth, Detection and Extinguishment	10
Year 4 - Semester 2		
EAB4892	Communication Services	10
EBK4882	Building Construction and Legislation 3	10
ECP4810	Engineering Project	10
ENM4852	Engineering Project Management	10
EQB5632	Smoke & Fire Spread, Fire Safety System Design	10
EQB5642	Performance Codes - Methodology and Structure	10

All students will undertake a 12 week (minimum) industry placement program.

BACHELOR OF ENGINEERING (BUILDING ENGINEERING)

Course Code: EBCB

Campus: Footscray Park.

This course is for Continuing students only.

About this course: This course is unique in Victoria. Building engineers plan and manage the construction of buildings. They must understand the environmental services and structural systems of buildings. This multidisciplinary program focuses on building feasibility, construction planning and project management. Sustainable design concepts are introduced with an appreciation of architectural design.

Course Objectives: The course is designed to develop vocational skills for the engineering planning, design, construction, maintenance and management of buildings and building services systems. The basic objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge capped by specific theoretical and practical exposure to either the design of building structures or building services systems; have the ability to communicate effectively, both orally in writing, and work well in a team situation; have an understanding of community need for building infrastructure in the context of societal aspirations and expectations are motivated to continually improve their knowledge base; and are immediately productive upon completion of the course and are thus attractive to prospective employers. The course recognises societal needs for professional Engineers who have sound technical knowledge and good communication skills and capable of providing appropriate building infrastructure that is affordable, safe and comfortable to live and work within. The course is founded on a broad base of science and engineering fundamentals in the first and second year, with emphasis then given in the third and fourth years to applied discipline-specific topics, design and project work. The three study areas commence in the second and third years of the course and are building structures, building services and building construction and project management. In the final year, the focus for the course becomes planning and project management of the building construction process. Strong emphasis is given to professionalism, ethics and community responsibility. Local examples of building projects provide experiential learning through site visits together with teaching input from practising Engineers and other professionals in industry. These provide valuable 'real-world' case studies and are a motivational asset to the course.

Careers: Building or engineering companies in co-operation with architects, engineers and other building professionals in the planning and construction management of building projects; building facilities management.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are as follows: Persons transferring from other courses or having overseas or at least equivalent standard to those listed above, should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English score of 5+.

COURSE STRUCTURE

The course is offered over four years on a full-time basis. Part-time study may be approved. However, the course cannot be completed solely on a part-time basis. Students must complete 384 credit points.

Engineering subject codes commence with 'V'.

Science subject codes commence with 'R'.

Year 1

Semester One

REP1001	ENGINEERING PHYSICS 1A	12
RMA1001	ENGINEERING MATHEMATICS 1A	12
VAN1011	EXPERIMENTATION AND COMPUTING	12
VAN1051	ENGINEERING PROFESSION	12

Semester Two

REP1003	ENGINEERING PHYSICS 1C	12
RMA1002	ENGINEERING MATHEMATICS 1B	12
VAN1022	SOLID MECHANICS 1	12
VAN1032	INTRODUCTION TO DESIGN	12

Year 2

Semester One

VAA2031	ARCHITECTURAL HISTORY & DESIGN	12
VAN2021	SOLID MECHANICS 2	12
VAN2041	THERMOFLUIDS	12
VAN2061	ENGINEERING MATERIALS	12

Semester Two

VAA2002	ELECTRICAL POWER SYSTEMS 1	12
VAC2042	HYDRAULICS	12
VAC2022	BUILDING MATERIALS AND CONSTRUCTION	12
VAN2032	ENGINEERING DESIGN	12

SERVICES STREAM

Year 3

Semester One

VAA3001	ELECTRICAL POWER SYSTEMS 2	12
VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3071	HVAC SYSTEMS 1	12
VAA3081	BUILDING CONSTRUCTION AND LEGISLATION 1	12

Semester Two

VAN3052	ENGINEERING MANAGEMENT	12
VAA3042	HYDRAULIC SERVICES SYSTEMS	12
VAA3032	ENVIRONMENTALLY SUSTAINABLE DESIGN 2	12
VAA3072	HVAC SYSTEMS 2	12

STRUCTURES STREAM

Year 3

Semester One

VAA3081	BUILDING CONSTRUCTION AND LEGISLATION 1	12
VAC3021	STRUCTURAL ANALYSIS	12
VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAC3061	GEOMECHANICS	12

Semester Two

VAA3042	HYDRAULIC SERVICES SYSTEMS	12
VAC3062	GEOTECHNICAL ENGINEERING	12
VAC3092	STRUCTURAL DESIGN	12
VAN3052	ENGINEERING MANAGEMENT	12

SERVICES STREAM

Year 4

Semester One

VAA4051	BUILDING QUANTITIES AND COSTS	6
VAA4071	HVAC SYSTEMS 3	6
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
or		
VCP5726	PROJECT PROCUREMENT MANAGEMENT	12
VCP5705	PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY	12
VAN4011	ENGINEERING PROJECT 1	12

Semester Two

VAA4082	BUILDING CONSTRUCTION AND LEGISLATION 2	6
VAA4092	BUILDING SYSTEMS DESIGN AND CONSTRUCTION	6
VCP5716	PROJECT DEVELOPMENT	12
VCP5736	FACILITY LIFE CYCLE COSTING	12
VAN4012	ENGINEERING PROJECT 2	12

STRUCTURES STREAM

Year 4

Semester One

VAA4051	BUILDING QUANTITIES AND COSTS	6
VCP5726	PROJECT PROCUREMENT MANAGEMENT	12
VCP5705	PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY	12
VAC4091	STRUCTURAL ENGINEERING DESIGN 1	6
VAN4011	ENGINEERING PROJECT 1	12
or		
VAN4051	ENGINEERING PROJECT MANAGEMENT	12

Semester Two

VAA4082	BUILDING CONSTRUCTION AND LEGISLATION 2	6
VAA4092	BUILDING SYSTEMS DESIGN AND CONSTRUCTION	6
VCP5716	PROJECT DEVELOPMENT	12
VCP5736	FACILITY LIFE CYCLE COSTING	12
VAN4012	ENGINEERING PROJECT 2	12

Other Course Specific Notes

Assessment in subjects is designed to monitor a student's progress and achievements as well as contribute to and enhance their learning. Normally a prescribed range of assessment methods is employed in any subject.

Assessment is by a combination of written assignments, tests, laboratory work and examinations.

Supplementary assessment is not normally available in any subject except at the discretion of the Head of School in exceptional circumstances.

Special Consideration in assessment may be granted on the grounds defined by the University Statutes.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

Degree with Honours

A Degree with Honours Program is offered concurrently with the fourth year of the ordinary Bachelor of Engineering program. Normally, students entering the final year of a full-time Bachelor of Engineering program (or its equivalent in part-time mode), will be offered honours candidacy, if they have achieved a minimum hour weighted average of 60 per cent over year levels 1 to 3, have not repeated a subject through levels 1 to 3 and have not been granted more than one year completion by compensation throughout the duration of the course. Fourth year honours degree gradings will be determined by the relevant Examiners Board on the basis of the hour weighted average for year level 4.

Industrial Experience

Students are required to undertake a 12 week industrial work experience period during their course. At the end of third year, students will have an option to undertake a 12 week (minimum) integrated industry placement program. It is intended that this program will meet the 12 week industrial work experience requirements imposed upon all accredited Engineering degree courses by Engineers Australia.

Professional Recognition

The degree satisfies the requirements for accreditation by Engineers Australia and will be submitted for accreditation by the Australian Institute of Building.

Overseas Exchange Program

Each year two students from Victoria University who are enrolled in either Architectural or Building Engineering, are able to undertake studies with full credit for one semester in the third year of the Architectural Engineering degree program at the University of Nebraska-Omaha (UNO), U.S.A.

University scholarships are available to assist students in undertaking this exchange. The program at UNO is one of the newest and best resourced Architectural Engineering degrees in the U.S.A., having commenced in 1999 within new purpose-built buildings and facilities.

BACHELOR OF ENGINEERING (CIVIL ENGINEERING)

Course Code: EBCC

Campus: Footscray Park.

This course is for Continuing students only.

About this course: Civil Engineering is a broad-based discipline involving the planning, design, construction and management of a wide range of essential community infrastructure including, commercial and industrial buildings, water supply and wastewater systems, irrigation, drainage and flood protection systems, bridges, roads, highways and transportation systems, and port harbour and airport facilities. The course philosophy is very much based on a recognition of society's need for well-rounded engineers who not only have sound technical and communication skills but also a good understanding of the environmental, economic, social and political environment in which they must operate. The course is founded on a solid base of science and engineering fundamentals in the first two years, with emphasis then being given in years three and four to applied discipline-specific topics, design and project work. Substantial emphasis is given in a range of subjects to professionalism, ethics and community responsibility, team assignments, broad problem solving and communication skills, and the concepts of sustainability and sustainable engineering practices. A focus on local engineering examples, experiential learning and site visits, together with significant input from external industry-based lecturers, provides students with exposure to real world problems and is considered a motivational cornerstone of the course. There are two major streams in structural and water engineering running through the course, complemented by minor streams in geomechanics and transportation engineering. Environmental and management issues are covered in specific subjects but also more broadly by integration into a range of other subjects throughout the course. Subject streams are generally sequential within a well-defined structure. It is envisaged that this structure may be modified somewhat in the future with a view to further motivating students by allowing them a greater degree of flexibility and specialisation, once a firm foundation has been established in the early years of the course. The incorporation of more flexibility should also allow students to remedy any perceived deficiencies in the more basic communication and technical skills. A study abroad exchange program is under investigation with the Department of Civil Engineering at the University of Nebraska at Omaha, Nebraska, USA.

Course Objectives: The course is designed to develop skills for the application of engineering principles of planning, design, construction and management of buildings, roads, water supply and all other major community amenities.

Careers: A wide range of careers involving planning, design, construction and engineering management in private industry or with government authorities.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level, and are as follows. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner. A preliminary interview with the Head of School concerned is advisable for such applicants. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile, or TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

COURSE STRUCTURE

The course is offered over four years on a full-time basis. Part-time study may be approved. However the course cannot be completed solely on a part-time basis. Students must complete 384 credit points.

Engineering subject codes commence with 'V'.

Science subject codes commence with 'R'.

Year 1

Semester One

REP1001	ENGINEERING PHYSICS 1A	12
RMA1001	ENGINEERING MATHEMATICS 1A	12
VAN1011	EXPERIMENTATION AND COMPUTING	12
VAN1051	ENGINEERING PROFESSION	12

Semester Two

REP1003	ENGINEERING PHYSICS 1C	12
RMA1002	ENGINEERING MATHEMATICS 1B	12
VAN1022	SOLID MECHANICS 1	12
VAN1032	INTRODUCTION TO DESIGN	12

Year 2

Semester One

VAC2071	SURVEYING	12
VAN2021	SOLID MECHANICS 2	12
VAN2041	THERMOFLUIDS	12
VAN2061	ENGINEERING MATERIALS	12

Year 2

Semester Two

VAC2022	BUILDING MATERIALS AND CONSTRUCTION	12
VAC2042	HYDRAULICS	12
VAC2072	HIGHWAY ENGINEERING	12
VAN2032	ENGINEERING DESIGN	12

Year 3

Semester One

VAC3021	STRUCTURAL ANALYSIS	12
VAC3031	CIVIL ENGINEERING DESIGN 1	12
VAC3041	HYDROLOGY AND WATER RESOURCES	12
VAC3061	GEOMECHANICS	12

Year 3

Semester Two

VAC3042	HYDRAULIC ENGINEERING	12
VAC3062	GEOTECHNICAL ENGINEERING	12
VAC3092	STRUCTURAL DESIGN	12
VAN3052	ENGINEERING MANAGEMENT	12

Year 4

Semester One

VAC4071	TRANSPORTATION ENGINEERING	6
VAC4081	ENVIRONMENTAL ENGINEERING 1	12
VAC4091	STRUCTURAL ENGINEERING DESIGN 1	6
VAN4011	ENGINEERING PROJECT 1	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12

Year 4

Semester Two

VAC4032	CIVIL ENGINEERING DESIGN 2	12
VAC4072	ENVIRONMENTAL PLANNING AND DESIGN	6
VAC4082	ENVIRONMENTAL ENGINEERING 2	12
VAC4092	STRUCTURAL ENGINEERING DESIGN 2	6
VAN4012	ENGINEERING PROJECT 2	12

Electives

May be taken to a value of 6, 12 or 18 CP depending on which of VAC4072, VAC4091 and/or VAC4092 is done (18 max)

*Approved Electives from within the School of ACME

VAA2031	ARCHITECTURAL HISTORY & DESIGN	12
VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3042	HYDRAULIC SERVICES SYSTEMS	12
VAA3081	BUILDING CONSTRUCTION AND LEGISLATION 1	12
VAA4051	BUILDING QUANTITIES AND COSTS	6
VAA4082	BUILDING CONSTRUCTION AND LEGISLATION 2	6
VAM2011	COMPUTATIONS AND ENGINEERING ANALYSIS	12

Subject VEM2012 not found

Electives from outside School of ACME

(Subject to approval by Course Coordinator)

Other Course Specific Notes Assessment in subjects is designed to monitor a student's progress and achievements as well as contribute to and enhance their learning. Normally a prescribed range of assessment methods is employed in any subject. Assessment is by a combination of written assignments, tests, laboratory work and examinations.Supplementary assessment is not normally available in any subject except at the discretion of the Head of School in exceptional circumstances. Special Consideration in assessment may be granted on the grounds defined by the University Statutes.Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made. Degree with HonoursA Degree with Honours Program is offered concurrently with the fourth year of the ordinary Bachelor of Engineering program. Normally, students entering the final year of a full-time Bachelor of Engineering program (or its equivalent in part-time mode), will be offered honours candidacy, if they have achieved a minimum hour weighted average of 60 per cent over year levels 1 to 3, have not repeated a subject throughout levels 1 to 3 and have not been granted more than one year completion by compensation throughout the duration of the course. Fourth year honours degree gradings will be determined by the relevant Examiners Board on the basis of the hour weighted average for year level 4.

Industrial Experience

Candidates applying for the award of a degree in civil engineering must ensure that they have submitted for approval evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements. Professional Recognition Engineers Australia has granted full recognition for the Bachelor of Engineering in Civil Engineering. Recognition is a requirement for Graduate Membership of Engineers Australia and additionally for equivalent membership of many overseas professional engineering institutions. Overseas Exchange ProgramVictoria University has exchange agreements with universities in many countries, some of which are the U.S.A., Canada, Mexico, United Kingdom and many European and Asian countries.For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.

BACHELOR OF ENGINEERING (ARCHITECTURAL ENGINEERING) (I)

Course Code: EBDA

Campus: Footscray Park.

About this course: The VU Engineering PBL model is built on the learning principles of Active Learning (problem/project/practice based), Collaborative Learning (self-directed and team-based), and Integrative Learning (interdisciplinary knowledge and skills). Interwoven with these three principles are those of 'Engagement' and 'Practice'. In line with the model, the first two years of the course have a strong emphasis on managing the transition of students from a secondary education environment that emphasises passive learning to a higher education environment that is built around problem/project/practice work. For this reason, the course uses shorter problems in first year before moving on to longer community-based projects in year 2, industry-based projects in year 3, and practice on industry projects in year 4. The course has also built in a range of student support mechanisms in learning, language, mathematics and technical skills.

Course Objectives: The objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge; can develop creative, practical and sustainable solutions for the design of building structural or building services systems; can communicate appropriately and effectively in different modes with different audiences; can work independently and collaboratively; can understand community needs in the context of societal aspirations and expectations for sustainability and the built environment; have both the skills and motivation to continue learning as professionals; and are work-ready and thus attractive to prospective employers in the building design industry.

Careers: Architectural Engineering graduates will have enhanced skills for careers in: advanced environmental services system design; building renovation and refurbishment; building structures design; computer aided design and drawing; construction planning, management and project supervision; cost estimating and project feasibility; building energy audits and conservation studies; engineering consultation and investigations; facilities management and programming; interior lighting design; risk assessment for building system performance; support for preservation Architecture; and simulation of building environmental system performance.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

COURSE STRUCTURE

The Bachelor of Engineering (Architectural Engineering) is a 384 credit point degree.

Year 1, Semester 1

ENF1101	ENGINEERING MATHEMATICS 1	12
ENF1102	ENGINEERING PHYSICS 1	12
ENF1103	ENGINEERING AND THE COMMUNITY	12
ENF1104	PROBLEM SOLVING FOR ENGINEERS	12

Year 1, Semester 2

ENF1201	ENGINEERING MATHEMATICS 2	12
ENF1202	ENGINEERING PHYSICS 2	12
ENF1203	ENGINEERING COMPUTING	12
ENF1204	INTRODUCTION TO ENGINEERING DESIGN	12

Year 2, Semester 1

VAN2041	THERMOFLUIDS	12
VAC2011	ENGINEERING MATERIALS & CONSTRUCTION	12
VAC2121	SOLID MECHANICS	12
VAA2031	ARCHITECTURAL HISTORY & DESIGN	12

Year 2, Semester 2

VAC2042	HYDRAULICS	12
VAA2002	ELECTRICAL POWER SYSTEMS 1	12
VAC2092	INTRODUCTION TO STRUCTURAL ENGINEERING DESIGN	12
VAA2082	BUILDING CONSTRUCTION AND CONTROL 1	12

Year 3, Semester 1

STRUCTURES STREAM

VAC3061	GEOMECHANICS	12
VAC3021	STRUCTURAL ANALYSIS	12

VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3181	BUILDING CONSTRUCTION AND CONTROL 2	12
SERVICES STREAM		
VAA3001	ELECTRICAL POWER SYSTEMS 2	12
VAA3071	HVAC SYSTEMS 1	12
VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3181	BUILDING CONSTRUCTION AND CONTROL 2	12
Year 3, Semester 2		
STRUCTURES STREAM		
VAC3062	GEOTECHNICAL ENGINEERING	12
VAC3192	STRUCTURAL ENGINEERING DESIGN 1	12
VAN3052	ENGINEERING MANAGEMENT	12
VAA3042	HYDRAULIC SERVICES SYSTEMS	12
SERVICES STREAM		
VAA3032	ENVIRONMENTALLY SUSTAINABLE DESIGN 2	12
VAA3072	HVAC SYSTEMS 2	12
VAN3052	ENGINEERING MANAGEMENT	12
VAA3042	HYDRAULIC SERVICES SYSTEMS	12
Year 4, Semester 1		
STRUCTURES STREAM		
VAA4121	STRUCTURAL DYNAMICS	12
VAC4191	STRUCTURAL ENGINEERING DESIGN 2	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAN4011	ENGINEERING PROJECT 1	12
SERVICES STREAM		
VAA4001	ARCHITECTURAL LIGHTING AND COMMUNICATIONS SYSTEMS	12
VAA4171	HVAC SYSTEMS 3	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAN4011	ENGINEERING PROJECT 1	12
Year 4, Semester 2		
STRUCTURES STREAM		
VAC4192	STRUCTURAL ENGINEERING DESIGN 3	12
VAA4182	BUILDING SYSTEMS DESIGN & COSTING	12
VAA4042	BUILDING FIRE SAFETY SYSTEMS	12
VAN4012	ENGINEERING PROJECT 2	12
SERVICES STREAM		
VAA4042	BUILDING FIRE SAFETY SYSTEMS	12
VAA4182	BUILDING SYSTEMS DESIGN & COSTING	12
VAA4032	ENVIRONMENTALLY SUSTAINABLE DESIGN 3	12
VAN4012	ENGINEERING PROJECT 2	12

INDUSTRIAL EXPERIENCE: Candidates applying for the award of Bachelor of Engineering (Architectural Engineering) must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.

BACHELOR OF ENGINEERING (BUILDING ENGINEERING) (I)

Course Code: EBDB

Campus: Footscray Park.

About this course: The VU Engineering PBL model is built on the learning principles of Active Learning (problem/project/practice based), Collaborative Learning (self-directed and team-based), and Integrative Learning (interdisciplinary knowledge and skills). Interwoven with these three principles are those of ‘Engagement' and ‘Practice'. In line with the model, the first two years of the course have a strong emphasis on managing the transition of students from a secondary education environment that emphasises passive learning to a higher education environment that is built around problem/project/practice work. For this reason, the course uses shorter problems in first year before moving on to longer community-based projects in year 2, industry-based projects in year 3, and practice on industry projects in year 4. The course has also built in a range of student support mechanisms in learning, language, mathematics and technical skills.

Course Objectives: The objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge; can develop creative, practical and sustainable solutions for planning and managing construction of building structural and building services systems; can communicate appropriately and effectively in different modes with different audiences; can work independently and collaboratively; can understand community needs in the context of societal aspirations and expectations for sustainability and the built environment; have both the skills and motivation to continue learning as professionals; and are work-ready and thus attractive to prospective employers in the building construction industry.

Careers: Building or engineering companies in co-operation with architects, engineers and other building professionals in the planning and construction management of building projects; building facilities management.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

COURSE STRUCTURE

The Bachelor of Engineering (Building Engineering) is a 384 credit point degree. Below is the breakdown for each year.

Year 1, Semester 1		
ENF1101	ENGINEERING MATHEMATICS 1	12
ENF1102	ENGINEERING PHYSICS 1	12
ENF1103	ENGINEERING AND THE COMMUNITY	12
ENF1104	PROBLEM SOLVING FOR ENGINEERS	12
Year 1, Semester 2		
ENF1201	ENGINEERING MATHEMATICS 2	12
ENF1202	ENGINEERING PHYSICS 2	12
ENF1203	ENGINEERING COMPUTING	12
ENF1204	INTRODUCTION TO ENGINEERING DESIGN	12

Year 2, Semester 1

VAN2041	THERMOFLUIDS	12
VAC2011	ENGINEERING MATERIALS & CONSTRUCTION	12
VAC2121	SOLID MECHANICS	12
VAA2031	ARCHITECTURAL HISTORY & DESIGN	12

Year 2, Semester 2

VAC2042	HYDRAULICS	12
VAA2002	ELECTRICAL POWER SYSTEMS 1	12
VAC2092	INTRODUCTION TO STRUCTURAL ENGINEERING DESIGN	12
VAA2082	BUILDING CONSTRUCTION AND CONTROL 1	12

Year 3, Semester 1

STRUCTURES STREAM

VAC3061	GEOMECHANICS	12
VAC3021	STRUCTURAL ANALYSIS	12
VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3181	BUILDING CONSTRUCTION AND CONTROL 2	12

SERVICES STREAM

VAA3001	ELECTRICAL POWER SYSTEMS 2	12
VAA3071	HVAC SYSTEMS 1	12
VAA3031	ENVIRONMENTALLY SUSTAINABLE DESIGN 1	12
VAA3181	BUILDING CONSTRUCTION AND CONTROL 2	12

Year 3, Semester 2

STRUCTURES STREAM

VAC3062	GEOTECHNICAL ENGINEERING	12
VAC3192	STRUCTURAL ENGINEERING DESIGN 1	12
VAN3052	ENGINEERING MANAGEMENT	12
VAA3042	HYDRAULIC SERVICES SYSTEMS	12

SERVICES STREAM

VAA3032	ENVIRONMENTALLY SUSTAINABLE DESIGN 2	12
VAA3072	HVAC SYSTEMS 2	12
VAN3052	ENGINEERING MANAGEMENT	12
VAA3042	HYDRAULIC SERVICES SYSTEMS	12

Year 4, Semester 1

STRUCTURES STREAM

VCP5705	PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY	12
VPP5716	PROJECT DEVELOPMENT ANALYSIS AND REVIEW	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAN4011	ENGINEERING PROJECT 1	12

SERVICES STREAM

VCP5705	PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY	12
VPP5716	PROJECT DEVELOPMENT ANALYSIS AND REVIEW	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAN4011	ENGINEERING PROJECT 1	12

Year 4, Semester 2

STRUCTURES STREAM

VCP5736	FACILITY LIFE CYCLE COSTING	12
VAA4182	BUILDING SYSTEMS DESIGN & COSTING	12
VAA4042	BUILDING FIRE SAFETY SYSTEMS	12
VAN4012	ENGINEERING PROJECT 2	12

SERVICES STREAM

VCP5736	FACILITY LIFE CYCLE COSTING	12
VAA4182	BUILDING SYSTEMS DESIGN & COSTING	12
VAA4032	ENVIRONMENTALLY SUSTAINABLE DESIGN 3	12
VAN4012	ENGINEERING PROJECT 2	12

INDUSTRIAL EXPERIENCE: Candidates applying for the award of Bachelor of Engineering (Building Engineering) must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.

BACHELOR OF ENGINEERING (CIVIL ENGINEERING) (I)

Course Code: EBDC

Campus: Footscray Park.

About this course: The VU Engineering PBL model is built on the learning principles of Active Learning (problem/project/practice based), Collaborative Learning (self-directed and team-based), and Integrative Learning (interdisciplinary knowledge and skills). Interwoven with these three principles are those of ‘Engagement' and ‘Practice'. In line with the model, the first two years of the course have a strong emphasis on managing the transition of students from a secondary education environment that emphasises passive learning to a higher education environment that is built around problem/project/practice work. For this reason, the course uses shorter problems in first year before moving on to longer community-based projects in year 2, industry-based projects in year 3, and practice on industry projects in year 4. The course has also built in a range of student support mechanisms in learning, language, mathematics and technical skills.

Course Objectives: The objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge; can develop creative and practical solutions to engineering problems; can communicate appropriately and effectively in different modes with different audiences; can work independently and collaboratively; can understand community needs in the context of societal aspirations and expectations; have both the skills and motivation to continue learning as professionals; and are work-ready and thus attractive to prospective employers.

Careers: A wide range of careers involving planning, design, construction and engineering management in private industry or with government authorities.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

COURSE STRUCTURE

The Bachelor of Engineering (Civil Engineering) is a 384 credit point degree.

Year 1, Semester 1		
ENF1101	ENGINEERING MATHEMATICS 1	12
ENF1102	ENGINEERING PHYSICS 1	12
ENF1103	ENGINEERING AND THE COMMUNITY	12
ENF1104	PROBLEM SOLVING FOR ENGINEERS	12
Year 1, Semester 2		
ENF1201	ENGINEERING MATHEMATICS 2	12
ENF1202	ENGINEERING PHYSICS 2	12
ENF1203	ENGINEERING COMPUTING	12
ENF1204	INTRODUCTION TO ENGINEERING DESIGN	12
Year 2, Semester 1		
VAN2041	THERMOFLUIDS	12
VAC2011	ENGINEERING MATERIALS & CONSTRUCTION	12
VAC2121	SOLID MECHANICS	12
VAC2171	ENGINEERING SURVEYING	12
Year 2, Semester 2		
VAC2042	HYDRAULICS	12
VAC2072	HIGHWAY ENGINEERING	12
VAC2092	INTRODUCTION TO STRUCTURAL ENGINEERING DESIGN	12
VAC2032	CIVIL PROJECT	12
Year 3, Semester 1		
VAC3061	GEOMECHANICS	12
VAC3021	STRUCTURAL ANALYSIS	12
VAC3031	CIVIL ENGINEERING DESIGN 1	12
VAC3041	HYDROLOGY AND WATER RESOURCES	12
Year 3, Semester 2		
VAC3062	GEOTECHNICAL ENGINEERING	12
VAC3192	STRUCTURAL ENGINEERING DESIGN 1	12
VAN3052	ENGINEERING MANAGEMENT	12
VAC3042	HYDRAULIC ENGINEERING	12
Year 4, Semester 1		
VAC4081	ENVIRONMENTAL ENGINEERING 1	12
VAC4191	STRUCTURAL ENGINEERING DESIGN 2	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAN4011	ENGINEERING PROJECT 1	12
Year 4, Semester 2		
VAC4082	ENVIRONMENTAL ENGINEERING 2	12
VAC4172	URBAN DEVELOPMENT AND TRANSPORTATION	12
VAC4032	CIVIL ENGINEERING DESIGN 2	12
VAN4012	ENGINEERING PROJECT 2	12

INDUSTRIAL EXPERIENCE: Candidates applying for the award of Bachelor of Engineering (Civil Engineering) must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.

BACHELOR OF ENGINEERING (ELECTRICAL AND ELECTRONIC ENGINEERING) (I)

Course Code: EBDE

Campus: Footscray Park.

About this course: The Bachelor of Engineering in Electrical and Electronic Engineering is a flexible degree that allows students to specialise in four disciplinary areas. Embedded Systems, Microelectronic Systems, Communications Systems and Power Systems Engineering. The course is delivered using a Problem Based Learning (PBL) methodology which uses real world problems as a significant part of the learning process. In Year 2 projects will involve students interacting with a community organisation or school, while in later years the focus will be on working with an industry partner. The projects will be based on the identified needs of the industry or community partners. The projects allow the student to apply their theoretical and technical engineering knowledge and skills in real contexts, develop and reflect on their professional attributes, and learn from the expertise, experience and perspectives of the project partners. The first three years of the course develop the basic concepts in electrical and electronic engineering, computer systems and programming, together with related engineering sciences, mathematics, design projects and laboratory studies. Students have the opportunity to choose their field of specialisation in fourth year of the course. The main objectives of the course are to: provide an integrated foundation for electrical disciplinary studies and course specialisation into the particular areas of Embedded Systems, Microelectronic Systems, Communication Systems and Power Systems Engineering; develop attitudes of personal initiative and enquiry in students that they may continue to further education and meet the technological changes in their profession; develop oral and written communications and an understanding of society and the engineer's role in society; provide for professional recognition by the Engineers Australia and other professional bodies.

Course Objectives: The objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge; can develop creative and practical solutions to engineering problems; can communicate appropriately and effectively in different modes with different audiences; can work independently and collaboratively; can understand community needs in the context of societal aspirations and expectations; have both the skills and motivation to continue learning as professionals; and are work-ready and thus attractive to prospective employers.

Careers: Professional Electrical Engineers are employed in a wide range of industries such as communications, power, microelectronics and embedded systems engineering.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows. Units3 and 4 - a study score of at least 20 in English (any) and in one of mathematical methods (either) or specialist mathematics. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard should apply for admission in the normal manner.

Admission Requirements International: Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: - IELTS - an overall band score of 6+ or equivalent, subject to individual profile.

Admission Requirements Mature Age: Mature age students demonstrating equivalence to the above can apply in the normal manner.

Admission Requirements VET: Students with a suitable VET qualification can apply for admission in the normal manner.

COURSE STRUCTURE

The Bachelor of Engineering (Electrical and Electronic Engineering) is a 384 credit point degree.

Year 1, Semester 1

ENF1101	ENGINEERING MATHEMATICS 1	12
ENF1102	ENGINEERING PHYSICS 1	12
ENF1103	ENGINEERING AND THE COMMUNITY	12
ENF1104	PROBLEM SOLVING FOR ENGINEERS	12

Year 1, Semester 2

ENF1201	ENGINEERING MATHEMATICS 2	12
ENF1202	ENGINEERING PHYSICS 2	12
ENF1203	ENGINEERING COMPUTING	12
ENF1204	INTRODUCTION TO ENGINEERING DESIGN	12

Year 2, Semester 1

ENE2101	FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS	12
ENE2102	DIGITAL & COMPUTER SYSTEMS	12
ENE2100	ENGINEERING DESIGN AND PRACTICE 2A	24

Year 2, Semester 2

ENE2201	LINEAR SYSTEMS WITH MATLAB APPLICATIONS	12
ENE2202	ELECTRONIC SYSTEMS	12
ENE2200	ENGINEERING DESIGN AND PRACTICE 2B	24

Year 3, Semester 1

ENE3101	SYSTEMS ENGINEERING	12
ENE3102	SYSTEMS & APPLICATIONS	12
ENE3100	ENGINEERING DESIGN AND PRACTICE 3A	24

Year 3, Semester 2

ENE3201	ELECTRICAL MACHINES AND CONTROL	12
ENE3202	EMBEDDED AND NETWORKED SYSTEMS	12
ENE3200	ENGINEERING DESIGN AND PRACTICE 3B	24

Year 4, Semester 1

ENE4101	ANALOG AND OPTOELECTRONICS	12
ENE4100	ENGINEERING DESIGN AND PRACTICE 4A	24

1 STREAM SPECIALISATION UNIT FROM THE FOLLOWING

COMMUNICATION SYSTEMS ENGINEERING

ECS4100	ANALOG AND DIGITAL TRANSMISSION	12

EMBEDDED SYSTEMS ENGINEERING

EES4100	OPERATING SYSTEMS AND NETWORK PROGRAMMING	12

MICROELECTRONIC SYSTEMS ENGINEERING

EMS4100	IC DESIGN AND EDA TOOLS	12

POWER SYSTEMS ENGINEERING

EPS4100	ELECTRICAL POWER SYSTEMS, ANALYSIS AND OPERATION	12

Year 4, Semester 2

ENE4200	ENGINEERING DESIGN AND PRACTICE 4B	24

1 STREAM SPECIALISATION UNIT FROM THE FOLLOWING

1 ELECTIVE UNIT

COMMUNICATION AND SYSTEMS ENGINEERING

ECS4200	SIGNAL PROCESSING AND DIGITAL MODULATION	12

EMBEDDED SYSTEMS ENGINEERING

EES4200	REAL TIME ASIC BASED SYSTEMS	12

MICROELECTRONIC SYSTEMS ENGINEERING

EMS4200	ANALOG AND MIXED SIGNAL DESIGN	12

POWER SYSTEMS ENGINEERING

EPS4200	ELECTRIC ENERGY SYSTEMS PROTECTION AND COMMUNICATION	12

ELECTIVE UNITS

ENE4201	MEASUREMENT SYSTEMS ENGINEERING	12
ENE4202	WIRELESS AND BROADBAND COMMUNICATIONS	12
ENE4203	ALTERNATIVE ENERGY SYSTEMS AND POWER ELECTRONICS	12
ENE4204	COMPUTER AND FUZZY LOGIC CONTROL SYSTEMS	12
ENE4205	DIGITAL SYSTEM DESIGN	12
ENE4206	HETEROGENEOUS SYSTEMS	12
VEB4006	DIRECTED STUDIES IN ELECTRICAL ENGINEERING 1	6
VEB4012	DIRECTED STUDIES IN ELECTRICAL ENGINEERING 2	12

Note: Units elected outside the above list require approval of the Course Coordinator.

Elective Units: Students in a Specialisation Stream may choose from the units in another Specialisation Stream or from the electives list or from outside the School of Engineering and Science. Units from outside the School are subject to approval from the course coordinator.

INDUSTRIAL EXPERIENCE: Candidates applying for the award of Bachelor of Engineering (Electrical and Electronic Engineering) must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.

BACHELOR OF ENGINEERING (MECHANICAL ENGINEERING) (I)

Course Code: EBDM

Campus: Footscray Park.

About this course: The VU Engineering PBL model is built on the learning principles of Active Learning (problem/project/practice based), Collaborative Learning (self-directed and team-based), and Integrative Learning (interdisciplinary knowledge and skills). Interwoven with these three principles are those of ‘Engagement' and ‘Practice'. In line with the model, the first two years of the course have a strong emphasis on managing the transition of students from a secondary education environment that emphasises passive learning to a higher education environment that is built around problem/project/practice work. For this reason, the course uses shorter problems in first year before moving on to longer community-based projects in year 2, industry-based projects in year 3, and practice on industry projects in year 4. The course has also built in a range of student support mechanisms in learning, language, mathematics and technical skills.

Course Objectives: The objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge; can develop creative and practical solutions to engineering problems; can communicate appropriately and effectively in different modes with different audiences; can work independently and collaboratively; can understand community needs in the context of societal aspirations and expectations; have both the skills and motivation to continue learning as professionals; and are work-ready and thus attractive to prospective employers.

Careers: Engineering in a wide range of areas such as manufacturing, machine and product design, and heating and air conditioning systems.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

COURSE STRUCTURE

The Bachelor of Engineering (Mechanical Engineering) is a 384 credit point degree.

Year 1, Semester 1		
ENF1101	ENGINEERING MATHEMATICS 1	12
ENF1102	ENGINEERING PHYSICS 1	12
ENF1103	ENGINEERING AND THE COMMUNITY	12
ENF1104	PROBLEM SOLVING FOR ENGINEERS	12
Year 1, Semester 2		
ENF1201	ENGINEERING MATHEMATICS 2	12
ENF1202	ENGINEERING PHYSICS 2	12
ENF1203	ENGINEERING COMPUTING	12
ENF1204	INTRODUCTION TO ENGINEERING DESIGN	12
Year 2, Semester 1		
VAN2041	THERMOFLUIDS	12
VAM2111	INTRODUCTION TO ENGINEERING MATERIALS	12
VAM2121	MECHANICS OF ENGINEERING MATERIALS	12
VAM2131	ENGINEERING ANALYSIS	12
Year 2, Semester 2		
VAM2112	THERMODYNAMICS 1	12
VAM2122	STRESS ANALYSIS	12
VAM2132	MANUFACTURING MATERIALS	12
VAM2142	MECHANICAL ENGINEERING DESIGN	12
Year 3, Semester 1		
VAM3111	DESIGN OF MECHANICAL SYSTEMS	12
VAM3121	THERMODYNAMICS 2	12
VAM3131	FLUID MECHANICS 1	12
VAM3071	DYNAMICS	12
Year 3, Semester 2		
VAM3112	ELECTRICAL ENGINEERING	12
VAM3122	FLUID MECHANICS 2	12
VAN3052	ENGINEERING MANAGEMENT	12
VAM3072	MECHANICAL VIBRATIONS	12
Year 4, Semester 1		
VAM4111	ADVANCED MECHANICS 1	12
VAM4121	FINITE ELEMENT ANALYSIS	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAN4011	ENGINEERING PROJECT 1	12
Year 4, Semester 2		
VAM4112	ADVANCED MECHANICS 2	12
VAM4122	ENGINEERING DESIGN AND OPTIMISATION	12
VAM4132	ADVANCED ENGINEERING ANALYSIS	12
VAN4012	ENGINEERING PROJECT 2	12

INDUSTRIAL EXPERIENCE: Candidates applying for the award of Bachelor of Engineering (Mechanical Engineering) must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements.

BACHELOR OF ENGINEERING SCIENCE (ELECTRICAL AND ELECTRONIC ENGINEERING) (I)

Course Code: EBDT

Campus: Footscray Park.

About this course: The VU Engineering PBL model is built on the learning principles of Active Learning (problem/project/practice based), Collaborative Learning (self-directed and team-based), and Integrative Learning (interdisciplinary knowledge and skills). Interwoven with these three principles are those of Engagement and Practice. In line with the model, the first two years of the course have a strong emphasis on managing the transition of students from a secondary education environment that emphasises passive learning to a higher education environment that is built around problem/project/practice work. For this reason, the course uses shorter problems in first year before moving on to longer community-based projects in year 2, industry-based projects in year 3, and practice on industry projects in year 4. The course has also built in a range of student support mechanisms in learning, language, mathematics and technical skills.

Course Objectives: The objectives of the course are to produce graduates who: have a solid foundation of scientific, engineering and project management knowledge; can develop creative and practical solutions to engineering problems; can communicate appropriately and effectively in different modes with different audiences; can work independently and collaboratively; can understand community needs in the context of societal aspirations and expectations; have both the skills and motivation to continue learning as professionals; and are work-ready and thus attractive to prospective employers.

Careers: Engineering technologists work in careers related to embedded systems, electronic circuit board design, factory automation, computer networking and power electronics in a wide range of industries including communication, transport, energy and entertainment.

Course Duration: 3 years.

Admission Requirements Year 12: VCE Units 3 and 4, with a study score of at least 20 in English (any), and Mathematics (any).

COURSE STRUCTURE

Year 1, Semester 1		
ENF1101	ENGINEERING MATHEMATICS 1	12
ENF1102	ENGINEERING PHYSICS 1	12
ENF1103	ENGINEERING AND THE COMMUNITY	12
ENF1104	PROBLEM SOLVING FOR ENGINEERS	12

Year 1, Semester 2

ENF1201	ENGINEERING MATHEMATICS 2	12
ENF1202	ENGINEERING PHYSICS 2	12
ENF1203	ENGINEERING COMPUTING	12
ENF1204	INTRODUCTION TO ENGINEERING DESIGN	12

Year 2, Semester 1

ENE2102	DIGITAL & COMPUTER SYSTEMS	12
ENE2100	ENGINEERING DESIGN AND PRACTICE 2A	24
ENE2101	FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS	12

Year 2, Semester 2

ENE2202	ELECTRONIC SYSTEMS	12
ENE2200	ENGINEERING DESIGN AND PRACTICE 2B	24
ENE2203	INDUSTRIAL CONTROL AND AUTOMATION	12

Year 3, Semester 1

ENE4101	ANALOG AND OPTOELECTRONICS	12
EES4100	OPERATING SYSTEMS AND NETWORK PROGRAMMING	12
VEB3101	ENGINEERING PROJECT 3A	12

BUSINESS/TECHNICAL ELECTIVE (12 Credit Points)

Business/Technical electives can be chosen from The School of Engineering and Science or from other Faculties within the university with approval from the course coodinator.

Year 3, Semester 2

ENE3202	EMBEDDED AND NETWORKED SYSTEMS	12
ENE3203	POWER ELECTRONICS AND MACHINES	12
VEB3102	ENGINEERING PROJECT 3B	12

BUSINESS/TECHNICAL ELECTIVE (12 credit points)

Business/Technical electives can be chosen from The School of Engineering and Science or from other Faculties within the univeristy with approval from the course coodinator.

BACHELOR OF ENGINEERING/BACHELOR OF BUSINESS

Course Code: EBEB

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The combined course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in a specialisation in business together with an appropriate field of engineering. The double degree course will equip graduates to obtain employment in business, government, and in major engineering organisations.

Course Objectives: The combined course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in a specialisation in business together with an appropriate field of engineering. The double degree course will equip graduates to obtain employment in business, government, and in major engineering organisations.

Course Duration: 5 years.

Admission Requirements Year 12: There will be no new admissions to this course. Other Course Specific Notes Engineering Component 288 credit points taken from an engineering specialisation, with at least 48 credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BEng degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science as advised by the course coordinator.Business Component

Core Business Units of Study

- BAO1101
- BCO1102
- BEO1105
- BEO1106
- BHO1171
- BLO1105
- BMO1102

Professional Development Business Units of Study

- BFP1001
- BFP2001

Specialisation Elective units of study 7 (12 credit point) specialisation units of study taken from Bachelor of Business courses offered by the University and approved by the Course Coordinator.

COURSE STRUCTURE

The course is offered over five years on a full-time basis or part-time equivalent. Each student must obtain 480 credit points through academic study to graduate.

BACHELOR OF ENGINEERING (ELECTRICAL AND ELECTRONIC ENGINEERING)

Course Code: EBEE

Campus: Footscray Park.

This course is for Continuing students only.

About this course: A degree which explores the core areas of the discipline, and the opportunity to specialise in communication engineering, with embedded systems, microelectronic or power systems.

Course Objectives: The main objectives of the course are to: provide an integrated foundation for electrical disciplinary studies and course specialisation into the particular areas of Embedded Systems, Microelectronic Systems, Communication Systems and Power Systems Engineering; develop attitudes of personal initiative and enquiry in students that they may continue to further education and meet the technological changes in their profession; develop oral and written communications and an understanding of society and the engineer's role in society; provide for professional recognition by the Engineers Australia and other professional bodies.

Careers: Professional engineers in a wide range of industries, including communication, transport, energy and entertainment.

Course Duration: 4 years.

Admission Requirements Year 12: VCE units 3 and 4, with a study score of at least 20 in English (any), and in either Mathematical Methods or Specialist Mathematics.

COURSE STRUCTURE

Year 1

Semester 1

VEF1001	ENABLING SCIENCES 1A	12
VEF1003	ELECTRICAL FUNDAMENTALS 1A	12
VEB1100	ENGINEERING DESIGN AND PRACTICE 1A	24

Semester 2

VEF1002	ENABLING SCIENCES 1B	12
VEF1004	ELECTRICAL FUNDAMENTALS 1B	12
VEB1200	ENGINEERING DESIGN AND PRACTICE 1B	24

Year 2

Semester 1

VEF2001	LINEAR SYSTEMS AND MATHEMATICS 2A	12
VEF2003	SYSTEMS AND APPLICATIONS 2C	12
VEB2100	ENGINEERING DESIGN AND PRACTICE 2A	24

Semester 2

VEF2002	SYSTEMS AND MATHEMATICS 2B	12
VEF2004	SYSTEMS & APPLICATIONS 2D	12
VEB2200	ENGINEERING DESIGN AND PRACTICE 2B	24

Year 3

Semester 1

VEG3001	ANALOGUE ELECTRONICS A	6
VEH3003	EMBEDDED COMPUTER SYSTEMS DESIGN	6
VEA3001	INTRODUCTION TO CONTROL SYSTEMS A	6
VEB3100	ENGINEERING DESIGN AND PRACTICE 3A	24

Stream Specialisation Unit 1 (6 Credit Points)

Semester 2

VEP3001	PHOTONICS	6
VES3101	INTRODUCTION TO COMPUTER NETWORKS A	6
VEE3001	INTRODUCTION TO ELECTRICAL MACHINES	6
VEB3200	ENGINEERING DESIGN AND PRACTICE 3B	24

Stream Specialisation Unit 2 (6 Credit Points)

Year 4

Semester 1

VEB4100	ENGINEERING DESIGN 4A	12
VEG4101	PROFESSIONAL PRACTICE 4A	12

Stream Specialisation Unit 3 (6 Credit Points)

Stream Specialisation Unit 4 (6 Credit Points)

Electives 2 x 6 Credit Points

Semester 2

VEB4200	ENGINEERING DESIGN 4B	12
VEG4202	PROFESSIONAL PRACTICE 4B	12

Stream Specialisation Unit 5 (6 Credit Points)

Stream Specialisation Unit 6 (6 Credit Points)

Electives 2 x 6 Credit Points

Streams

Specialisation Stream Units (1-6) - Communication Systems Engineering

VET3100	ANALOG AND DIGITAL COMMUNICATIONS	6
VET3200	DIGITAL MODULATION AND CODING	6
VET4101	FIELD AND WAVES IN TELECOMMUNICATIONS	6
VEG4100	DIGITAL SIGNAL PROCESSING A	6
VET4202	DATA COMMUNICATIONS	6
VET4300	DIGITAL COMMUNICATIONS	6

Specialisation Stream Units (1-6) - Embedded Systems Engineering

VEH3001	DIGITAL SYSTEM DESIGN A	6
VEH3004	REAL TIME AND MULTITASKING COMPUTER SYSTEMS	6
VES3102	INTRODUCTION TO COMPUTER NETWORKS B	6
VES4101	COMPUTER SYSTEMS A	6
VEH4001	COMPUTER SYSTEMS ON AN ASIC	6
VEH3002	DIGITAL SYSTEM DESIGN B	6

Specialisation Stream Units (1-6) - Microelectronic Systems Engineering

VEM3001	CUSTOM IC DESIGN & EDA TOOLS	6
VEM3002	APPLICATION SPECIFIC IC DESIGN	6
VEM4001	ADVANCED CUSTOM IC DESIGN	6
VEM4012	DESIGN FOR TESTABILITY	6
VEM4002	HETEROGENEOUS SYSTEMS	6
VEM4100	ANALOG AND MIXED SIGNAL DESIGN	6

Specialisation Stream Units (1-6) - Power System Engineering

VEE3002	INTRODUCTION TO ELECTRICAL POWER SYSTEMS	6
VEE4500	POWER ELECTRONICS	6
VEE4200	ELECTRIC ENERGY SYSTEMS PROTECTION	6
VEE4100	ELECTRIC ENERGY SYSTEMS ANALYSIS AND OPERATION	6
VEE4700	POWER SYSTEM COMMUNICATION, MONITORING AND INSTRUMENTATION	6
VEE4400	HIGH VOLTAGE ENGINEERING	6

Elective Units

Students in a Specialisation Stream may choose elective units from the units in another Specialisation Stream subject to pre-requisites, from the electives listed below or from outside the School of Electrical Engineering. Units from outside the School are subject to the approval of the Program Coordinator.

VEA3002	INTRODUCTION TO CONTROL SYSTEMS B	6
REP1000	DIRECTED STUDIES IN PHYSICS	12
REP4100	DATA ACQUISITION	12
REP4200	DIRECTED STUDIES IN PHYSICS 2	12
VEA4001	DISCRETE TIME CONTROL SYSTEMS A	6
VEA4200	FUZZY CONTROL AND APPLICATIONS	6
VEA4400	ROBOTICS AND AUTOMATION	6

VEB4006	DIRECTED STUDIES IN ELECTRICAL ENGINEERING 1	6
VEB4012	DIRECTED STUDIES IN ELECTRICAL ENGINEERING 2	12
VET4600	WIRELESS COMMUNICATIONS	6
VEE4800	ALTERNATIVE ENERGY SYSTEMS	6
VES4102	COMPUTER SYSTEMS B	6
VES4301	SOFTWARE ENGINEERING	6
VET4400	DIGITAL SIGNAL PROCESSING IN TELECOMMUNICATIONS 2	6

Note: Units elected outside the above list require approval of the Course Coordinator. Other Course Specific Notes Articulation Students successfully completing an Advanced Diploma in an appropriate subject will normally be granted 96 credit points exemption in the Bachelor of Electrical and Electronic Engineering. Students with other entry qualifications will be considered on an individual basis. Honours Requirements To be eligible for consideration for a degree with honours: (a) students will have achieved a minimum hour weighted average of 60% over year levels 1 to 3; (b) students would not have repeated a subject throughout year levels 1 to 3; (c) students will not have been granted more than one stage completion throughout the duration of the course; and (d) discretion to award honours grading that do not meet criteria above will rest with the Head of School. Eligibility for admission to a degree with honours will be determined at the end of year level 3 for students who are enrolled on a full time basis or, a part time basis or, who have transferred into the course with exemptions. Degrees with honours grading will be calculated using hour weighted averages. The level of awarded honours will be determined by the hour weighted average for year level 4. The following grading will apply:

- H1 First Class honours 80-100
- H2A Second Class Honours Upper 70-79
- H2B Second Class Honours Lower 60-69
- P Pass 50-59

Industrial Experience Candidates applying for the award of Bachelor of Engineering Degree in Electrical and Electronic Engineering must ensure that they have submitted for approval, evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy Engineers Australia requirements. Professional Recognition Engineers Australia has granted full recognition for the Bachelor of Engineering in Electrical and Electronic Engineering. Recognition is a requirement for Graduate Membership of Engineers Australia and additionally for equivalent membership of many overseas engineering institutions. Overseas Exchange Program Victoria University has exchange agreements with Universities in many countries; some of which are the USA, Canada, Mexico, United Kingdom and many European and Asian countries. For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.

BACHELOR OF ENGINEERING (COMPUTER ENGINEERING)

Course Code: EBEH

Campus: Footscray Park.

This course is for Continuing students only.

Course Objectives: This course is to provide a specialised program to adequately prepare graduates for computer engineering positions. The general aims of the course are to provide graduates with basic knowledge and technical skills in the areas of mathematics, electronics, digital systems and computer programming; a selection of commonly used computer languages and packages in the development of software for real time, embedded, and scientific applications; specific knowledge and technical skills pertinent to the development of computer engineering systems; management skills in relation to human and industrial relations, strategic management, role of engineer as manager and financial resource management; develop attitudes of personal initiative and enquiry in students so that they may continue to further educate and meet the technological changes in their profession; develop oral and writting communication skills, an understanding of society and the computer system engineer's role in society; professional awareness, including social and legal responsibilities, ethics, and membership of a professional society.

Careers: This course is currently being phased out and was approved prior to commencement of CAMS. Hence, it is not necessary to complete this field.

Course Duration: 4 years.

Admission Requirements Year 12: Units 3 and 4 with a study score of at least 22 in English (any) and in mathematical methods or specialist mathematics.

COURSE STRUCTURE

The aim of this course is to combine the desirable features of electrical and electronic engineering with computer science. The computer engineer will be technically competent in computer programming, computer communication, networking, embedded system development, advanced computer systems engineering including both software and hardware design.

Year 1 - Semester 1

ACE1541	Engineering Communication or	12
EEH1001	Digital Electronics 1	12
EEL1001	Circuit Theory & Application 1	12
EES1001	Programming 1	12
EPP1001	Physics 1.1	12
SMA1201	Mathematics 1AP	12

Year 1 - Semester 2

ACE1542	Engineering Communication or	12
EEH1001	Digital Electronics 1	12
EEL1002	Circuit Theory & Application 2	12
EES1002	Programming 2	12
EPP1002	Physics 1.2	12
SMA1202	Mathematics 1AQ	12

Year 2 - Semester 1

EEE2011	Electronics 2.1	10
EEH2011	Digital Systems 2.1	10
EEL2001	Linear Systems & Applications 1	10
EES2001	Programming with Objects 2.1	10
EET2011	Communication Systems 2.1	10
SMA2201	Mathematics B	10

Year 2 - Semester 2

EED2012	Design 2.2	10
EEE2012	Electronics 2.2	10
EEH2012	Digital Systems 2.2	10
EEL2002	Linear Systems & Applications 2	10
SMA2321	Mathematics 2Q	10
EEC2302	Software Engineering 2.2	10

Year 3 - Semester 1 Electives*(three for semester 1 and two for semester 2):

EEC3511	Software Engineering 3.1	8
EEC3601	Windows Programming 3.1	8
EED3600	Design 3.0	12
EEH3504	Embedded Systems 3.1	8
EEA4004	Robotics and Automation 4.1	8
EEC3801	Data Based Systems	8
EET2001	Multimedia Program Production 2.1	8
EET2101	Multimedia Techniques 2.1	8

Year 3 - Semester 2

BMO3522	Engineers as Managers	8
EED3600	Design 3.0	12
EEH3202	Computer and Digital Design 3.2	8
EEH3204	Integrated Circuit Design 3.2	8
EET2502	Computer Communication 2.2	8
EEA2002	Circuits and Control 2.2	8
EEC3802	Artificial Intelligence 3.2	8
EEC3804	Computer Graphics 3.2	8

Year 4 - Semester 1 Electives*(two for semester 1 and two for semester 2):

BMO4551	Human and Industrial Relations	8
EED4000	Design 4.0	20
EEH4101	Computer and Digital Design 4.1	8
EEY4103	Computer Systems 4.3	8
EEH3201	Computer and Digital Design 3.1	8
EET3501	Computer Communication 3.1	8
SCM3314	Object Oriented Analysis and Design	8

Year 4 - Semester 2

BMO3422	Strategic Management	8
EED4000	Design 4.0 - 20 credit points	
EEH4102	Computer and Digital Design 4.2	8
EEY4102	Computer Systems 4.2	8
EEC3504	Computers in Society 3.2	8
EEL4401	Neural Network and Fuzzy Logic 4.1	8
EET3502	Computer Communication 3.2	8

*Appropriate semester electives from other degree courses to be approved by the Year Co-ordinator

Year 1 Electives

ACE1541	Engineering Communication OR	12
ACE1542	Engineering Communication	12
EEH1001	Digital Electronics 1	12
EEL1001	Circuit Theory and Application 1	12
EEL1002	Circuit Theory and Application 2	12
EES1001	Programming 1	12
EES1002	Programming 2	12
EPP1001	Physics 1.1	12
EPP1002	Physics 1.2	12
SMA1201	Mathematics 1AP	12
SMA1202	Mathematics 1AQ	12

Year 2 Electives

EED2502	Design A 2.2	10
EES2001	Object Oriented Programming 1	10
EES2302	Software Engineering 2.2	10
EEH2001	Digital Electronics 2.1	10
EEH2002	Digital Electronics 2.2	10
EEC2301	Operating Systems	10
EEN2301	Computer Communication	10
EEC2602	Data Structures and Algorithm Analysis 2.2	10
EEN2302	Computer Networking	10
SCM2711	Discrete Mathematics	10
EEC3801	Data Base Systems	10
SCM3112	User Interface Design	10

Year 3 Electives

ACE3143	English Language and Communication 3	10
ACE3144	English Language and Communication 3	10
EED3510	Design Project - 20 credit points EEC3511 Software Engineering 3.1	10
EES3001	Advanced Program Design 3.1	10
EEC3604	Programming Tools and Compiler	10
SCM3311	Object-Oriented Programming 2	10
EEC3802	Intelligent Systems	10

Three Electives from the list below - 30 credit points

EEH3504	Embedded Systems 3.1
EET2101	Multimedia Techniques 2.1
SCM3115	Architecture for Enterprise Wide Computing
EEC3601	Windows Programming
EEH3202	Computer and Digital Design 3.2
EEC3804	Computer Graphics
EEL2001	Linear Systems and Applications 1 (must be taken together with SMA2201)
SMA2201	Mathematics B

Other electives approved by course director

Year 4 Electives

BMO3422	Strategic Management	10
BMO4551	Human & Industrial Relations	10
EEG5012	Managing Software Projects	10
EED4510	Advanced Design Project 4 * 40	
EEC4511	Software Testing and Quality Assurance*	10

Any 4 subjects from the list of approved electives from Computer Technology/ Computer Eng/Electrical Eng/ComSci 3rd and 4th year subject list. 40 credit points

BACHELOR OF ENGINEERING/BACHELOR OF BUSINESS (E-COMMERCE)

Course Code: EBEO

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The combined course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in a specialisation in business together with an appropriate field of engineering. The double degree course will equip graduates to obtain employment in business, government, and in major engineering organisations.

Course Objectives: The combined course will provide students with a broad ranging program of study and learning aimed at satisfying the academic and professional requirements in a specialisation in business together with an appropriate field of engineering. The double degree course will equip graduates to obtain employment in business, government, and in major engineering organisations.

Careers: Private and public sector organisations, including scientific.

Course Duration: 5 years.

Admission Requirements Year 12: To qualify for admission to the course an applicant must have successfully completed a course of study at year 12 level or equivalent. In addition to satisfying the entry requirements for Australian resident students or demonstrating equivalence, overseas students must provide evidence of proficiency in the English language: International English Language Testing System - overall band score of 6-7 subject to individual profile; or Test of English as a Foreign Language - score of 550, Plus a Test of Written English - score of 5.

COURSE STRUCTURE

The course is offered over five years on a full-time basis or part-time equivalent. Each student must obtain 480 credit points through academic study to graduate. Engineering Component 288 credit points taken from an engineering specialisation, with at least 48 credit points in units of study normally taken in the 3rd year of a BEng degree and at least 48 credit points in units of study normally taken in the 4th year of a BEng.degree. Students will generally take a selection of the units of study from one of the BEng courses offered by the Faculty of Health, Engineering and Science as advised by the course coodinator.

Core Business Units of Study

BAO1101	ACCOUNTING FOR DECISION MAKING	12
BCO1102	INFORMATION SYSTEMS FOR BUSINESS	12
BEO1105	ECONOMIC PRINCIPLES	12
BEO1106	BUSINESS STATISTICS	12
BHO1171	INTRODUCTION TO MARKETING	12
BLO1105	BUSINESS LAW	12
BMO1102	MANAGEMENT AND ORGANISATION BEHAVIOUR	12
BCO1147	INTRODUCTION TO PROGRAMMING CONCEPTS	12
BCO2149	DATABASE SYSTEMS	12
BCO2500	ELECTRONIC COMMERCE TECHNOLOGIES	12
BCO2501	ELECTRONIC COMMERCE BUSINESS INTERFACES	12
BCO2502	DEVELOPING ELECTRONIC COMMERCE SYSTEMS	12
BCO3443	THE INFORMATION PROFESSIONAL	12
BCO3150	SYSTEMS IMPLEMENTATION	12

Professional Development Business Units of Study

BFP1100	PROFESSIONAL DEVELOPMENT 1 - CRITICAL THINKING AND PROBLEM SOLVING	12
BFP2001	PROFESSIONAL DEVELOPMENT 2	12

BACHELOR OF ENGINEERING SCIENCE (ELECTRICAL AND ELECTRONIC ENGINEERING)

Course Code: EBES

Campus: Footscray Park.

This course is for Continuing students only.

About this course: Candidates who elect to take the Masters qualification will develop a detailed understanding of current trends and approaches to practical problem solving in their professional area. Successful completion of the course will equip them with the ability to engage in directed research projects in their industry and to continue to develop appropriate skills in this area. Candidates who proceed to the Doctoral level will develop the ability to apply the work covered at the Masters level to the practical solution of specific problems of industrial significance. Successful completion of the course will give them the skills and experience to act as independent researchers or group leaders for investigations or practical importance in their professional area over the period of their professional life.

Course Objectives: The Bachelor of Engineering Science in Electrical and Electronic Engineering is a degree that provide students with a broad grounding in Embedded Systems, Computer Networking, Power Electronics and Analog Electronics. Much of the course is delivered using a Problem Based Learning (PBL) methodology which uses real world problems to aid the learning process.

Careers: Engineering technologists in a wide range of industries, including communication, transport, energy and entertainment.

Course Duration: 3 years.

Admission Requirements Year 12: VCE Units 3 and 4, with a study score of at least 20 in English (any), and Mathematics (any).

COURSE STRUCTURE

First year units in electrical, electronic, computing, mathematics and physics studies are designed to provide a firm foundation for a wide range of higher level units in later years of the course. In years two and three, the students will be introduced to the tools, techniques and theories of Embedding Systems, Networking, Automation, Analog and Power Electronics. The course has a focus on practical applications and design and project work forms a significant component of the total program. Students will apply the theories and techniques learned in the course to both team projects as well as an individual project in year 3 of the course. Students completing their studies at an appropriate standard may be granted up to two years of credit into the Bachelor of Engineering degree. In addition, those students completing Year 1 of the program will be able to transfer to Year 2 of the Bachelor of Engineering (Electrical and Electronic Engineering) course.

Year 1

Semester 1

VEF1001	ENABLING SCIENCES 1A	12
VEB1100	ENGINEERING DESIGN AND PRACTICE 1A	24
VEF1003	ELECTRICAL FUNDAMENTALS 1A	12

Semester 2

VEF1002	ENABLING SCIENCES 1B	12
VEB1200	ENGINEERING DESIGN AND PRACTICE 1B	24

VEF1004	ELECTRICAL FUNDAMENTALS 1B	12

Year 2

Semester 1

VEB2100	ENGINEERING DESIGN AND PRACTICE 2A	24
VEF2003	SYSTEMS AND APPLICATIONS 2C	12
VES2102	OPERATING SYSTEMS AND TOOLS	6
VEA2101	INTRODUCTION TO COMPUTER CONTROL AND AUTOMATION	6

Semester 2

VEB2200	ENGINEERING DESIGN AND PRACTICE 2B	24
VEF2004	SYSTEMS & APPLICATIONS 2D	12
VES3101	INTRODUCTION TO COMPUTER NETWORKS A	6
VEA2102	INDUSTRIAL CONTROL SYSTEMS AND ELECTRONICS MANUFACTURING AUTOMATION	6

Year 3

Semester 1

VEB3101	ENGINEERING PROJECT 3A	12
VEG3001	ANALOGUE ELECTRONICS A	6
VEH3001	DIGITAL SYSTEM DESIGN A	6
VEH3003	EMBEDDED COMPUTER SYSTEMS DESIGN	6
VES3102	INTRODUCTION TO COMPUTER NETWORKS B	6

Elective units - total of 12 credit points.

Semester 2

VEB3102	ENGINEERING PROJECT 3B	12
VEG3002	ANALOGUE ELECTRONICS B	6
VEE3001	INTRODUCTION TO ELECTRICAL MACHINES	6
VEE4500	POWER ELECTRONICS	6
VES3104	NETWORK SOFTWARE AND INTERNET PROGRAMMING	6

Elective Units - total of 12 Credit Points.

Note: Business electives must be approved by the Course Coordinator.

Other Course Specific NotesAssessment within a unit has two main purposes. The first is to provide feedback to students on their learning as an integral component of learning and teaching (formative assessment). The second is to assess whether, and to what extent, students have achieved the learning outcomes specified for that unit. Assessment may take a number of forms including reports, laboratory work, oral presentations, and both open and closed book examinations.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations is included on final examination papers. Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

ArticulationStudents successfully completing Year 1 of the Bachelor of Engineering Science in Electrical and Electronic Engineering may transfer to the Bachelor of Engineering in Electrical and Electronic Engineering.

Students successfully completing an Advanced Diploma in an appropriate area will normally be granted 96 credit points exemption in the Bachelor of Engineering Science or Electrical and Electronic Engineering. Students with other entry qualifications will be considered on an individual basis.

Professional Recognition

An application has been made to Engineers Australia for recognition at Engineering Technologist level of the Bachelor of Engineering Science in Electrical and Electronic Engineering.

Overseas Exchange ProgramVictoria University has exchange agreements with Universities in many countries; some of which are the USA, Canada, Mexico, United Kingdom and many European and Asian countries.

For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.

BACHELOR OF ENGINEERING (MECHANICAL ENGINEERING)

Course Code: EBME

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The degree is designed to provide the broad education required for a mechanical engineering career. In addition to theoretical and practical engineering content, the course contains integrated studies in economics, administration and communication. The degree emphasises achievement across mechanical engineering disciplines in concert with problem solving, design, engineering applications, innovation, resource management and professional responsibility. Government institutions and private enterprise employ mechanical engineers in manufacturing, design of products and machines, automatic control of machines and processes, heating and air conditioning systems, machine and condition monitoring, hydraulic and pneumatic systems, computer applications - including finite element analysis, computer-aided design and Computational Fluid Dynamics and research and development in a wide range of fields.

Course Objectives: The course is designed to provide an educational standard and vocational skills which will enable graduates to undertake professional practice in the discipline of Mechanical Engineering. Graduates are provided with a basis to progress through postgraduate studies, continuing education courses and participate in learned society endeavours.

Course Duration: 4 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows. Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard to those listed above, should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

COURSE STRUCTURE

The course is offered over four years on a full-time basis. The entire course cannot be completed on a part-time basis. Students must complete 384 credit points.

Engineering subject codes commence with 'V'.

Science subject codes commence with 'R'.

Year 1

Semester One

RMA1001	ENGINEERING MATHEMATICS 1A	12
REP1001	ENGINEERING PHYSICS 1A	12
VAN1051	ENGINEERING PROFESSION	12

VAN1011	EXPERIMENTATION AND COMPUTING	12

Semester Two

RMA1002	ENGINEERING MATHEMATICS 1B	12
REP1003	ENGINEERING PHYSICS 1C	12
VAN1032	INTRODUCTION TO DESIGN	12
VAN1022	SOLID MECHANICS 1	12

Year 2

Semester One

VAM2011	COMPUTATIONS AND ENGINEERING ANALYSIS	12
VAN2021	SOLID MECHANICS 2	12
VAN2061	ENGINEERING MATERIALS	12
VAN2041	THERMOFLUIDS	12

Semester Two

VEM2012	ELECTRICAL ENGINEERING	12
VAM2062	MATERIALS AND MANUFACTURE	12
VAN2032	ENGINEERING DESIGN	12
VAM2042	THERMODYNAMICS AND FLUID MECHANICS 1	12

Year 3

Semester One

VAM3021	STRESS ANALYSIS 1	12
VAM3071	DYNAMICS	12
VAM3031	MECHANICAL ENGINEERING DESIGN 1	12
VAM3041	THERMODYNAMICS AND FLUID MECHANICS 2	12

Semester Two

VAM3012	SIGNAL ANALYSIS	12
VAM3022	STRESS ANALYSIS 2	12
VAM3072	MECHANICAL VIBRATIONS	12
VAN3052	ENGINEERING MANAGEMENT	12

Year 4

Semester One

VAM4021	COMPUTATIONAL MECHANICS	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12
VAN4011	ENGINEERING PROJECT 1	12
VAM4041	HEAT TRANSFER AND COMBUSTION	12

Year 4

Semester Two

VAM4032	MECHANICAL ENGINEERING DESIGN 2	12
VAN4012	ENGINEERING PROJECT 2	12
VAM4042	FLUID DYNAMICS	12

One Approved Elective

Elective Stream

VAM4062	MANUFACTURING AND POLYMER TECHNOLOGIES	12
VAM4092	TRANSPORTATION AND PACKAGING DYNAMICS	12
VAM4072	ADVANCED MECHANICS	12
VAM4082	AUTOMOTIVE ENGINES, ENERGY AND ENVIRONMENT	12

Other Course Specific Notes

Assessment in subjects is designed to monitor a student's progress and achievements as well as contribute to and enhance their learning. Normally a prescribed range of assessment methods is employed in any subject.

Assessment is by a combination of written assignments, tests, laboratory work and examinations.

Supplementary assessment is not normally available in any subject except at the discretion of the Head of School in exceptional circumstances.

Special Consideration in assessment may be granted on the grounds defined by the University Statutes.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

Degree with Honours

A Degree with Honours Program is offered concurrently with the fourth year of the ordinary Bachelor of Engineering program. Normally, students entering the final year of a full-time Bachelor of Engineering program (or its equivalent in part-time mode), will be offered honours candidacy, if they have achieved a minimum hour weighted average of 60 per cent over year levels 1 to 3, have not repeated a subject through levels 1 to 3 and have not been granted more than one stage completion throughout the duration of the course. Fourth year honours degree gradings will be determined by the relevant Examiners Board on the basis of the hour weighted average for year level 4.

Industrial Experience

Candidates applying for the award of a degree in mechanical engineering must ensure that they have submitted for approval evidence of having undertaken a minimum of 12 weeks industrial experience relevant to the course to satisfy the Institution of Engineers, Australia, requirements.

Overseas Exchange Program

Victoria University has exchange agreements with universities in many countries, some of which are the U.S.A., Canada, Mexico, United Kingdom and many European and Asian countries.

For those students who do wish to study abroad, there is the opportunity to experience living in a different culture and environment, and to develop self-responsibility and reliance skills. Many students achieve improved results in their remaining studies after returning home, having developed a clearer perception of their future career with a stronger determination to succeed.

Professional Recognition

Engineers Australia recognises the degree as meeting all academic requirements for corporate membership as a chartered engineer. Completion of the degree Plus 12 weeks approved experience will admit to Graduate Membership. Victoria University students are eligible for Student Membership.

BACHELOR OF TECHNOLOGY (BUILDING SURVEYING)

Course Code: EBSB

Campus: Werribee, Footscray Park, Newport.

About this course: Building surveyors have expert knowledge of occupant safety, urban amenity, environmental sustainability and other considerations in the design and construction of buildings. They are responsible for statutory functions such as building permits, mandatory building inspections and issuing occupancy permits, and work with project architects, engineers and managers. This course provides a tertiary degree in Building Surveying with exit points at Diploma of Building Surveying qualification level and Advanced Diploma of Building Surveying qualification level. The first three years of the course (at Newport and Footscray Park campus) focus on building technology and statutory control of building. This involves completion of twenty-four units of competency learning over two years leading to the Diploma of Building Surveying, followed by completion of an additional nineteen units of competency learning leading to the Advanced Diploma of Building Surveying. Concurrent studies provide students with basic professional literacy and numeracy. Subjects prescribed for this purpose are ENF1103 Engineering and the Community, JCM0112 Mathematics 1, JCM0113 Mathematics 2 and ENF1101 Engineering Mathematics

1. In the final (fourth) year of the course (spread over Footscray Park and Werribee campuses) the focus is on professional practice primarily in the areas of building design, building approval and building construction. Graduates of this course will have completed studies equivalent to the Graduate Certificate in Performance-Based Building and Fire Codes (**Course Code:** ETQB) at Werribee campus.

Course Objectives: Course objectives are to produce graduates who have acquired: The fundamentals in underlying areas of mathematics, physics, graphic communication, written communication, and health and safety; A strong technological base for professional practice in the area of Building Surveying; A sound knowledge of the policies and practices of Australian building regulatory systems; An understanding and appreciation of building design and approval, and building construction and inspection; A broad range of vocational skills that can be used to manage and operate a building surveying business, within either the private sector or public sector, in order to meet the needs of developers, practitioners, authorities, and other significant stakeholders; The specific skills that prepare students for employment in the fields of design consultancy, certification, approvals and permits, construction management, services installations inspection and maintenance, and facility management; An ability to work ethically and professionally either independently or in a team in the provision of building surveying services to clients and employers; An ability to adapt to the changing needs of industry, commerce and community.

Careers: Registered Building Surveyor The course provides the prescribed academic qualification for registration as a Building Surveyor, a Degree in Building Surveying from a University within the meaning of the Tertiary Education Act 1993.

Upon completion of 3 years of practical experience to the satisfaction of the Building Practitioners Board of Victoria, Building Surveying Degree graduates are eligible to apply for registration as a Building Surveyor. Registered Building Inspector (Limited) Students who satisfactorily complete the twenty-four units of competency learning leading to the Diploma of Building Surveying accredited under the Victorian Qualifications Authority Act 2000 are eligible to apply for award of the Diploma. Upon completion of 2 years of practical experience to the satisfaction of the Board, Building Surveying Diploma graduates are eligible to apply for registration as a Building Inspector (Limited). Registered Building Inspector (Unlimited) Students who satisfactorily complete the nineteen units of competency learning leading to the Advanced Diploma of Building Surveying accredited under the Victorian Qualifications Authority Act 2000 are eligible to apply for award of the Advanced Diploma. Upon completion of 2 years of practical experience to the satisfaction of the Board, Building Surveying Advanced Diploma graduates are eligible to apply for registration as a Building Inspector (Unlimited).

Course Duration: 4 years.

Admission Requirements Year 12: Admission at other levels may be approved, e.g., in the case of an applicant having commenced or completed studies leading to a Diploma or Advanced Diploma at an Institute of TAFE or in the case of a mature-age applicant.

COURSE STRUCTURE

Four years full-time. Part-time enrolment may also be approved.

Year 1 and Year 2

Diploma of Building Surveying

BCGSV5001A	ASSESS THE CONSTRUCTION OF DOMESTIC SCALE BUILDINGS	100
BCGSV5002A	EVALUATE MATERIALS FOR CONSTRUCTION OF DOMESTIC SCALE BUILDINGS	72
BCGSV5003A	PRODUCE WORKING DRAWINGS FOR RESIDENTIAL BUILDINGS	90
BCGSV5004A	APPLY LEGISLATION TO URBAN DEVELOPMENT AND BUILDING CONTROLS	36
BCGSV5005A	APPLY FOOTING AND GEOMECHANICAL DESIGN PRINCIPLES FOR DOMESTIC SCALE BUILDINGS	36
BCGSV5006A	ASSESS CONSTRUCTION FAULTS IN RESIDENTIAL BUILDINGS	36
BCGSV5007A	UNDERTAKE SITE SURVEYS AND SET OUT PROCEDURES TO BUILDING PROJECTS	72
BCGSV5008A	APPLY BUILDING CONTROL LEGISLATION TO BUILDING SURVEYING	36
BCGSV5009A	ASSESS THE IMPACT OF FIRE ON BUILDING MATERIALS	36
BCGSV5010A	INTERACT WITH CLIENTS IN A REGULATED ENVIRONMENT	36
BCGSV5011A	APPLY BUILDING CODES AND STANDARDS TO RESIDENTIAL BUILDINGS	36
BCGSV5012A	ASSESS TIMBER FRAMED DESIGNS FOR ONE AND TWO STOREY BUILDINGS	36
BCGSV5013A	APPLY PRINCIPLES OF ENERGY EFFICIENT DESIGN TO BUILDINGS	36
BCGSV5014A	APPLY BUILDING SURVEYING PROCEDURES TO RESIDENTIAL BUILDINGS	36
BCGSV5015A	ASSESS STRUCTURAL REQUIREMENTS FOR DOMESTIC SCALE BUILDINGS	72
BSBADM506A	MANAGE BUSINESS DOCUMENT DESIGN AND DEVELOPMENT	80
BSBCMN406A	MAINTAIN BUSINESS TECHNOLOGY	40
CHCCOM3A	UTILISE SPECIALIST COMMUNICATION SKILLS	50
CHCCOM4A	DEVELOP, IMPLEMENT & PROMOTE EFFECTIVE COMMUNICATION TECHNIQUES	75
ICAITU128A	OPERATE A PERSONAL COMPUTER	30
ICAITU129A	OPERATE A WORD PROCESSING APPLICATION	30
ICAITU130A	OPERATE A SPREADSHEET APPLICATION	30
ICAITU131A	OPERATE A DATABASE APPLICATION	30
ICAITU133A	SEND AND RETRIEVE INFORMATION OVER THE INTERNET USING BROWSERS AND EMAIL	25

Subtotal for Diploma: Total Hours 1136

Plus Higher Education/Foundation Studies

ENF1103	ENGINEERING AND THE COMMUNITY	12
JCM0112	MATHEMATICS 1	12
JCM0113	MATHEMATICS 2	12

Total for Years 1 and 2: Total Credit Points 36 Total Hours 1268

Year 3

Advanced Diploma of Building Surveying

BCGSV6001A	ASSESS THE CONSTRUCTION OF BUILDINGS UP TO 3 STOREYS	72

BCGSV6002A	PRODUCE WORKING DRAWINGS FOR BUILDINGS UP TO 3 STOREYS	40
BCGSV6003A	ASSESS CONSTRUCTION FAULTS IN BUILDINGS UP TO 3 STOREYS	40
BCGSV6004A	APPLY FOOTINGS AND GEOMECHANICAL DESIGN PRINCIPLES TO BUILDINGS UP TO 3 STOREYS	40
BCGSV6005A	EVALUATE SERVICES LAYOUT AND CONNECTION METHODS FOR RESIDENTIAL AND COMMERCIAL BUILDINGS UP TO 3 STOREYS	40
BCGSV6006A	EVALUATE THE USE OF CONCRETE FOR RESIDENTIAL AND COMMERCIAL BUILDINGS UP TO 3 STOREYS	40
BCGSV6007A	ASSESS STRUCTURAL REQUIREMENTS FOR BUILDINGS UP TO 3 STOREYS	40
BCGSV6008A	APPLY BUILDING CODES AND STANDARDS TO BUILDINGS UP TO 3 STOREYS	72
BCGSV6009A	IMPLEMENT PERFORMANCE BASED CODES AND RISK MANAGEMENT PRINCIPLES FOR BUILDINGS UP TO 3 STOREYS	72
BCGSV6010A	APPLY FIRE TECHNOLOGY TO BUILDINGS UP TO 3 STOREYS	40
BCGSV6011A	APPLY LEGAL PROCEDURES TO BUILDING SURVEYING	40
BCGSV6012A	FACILITATE COMMUNITY DEVELOPMENT CONSULTATION	40
BCGSV6013A	CO-ORDINATE ASSET REFURBISHMENT	72
BCGSV6014A	MANAGE AND PLAN LAND USE	40
BCGSV6015A	ANALYSE AND PRESENT BUILDING SURVEYING RESEARCH INFORMATION	90
BCGSV6016A	APPLY BUILDING SURVEYING PROCEDURES TO BUILDINGS UP TO 3 STOREYS	90
BSX154L606	MANAGE HUMAN RESOURCES	40
LGAPLEM502A	APPLY ECOLOGICALLY SUSTAINABLE DEVELOPMENT PRINCIPLES TO THE BUILT ENVIRONMENT	60
LMFFT4010A	IDENTIFY AND CALCULATE PRODUCTION COSTS	36

Subtotal for Advanced Diploma: Total Hours 1004

Plus Higher Education

ENF1101	ENGINEERING MATHEMATICS 1	12

Total for Year 3: Total Credit Points 12 Total Hours 1064

Year 4

Includes units as prescribed for Graduate Certificate in Performance-Based Building and Fire Codes

Semester 1

VQB5611	RISK ASSESSMENT AND HUMAN BEHAVIOUR	12
VQB5621	FIRE GROWTH, DETECTION AND EXTINGUISHMENT	12
VAN4011	ENGINEERING PROJECT 1	12
VAN4051	ENGINEERING PROJECT MANAGEMENT	12

Subtotal for Semester One: Total Credit Points 48

Semester Two

VQB5632	SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN	12
VQB5642	PERFORMANCE CODES METHODOLOGY AND STRUCTURE	12
VAN4012	ENGINEERING PROJECT 2	12
VAN3052	ENGINEERING MANAGEMENT	12

Subtotal for Semester Two: Total Credit Points 48

Other Course Specific Notes For the competency learning components of the course, assessment is conducted in accordance with the Assessment Guidelines for the Building and Construction Industry. For the other units that make up the degree, the various assessment stipulations specific to individual units are as set out in Unit Details in the Faculty of Health, Engineering and Science Handbook. Professional Recognition The Degree is recognized by the Building Practitioners Board of Victoria in the event of graduates applying for registration as a Building Surveyor. The Board also recognizes the Diploma and Advanced Diploma courses which are accredited under the Victorian Qualifications Authority Act 2000 for the purposes of registration as a Building Inspector (Limited) or Building Inspector (Unlimited) respectively.

BACHELOR OF ENGINEERING SCIENCE (SPORTS ENGINEERING) (I)

Course Code: EBSG

Campus: Footscray Park.

About this course: The course covers practical and supporting engineering skills necessary for a career in a variety of key industries and organisations connected with engineering sports related technologies. These industries include equipment and sports gear manufacturers, professional sports associations and clubs, sports institutes, sport infrastructure designers and elite sports research. Graduates can work as design engineers, test engineers and software engineers. The initial part of the course is structured to provide a solid foundation in mathematics, physics, engineering sciences and human physiology. The intermediate semesters include studies in specific topics of engineering materials, electrical engineering; mechanical engineering, biomechanics and ergonomics design. Students complete the course with studies in mechatronics and dynamics, management and professional practice, computer applications as well as a major project which will normally involve working with an industry partner. Work experience opportunities are available for selected students.

Course Objectives: To graduate highly skilled engineering technologists capable of crossing and blending traditional discipline boundaries and who will be able to provide knowledge-based practical engineering services to the sports, sports science, and exercise and rehabilitation industries. To produce graduates who are universally recognised as leading practitioners in their field and who, as Sports Engineers, are capable of making a contribution to society and the community. To raise the University s profile in the community and industry by becoming the leading provider of Sports Engineering education and research in Australia.

Careers: The program will produce graduates with an appropriate breadth and depth of capability that will enable them to actively contribute to or lead multidisciplinary teams with interests in sports-related application or research. Graduates will be highly skilled engineering technologists capable of crossing and blending traditional engineering and human movement science discipline boundaries and who will be able to provide knowledge-based practical engineering services to the sports, sports science, and exercise and rehabilitation industries. Graduates find employment with: sports equipment developers, designers and manufacturers, sport facilities design and management, elite sports associations, elite sports clubs, Research and development organisations.

Course Duration: 3 years.

Admission Requirements Year 12: Prerequisites: Units 3 and 4-a study score of at least 24 in English (any) and in one of further mathematics, mathematical methods (either) or specialist mathematics. Selection mode: CY12: ENTER and two-stage process with a middle-band of approximately 20%. NONY12: Academic record (see institutional page). Middle-band: Completing physics and/or specialist mathematics = an aggregate 3 points higher per study.

Admission Requirements International: Achieved an IELTS (Academic Module) result with an overall score of 6 (no band less than 6) Completed a secondary school qualification equivalent to Australia's year 12 or VCE qualification Provide evidence of prior study of mathematics.

COURSE STRUCTURE

Major field of studies: Physiology, Biomechanics, Dynamics, Fluid mechanics and thermodynamics, Digital and analogue electronics, Mechatronics, sensors and data acquisition, Materials, Engineering design, Computing, Management and professional practice.

Year 1, Semester 1

VES1001	INTRODUCTION TO SPORTS ENGINEERING	12
ENF1101	ENGINEERING MATHEMATICS 1	12
ENF1102	ENGINEERING PHYSICS 1	12
RBM1174	HUMAN PHYSIOLOGY	12

Year 1, Semester 2

ENF1202	ENGINEERING PHYSICS 2	12
ENF1203	ENGINEERING COMPUTING	12
ENF1204	INTRODUCTION TO ENGINEERING DESIGN	12
AHE2104	EXERCISE PHYSIOLOGY	12

Year 2, Semester 1

VAM2121	MECHANICS OF ENGINEERING MATERIALS	12
VAN2041	THERMOFLUIDS	12
ENE2101	FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS	12
ENE2102	DIGITAL & COMPUTER SYSTEMS	12

Year 2, Semester 2

ENF1201	ENGINEERING MATHEMATICS 2	12
ENE2202	ELECTRONIC SYSTEMS	12
AHE1202	BIOMECHANICS	12
VES2201	DESIGN & ERGONOMICS	12

Year 3, Semester 1

VES3111	MECHATRONICS & SENSORS 1	12
VES3141	SPORTS DYNAMICS	12
VES3131	COMPUTER AIDED ENGINEERING DESIGN	12
VES3121	SPORTS MATERIALS	12

Year 3, Semester 2

VES3202	MECHATRONICS & SENSORS 2	12
AHE2102	SPORTS BIOMECHANICS	12
VES3232	SPORTS ENGINEERING MANAGEMENT	12
VES3212	SPORTS ENGINEERING PROJECT	12

GRADUATE DIPLOMA IN PROJECT MANAGEMENT (I)

Course Code: EGPR

Campus: Footscray Park, City Flinders.

Course Objectives: To provide students with a conceptual understanding of relevant models, modes of analysis and techniques for understanding and procurement. They will also have developed the ability to apply and carrying out project management, contract management and evaluate these models, modes of analysis and technique in the context of the legal, ethical and accountability requirements which apply. In addition to the technical skills provided in the course, graduates will have developed strong relevant professional skills as well as strong personal, interpersonal and organisational attributes. By utilising a consultative committee of current project management professionals, the course has been designed to meet the needs of project managers in industry, equip professionals already in industry with advanced principles and techniques to enable them to assume the role of project manager and/or become an effective member of project management teams and adopt a unique approach to manage people, resources, time line and risks to achieve a successful project outcome.

Careers: This course is designed to equip professionals with advanced project management principles and techniques, enabling graduates to assume the role of project manager and/or become effective members of project management teams.

Course Duration: 1 year.

Admission Requirements Year 12: A degree or a diploma in any discipline and a minimum of 2 years post-qualification experience. The requirement of qualification may be waived in exceptional circumstance on the basis of experience.

COURSE STRUCTURE

1 year (full time) or Maximum three years (part time)

Course structure consists of four project management core units Plus four faculty based elective units.

Year 1, Semester 1

Project Management Core Units

VPP5600	PRINCIPLES OF PROJECT MANAGEMENT	12
VPP5640	PROJECT GOVERNANCE	12

Faculty of Business and Law stream

BMO6624	ORGANISATION CHANGE MANAGEMENT	12
BMO5602	BUSINESS PROJECT MANAGEMENT	12

Faculty of Arts, Education and Human Development stream

BAO5505	ACCOUNTING FOR EVENTS	12
VCP5705	PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY	12

Faculty of Health, Engineering and Science stream

VPP5621	PROJECT RISK MANAGEMENT	12
VCP5726	PROJECT PROCUREMENT MANAGEMENT	12

Year 1, Semester 2

Project Management Core Units

AHB5205	PROJECT MANAGEMENT AND PEOPLE	12
VPP5610	PROJECT PLANNING AND CONTROL	12

Faculty of Business and Law Stream

BHO6505	MARKETING MANAGEMENT	12
BMO6622	MANAGING INNOVATION AND ENTREPRENEURSHIP	12

Faculty of Arts, EDucation and Human Development Stream

AHB5202	SPORT EVENT MANAGEMENT	12
VCP5736	FACILITY LIFE CYCLE COSTING	12

Faculty of Health, Engineering and Science Stream

VPP5620	PROJECT STAKEHOLDERS MANAGEMENT	12
VPP5716	PROJECT DEVELOPMENT ANALYSIS AND REVIEW	12

Students who successfully complete eight required units are eligible to graduate with a Graduate Diploma in Project Management. Students who are enrolled in the Master of Project Management course are not eligible to apply but may exit with a Graduate Diploma in Project Management.

MASTER OF ENGINEERING (ELECTRICAL & ELECTRONIC ENGINEERING)

Course Code: EMEE

Campus: Footscray Park.

This course is for Continuing students only.

About this course: This course enables engineering graduates and practising electrical and electronic engineers to gain higher levels of knowledge and skills. Through a chosen specialisation graduates will broaden their technological base; gain an in-depth understanding of the relevant theoretical principles involved; develop skills necessary to carry out independent research and development; and acquire expertise and keep up-to-date with the latest developments.

Course Objectives: The objectives of the course are to provide opportunities for practising electrical and electronic engineers to: broaden their technological base from their first degree to a chosen area of specialisation; obtain an in-depth understanding of the relevant theoretical principles involved in the chosen area of specialisation; develop skills necessary to carry out independent research and development work related to the chosen areas of specialisation; acquire expertise and keep abreast with the latest developments in the chosen area of specialisation.

Careers: The graduate should be able to work in specialised areas of the electronic engineering industry and appropriate research institutions.

Course Duration: 2 years.

Admission Requirements Year 12: Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent.Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by; (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or, (b) Test of English as a Foreign Language - a score of 550+, and a Test of Written English score of 5+.

COURSE STRUCTURE

The duration of the course, in normal mode of delivery, is two years for full-time students and a part-time equivalent for part-time students.

The course is unit based and offers a range of 12 and 24 credit point units comprising of core and elective units in a chosen area of specialisation. The course requires successful completion of 192 credit points comprising of all the core units of study and the appropriate electives in a chosen area of specialisation (total of 96 credit points), Plus 48 credit points of research projects: a 12 credit point research methods unit and a 36 credit point project management program.

Automation Engineering Specialisation

Core Units of Study

VEA6311	MODELLING AND COMPUTER CONTROL	12
VEA6312	MODEL BASED PROCESS CONTROL	12
VEA6321	FUZZY AND NEURAL CONTROL	12
VEA6322	PROCESS INSTRUMENTATION AND CONTROL	12

Elective Units of Study

VEA6331	ROBOTICS AND PROGRAMMED CONTROL	12
VEA6332	ELECTRONIC CONTROL OF MOTORS	12
VEA6341	MEASUREMENT TECHNOLOGY	12
VEA6342	POWER DISTRIBUTION SYSTEMS	12
VEA6351	POWER SYSTEMS OPERATION AND CONTROL	12
VEA6352	DIGITAL SIMULATION OF PROTECTION SYSTEMS	12

Computer Engineering Specialisation

Core Units of Study

VEC6111	COMPUTER TECHNOLOGY	12
VEC6112	ADVANCED MICROPROCESSORS	12
VEC6121	OBJECT ORIENTED SOFTWARE	12
VEC6122	OPERATING SYSTEMS AND MULTIPROCESSING	12

Elective Units of Study

VEC6131	COMPUTER INTERCONNECTION HARDWARE	12
VEC6132	DIGITAL SYSTEM MODELLING AND SIMULATION	12
VEC6141	SOFTWARE ENGINEERING	12
VEC6142	MANAGING SOFTWARE PROJECTS	12
VEC6151	DATABASE AND QUERY SYSTEMS	12
VEH6152	MICROPROCESSOR DESIGN TECHNIQUES	12
VEC6152	APPLIED KNOWLEDGE SYSTEMS	12

Microelectronic Engineering Specialisation

Core Units of Study

VEH6001	HDL AND HIGH LEVEL SYNTHESIS	12
VEH6002	IC DESIGN	12
VEH6003	EDA TOOLS AND DESIGN METHODOLOGY	12
VEH6004	DIGITAL SYSTEM DESIGN	12

Elective Units of Study

VEH6007	ADVANCED VLSI DESIGN	12
VEH6008	VLSI DIGITAL SIGNAL PROCESSING SYSTEMS	12
VEH6009	RELIABILITY AND TESTABILITY IN IC DESIGN	12
VEH6014	RF AND MIXED SIGNAL DESIGN	12
VEH6016	VERILOG HDL	12
VEH6017	DIGITAL SYSTEM DESIGN WITH VERILOG HDL	12
VEH6018	ANALOG & MIXED SIGNAL DESIGN	12

Photonic Engineering Specialisation

Core Units of Study

VPP6511	FIBRE OPTIC COMMUNICATION SYSTEMS	12
VPP6512	ADVANCED FIBRE OPTICS	12
VPP6521	OPTICS AND LASERS	12
VPP6522	DIGITAL COMMUNICATIONS OVER OPTICAL NETWORKS	12

Elective Units of Study

VPP6531	QUANTUM OPTICS	12
VPP6532	OPTICAL FIBRE SENSORS	12
VPP6541	OPTICAL MATERIALS	12
VPP6542	DATA ACQUISITION	12

Telecommunication Engineering Specialisation

Core Units of Study

VET6501	COMMUNICATION SYSTEM MODELING AND SIMULATION 1	12
VET6502	COMMUNICATION SYSTEM MODELING AND SIMULATION 2	12
VET6510	COMMUNICATION THEORY	12
VET6520	DIGITAL COMMUNICATION PRINCIPLES	12
VET6511	DATA NETWORK ANALYSIS AND DESIGN	12
VET6542	MOBILE AND PERSONAL COMMUNICATION SYSTEMS	12

Elective Units of Study

VET6521	DIGITAL SWITCHING AND SIGNALLING SYSTEMS	12
VET6522	TELECOMMUNICATION TARIFF STRUCTURES AND TELETRAFFIC ENGINEERING	12
VET6531	WIRELESS COMMUNICATION SUBSYSTEMS	12
VET6541	MULTIMEDIA AND INTERNET TECHNOLOGY	12
VET6552	COMPUTER NETWORKS AND NETWORKING SOFTWARE	12
VET6562	DIGITAL SIGNAL PROCESSING	12

Project Units

VEE6001	RESEARCH PROJECT A	24
VEE6002	RESEARCH PROJECT B	24
RCS5100	RESEARCH METHODOLOGY	12
VEE6052	PROJECT MANAGEMENT PROGRAM 1	12
VEE6053	PROJECT MANAGEMENT PROGRAM 2	24

Assessment

Assessment will be based on a combination of written assignments, laboratory and project works, and formal examinations and presentations. Supplementary assessments are not normally available.

NOTE: The School of Engineering and Science reserves the right to decide which of the specialization streams would run at any given time, without giving any prior notice. Prospective students are advised to contact the school before embarking on a particular specialisation.

MASTER OF ENGINEERING SCIENCE IN MICRO AND NANO ELECTRONICS

Course Code: EMMN

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The objectives of these courses is to addresses fundamental aspects of design, from high level specification of micro and nano electronic circuits and systems, through the implementation of layout and routing, and the effective use of Cadence and Synopsys EDA design tools, to prepare an integrated circuit to its pre-fabrication stage. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the industry. Course material is drawn from a variety of backgrounds and includes Integrated Circuit Design Methodologies, Digital and Analogue Circuit Design, and Computer System Design and Implementation.

Course Objectives: The Master of Engineering Science course in Micro and Nano Electronic Engineering addresses fundamental aspects of design, from high level specification of micro and nano electronic circuits and systems, through the implementation of layout and routing, and the effective use of EDA design tools, to prepare an integrated circuit to its pre-fabrication stage. The micro and nano electronics engineer today is faced with many challenges brought about by the rapid advances in computers, multimedia and wireless networking technology. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the microelectronics industry. The specific aims of the course are to: provide an integrated foundation for electrical disciplinary studies and course specialisation into the area of micro and nano electronics; develop the advanced technical skills necessary to master state of the art micro/nano electronic design and implementation; cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Careers: Telecommunications, Wireless, Mobile and Network Engineering.

Course Duration: 1 year.

Admission Requirements Year 12: Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering or a four year Bachelor of Applied Science (Honours) degree in an appropriate field, or an equivalent. Applicants with a three year Bachelor of Applied Science degree (in an appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to complete some preliminary subjects that will strengthen their knowledge and skills in micro/nano electronic engineering. Full-fee paying international students are required to have qualifications equivalent to those above, and in addition, they must provide evidence of proficiency in English Language, as assessed by: IELTS - an overall band score of 6.5, subject to individual profile; or TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.

COURSE STRUCTURE

The course is of one year duration for full-time students and a part-time equivalent for part-time students.

The course is unit based in which 8 core units must be completed to successfully graduate from this course.

Core Units of Study (Semester 1)

VEH6002	IC DESIGN	12
VEH6003	EDA TOOLS AND DESIGN METHODOLOGY	12
VEH6001	HDL AND HIGH LEVEL SYNTHESIS	12
VEH6009	RELIABILITY AND TESTABILITY IN IC DESIGN	12

Core Units of Study (Semester 2)

VEH6004	DIGITAL SYSTEM DESIGN	12

VEH6007	ADVANCED VLSI DESIGN	12
VEH6014	RF AND MIXED SIGNAL DESIGN	12
VEH6018	ANALOG & MIXED SIGNAL DESIGN	12

Assessment: Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations

MASTER OF PROJECT MANAGEMENT (I)

Course Code: EMPR

Campus: Footscray Park, City Flinders.

Course Objectives: To provide students with a conceptual understanding of relevant models, modes of analysis and techniques for understanding and procurement. They will also have developed the ability to apply and carrying out project management, contract management and evaluate these models, modes of analysis and technique in the context of the legal, ethical and accountability requirements which apply. In addition to the technical skills provided in the course, graduates will have developed strong relevant professional skills as well as strong personal, interpersonal and organisational attributes. By utilising a consultative committee of current project management professionals, the course has been designed to meet the needs of project managers in industry, equip professionals already in industry with advanced principles and techniques to enable them to assume the role of project manager and/or become an effective member of project management teams and adopt a unique approach to manage people, resources, time line and risks to achieve a successful project outcome.

Careers: This course is designed to equip professionals with advanced project management principles and techniques, enabling graduates to assume the role of project manager and/or become effective members of project management teams.

Course Duration: 1.5 years.

Admission Requirements Year 12: A degree or a diploma in any discipline and a minimum of 2 years post-qualification experience. The requirement of qualification may be waived in exceptional circumstance on the basis of experience.

COURSE STRUCTURE

1.5 years (full time) or maximum four years (part time).

Course structure consists of five project management core units Plus four faculty based elective units Plus one faculty based elective unit and project management specific topic (project work).

Year 1, Semester 1

Project Management Core Units

VPP5600	PRINCIPLES OF PROJECT MANAGEMENT	12
BMO6630	BUSINESS RESEARCH METHODS	12
VPP5640	PROJECT GOVERNANCE	12

Faculty of Business and Law stream

BMO5602	BUSINESS PROJECT MANAGEMENT	12
BMO6624	ORGANISATION CHANGE MANAGEMENT	12

Faculty of Arts, Education and Human Development stream

BAO5505	ACCOUNTING FOR EVENTS	12
VCP5705	PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY	12

Faculty of Health, Engineering and Science stream

VPP5621	PROJECT RISK MANAGEMENT	12
VCP5726	PROJECT PROCUREMENT MANAGEMENT	12

Other Common Units

VPP8050	PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 12CP)	12
VPP8060	PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 24CP)	24

Year 1, Semester 2

Project Management Core Units

AHB5205	PROJECT MANAGEMENT AND PEOPLE	12
VPP5610	PROJECT PLANNING AND CONTROL	12

Faculty of Business and Law Stream

BHO6505	MARKETING MANAGEMENT	12
BMO6622	MANAGING INNOVATION AND ENTREPRENEURSHIP	12

Faculty of Arts, Education and Human Development Stream

AHB5202	SPORT EVENT MANAGEMENT	12
VCP5736	FACILITY LIFE CYCLE COSTING	12

Faculty of Health, Engineering and Science Stream

VPP5620	PROJECT STAKEHOLDERS MANAGEMENT	12
VPP5716	PROJECT DEVELOPMENT ANALYSIS AND REVIEW	12

Other Common Units

VPP8050	PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 12CP)	12
VPP8060	PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 24CP)	24

Students who successfully complete 10 required units with honours will be eligible to complete a project work (2 units) and obtain the Master of Project Management degree.

MASTER OF ENGINEERING SCIENCE IN WIRELESS AND NETWORK ENGINEERING

Course Code: EMWN

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The objectives of these courses are to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of wireless and network engineering. These courses enable students to acquire expertise, and enhance their communication skills to elucidate complex technical problems, and solutions in wireless/mobile and network engineering.

Course Objectives: The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of Wireless and Network engineering.

Careers: Micro and Nano Electronics Design and Test.

Course Duration: 1 year.

Admission Requirements Year 12: Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent. Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by: (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or, (b) Test of English as a Foreign Language - a score of 550+, and a Test of Written English score of 5+.

COURSE STRUCTURE

The duration of the course, in normal mode of delivery, is a one year for full-time students and a part-time equivalent for part-time students.Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by; (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or, (b) Test of English as a Foreign Language - a score of 550+, and a Test of Written English score of 5+.

The course is unit based and the completion of the course requires the successful completion of eight (8) units consisting of two core units and six (6) other units (at Master level) of which at least four (4) must be from the Telecommunication Engineering discipline.

Core Units of Study

Semester 1

VET6510	COMMUNICATION THEORY	12
VET6501	COMMUNICATION SYSTEM MODELING AND SIMULATION 1	12
VET6531	WIRELESS COMMUNICATION SUBSYSTEMS	12
VET6562	DIGITAL SIGNAL PROCESSING	12

Core Units of Study

Semester 2

VET6520	DIGITAL COMMUNICATION PRINCIPLES	12
VET6511	DATA NETWORK ANALYSIS AND DESIGN	12
VET6502	COMMUNICATION SYSTEM MODELING AND SIMULATION 2	12
VET6542	MOBILE AND PERSONAL COMMUNICATION SYSTEMS	12

Assessment

Assessment will be based on a combination of written assignments, laboratory exercises, project work and formal examinations.

DOCTOR OF PHILOSOPHY (CIVIL & BUILDING)

Course Code: EPCR

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Civil and Building Engineering.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Civil and Building Engineering.

Careers: Academic and research focused positions in the relevant fields of study.

Course Duration: 4 years.

Admission Requirements International: 1) Achieved an IELTS, (Academic Module) result with an overall score of 6.5 (no band less than 6) or equivalent. 2) Completed a Masters degree or a relevant four year undergraduate degree in Civil or Building Engineering with Honours or its equivalent at a high standard.

Admission Requirements Other: Completed a Master degree or a relevant four year undergraduate degree in Civil or Building Engineering with Honours or its equivalent at a high standard.

COURSE STRUCTURE

This course is offered for 4 years on a full time basis or part time equivalent.

Semester 1

VCC8001	RESEARCH THESIS FULL TIME	48
VCC8011	RESEARCH THESIS (PART-TIME)	24

Semester 2

VCC8002	RESEARCH THESIS FULL TIME	48
VCC8012	RESEARCH THESIS (PART TIME)	24

DOCTOR OF PHILOSOPHY (ELECTRICAL ENGINEERING)

Course Code: EPER

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Electrical Engineering.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Electrical Engineering.

Careers: Academic and research focused positions in the relevant fields of study.

Course Duration: 4 years.

Admission Requirements International: 1) Achieved an IELTS (Academic Module) result with an overall score of 6.5 (no band less than 6) or equivalent, 2) Completed a Master degree or a relevant four year undergraduate degree in Electrical Engineering with Honours or its equivalent at a high standard.

Admission Requirements Other: Completed a Master degree or a relevant four year undergraduate degree in Electrical Engineering with Honours or its equivalent at a high standard.

COURSE STRUCTURE

This course is offered for 4 years on a full time basis or part time equivalent.

Engineering and Science

Semester 1

VEE8001	RESEARCH THESIS 1 FULL TIME	48
VEE8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

VEE8002	RESEARCH THESIS 2 FULL TIME	48
VEE8012	RESEARCH THESIS 2 PART TIME	24

Centre for Telecommunications and Microelectronics

Semester 1

RPH8001	RESEARCH THESIS 1 FULL TIME	48
RPH8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RPH8002	RESEARCH THESIS 2 FULL TIME	48
RPH8012	RESEARCH THESIS 2 PART TIME	24

MASTER OF ENGINEERING (ELECTRICAL AND ELECTRONIC ENGINEERING)

Course Code: ERER

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The Master of Engineering is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Electrical Engineering.

Course Objectives: The Master of Engineering is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Electrical Engineering.

Careers: Academic and research focused positions in the relevant fields of study.

Course Duration: 2 years.

Admission Requirements International: Completed a Master degree by coursework or a relevant four year undergraduate degree in Electrical Engineering with Honours or its equivalent at a high standard.

Admission Requirements Other: Completed a Master degree by coursework or a relevant four year undergraduate degree in Electrical Engineering with Honours or its equivalent at a high standard.

COURSE STRUCTURE

This course is of 2 year duration on a full time basis or part time equivalent.

Semester 1

VEE8001	RESEARCH THESIS 1 FULL TIME	48
VEE8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

VEE8002	RESEARCH THESIS 2 FULL TIME	48
VEE8012	RESEARCH THESIS 2 PART TIME	24

MASTER OF ENGINEERING (MECHANICAL ENGINEERING) (RESEARCH)

Course Code: ERMR

Campus: Footscray Park.

About this course: The Master of Engineering is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Mechanical Engineering.

Course Objectives: The objectives of the course are to equip the graduates with: valuable generic research skills in research design, research analysis, creative, logical and critical thinking, problem-solving, oral and written communication, and project and time management. specialist research skills revelant to the chosen field of study.

Careers: Academic and research focused positions in the relevant fields of study.

Course Duration: 2 years.

Admission Requirements International: 1) Achieved an IELTS, (Academic Module) result with an overall score of 6.5 (no band less than 6) or equivalent, 2) Completed a Master degree by coursework or a relevant four year undergraduate degree in Mechanical Engineering with Honours or its equivalent at a high standard.

COURSE STRUCTURE

This course is offered for 2 years on a full time basis or part time equivalent.

Semester 1

VMR8001	RESEARCH THESIS 1 FULL TIME	48
VMR8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

VMR8002	RESEARCH THESIS 2 FULL TIME	48
VMR8012	RESEARCH THESIS 2 PART TIME	24

GRADUATE CERTIFICATE IN MICRO AND NANO ELECTRONICS

Course Code: ETMN

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The major role of professional engineers in the Australian and global workforce is to act as agents for change through the development of technically sound, economically viable and socially acceptable solution to complex and new technical problems. In this context, micro and nano electronic engineers today are faced with many challenges brought about by the rapid advances in computer, multimedia and telecommunication technology. The Graduate Certificate in Micro and Nano Electronics addresses all fundamental aspects of this technology, from high level specification of micro and nano electronic systems, through implementation alternatives, and the effective use of design tools, to realisation of integrated circuits. The course aims to produce engineers with the necessary skills and practical experience to satisfy the requirements of the industry. An important feature of the course is the opportunity it provides for the students to design their own integrated circuits.

Course Objectives: The general aims of the course are to provide graduates with: high levels of both logical and lateral thinking development so that the graduates can lead constructive change through innovation; the ability to use a multi-disciplinary engineering philosophy towards the synthesis, design and integration of solutions; and a level of professional development in confidence, judgement and experience such that the implementation of proposed solutions proceeds successfully. The specific aims of the course are to: develop integrated circuit design expertise in embedded systems, digital, mixed signal and system-on-chip systems design and verification; develop the advanced technical and algorithmic skills; develop research skills necessary to obtain specialist knowledge of issues pertinent to integrated circuit design; cultivate logical and lateral thinking that leads to creation and innovation in the pursuit of solutions to engineering problems.

Careers: Telecommunications, Wireless, Mobile and Network Engineering.

Course Duration: 0.5 years.

Admission Requirements Year 12: Admission to the course normally requires a four year Bachelor of Engineering degree in Electronic Engineering or Computer Engineering or Communication/Telecommunication Engineering or a four-year Bachelor of Science (Honours) degree in an appropriate field, or an equivalent qualification. Applicants with a three year Bachelor of Science degree (in appropriate field) or a Bachelor of Engineering degree in another field may also be considered for admission on the condition that they may be required to take additional (preliminary) subjects that will strengthen their knowledge and skills in digital systems, analogue electronics and microprocessor systems. Full fee paying international students must have qualifications which are equivalent to those listed above. In addition they must provide evidence of proficiency in the English language as assessed by: IELTS - an overall band score of 6.5, subject to individual profile; or TOEFL - a score of 580, and a Test of Written English (TWE) score of 5.5.

COURSE STRUCTURE

The duration of the course, in normal mode of delivery, is one semester full time or part time equivalent.

The completion of the Graduate Certificate in Micro and Nano Electronics requires successful completion of four core units over one semester.

Year 1

Core Units of Study

VEH6001	HDL AND HIGH LEVEL SYNTHESIS	12
VEH6002	IC DESIGN	12
VEH6003	EDA TOOLS AND DESIGN METHODOLOGY	12
VEH6009	RELIABILITY AND TESTABILITY IN IC DESIGN	12

Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations.

GRADUATE CERTIFICATE IN PROJECT MANAGEMENT (I)

Course Code: ETPR

Campus: Footscray Park, City Flinders.

Course Objectives: To provide students with a conceptual understanding of relevant models, modes of analysis and techniques for understanding and carrying out project management, contract management and procurement. They will also have developed the ability to apply and evaluate these models, modes of analysis and technique in the context of the legal, ethical and accountability requirements which apply. In addition to the technical skills provided in the course, graduates will have developed strong relevant professional skills as well as strong personal, interpersonal and organisational attributes. By utilising a consultative committee of current project management professionals, the course has been designed to meet the needs of project managers in industry, equip professionals already in industry with advanced principles and techniques to enable them to assume the role of project manager and/or become an effective member of project management teams and adopt a unique approach to manage people, resources, time line and risks to achieve a successful project outcome.

Careers: This course is designed to equip professionals with advanced project management principles and techniques, enabling graduates to assume the role of project manager and/or become effective members of project management teams.

Course Duration: 0.5 years.

Admission Requirements Year 12: A degree or a diploma in any discipline and a minimum of 2 years post-qualification experience. The requirement of qualification may be waived in exceptional circumstance on the basis of experience.

COURSE STRUCTURE

One Semester (full time) or Maximum two years (part time)

Course structure consists of two project management core units Plus two faculty based elective units.

Year 1, Semester 1

Project Management Core Units

VPP5600	PRINCIPLES OF PROJECT MANAGEMENT	12

Faculty of Business and Law stream

BMO5602	BUSINESS PROJECT MANAGEMENT	12
BMO6624	ORGANISATION CHANGE MANAGEMENT	12

Faculty of Arts, Education and Human Development Stream

BAO5505	ACCOUNTING FOR EVENTS	12
VCP5705	PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY	12

Faculty of Health, Engineering and Science Stream

VPP5621	PROJECT RISK MANAGEMENT	12
VCP5726	PROJECT PROCUREMENT MANAGEMENT	12

Year 1, Semester 2

Project Management Core Units

VPP5610	PROJECT PLANNING AND CONTROL	12

Faculty of Business and Law Stream

BHO6505	MARKETING MANAGEMENT	12
BMO6622	MANAGING INNOVATION AND ENTREPRENEURSHIP	12

Faculty of Arts, Education and Human Development Stream

AHB5202	SPORT EVENT MANAGEMENT	12
VCP5736	FACILITY LIFE CYCLE COSTING	12

Faculty of Health, Engineering and SCience Stream

VPP5620	PROJECT STAKEHOLDERS MANAGEMENT	12
VPP5716	PROJECT DEVELOPMENT ANALYSIS AND REVIEW	12

Students who successfully complete four required units are eligible to graduate with a Graduate Certificate in Project Management. Students who are enrolled in the Graduate Diploma in Project Management or Master of Project Management are not eligible to apply but may exit with a Graduate Certificate in Project Management.

GRADUATE CERTIFICATE IN WIRELESS AND NETWORK ENGINEERING

Course Code: ETWN

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The objectives of these courses are to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of wireless and network engineering. These courses enable students to acquire expertise, and enhance their communication skills to elucidate complex technical problems, and solutions in wireless/mobile and network engineering.

Course Objectives: The objective of the course is to provide opportunities for suitably qualified persons to acquire skills and expertise necessary to undertake research and development in the field of Wireless and Network engineering.

Careers: Micro and Nano Electronics Design and Test.

Course Duration: 0.5 years.

Admission Requirements Year 12: Admission to the course requires a four year Bachelor of Engineering degree in Electrical & Electronic Engineering, or an equivalent. Full-fee paying international students are required to have qualifications equivalent to above, and in addition, they must provide evidence of proficiency in English Language, as assessed by: (a) International English Language Testing System - an overall band score of 6+ subject to individual profile, or (b) Test of English as a Foreign Language - a score of 550+, and a Test of Written English score of 5+.

COURSE STRUCTURE

The duration of the course, in normal mode of delivery, is a half year for full-time students and a part-time equivalent for part-time students.

The course is unit based and consists of two core units of study, and a set of elective units of study. A unit is worth 12 credit points. The eligibility for the Graduate Certificate requires the successful completion of 4 units, comprising the two core units of study and two elective units of study.

Units of Study

VET6510	COMMUNICATION THEORY	12
VET6501	COMMUNICATION SYSTEM MODELING AND SIMULATION 1	12
VET6531	WIRELESS COMMUNICATION SUBSYSTEMS	12
VET6562	DIGITAL SIGNAL PROCESSING	12

Assessment will be based on a combination of written assignments, laboratory exercises, project work, and formal examinations.

BACHELOR OF SCIENCE (COMPUTER SCIENCE AND AVIATION)

Course Code: SBCA

Campus: Footscray Park.

This course is for Continuing students only.

Course Objectives: The Bachelor of Science (Computer Science and Aviation) aims to provide participants with: a practical and applied approach to the concepts of computer science and aviation; a range of skills in computer science, the mathematical sciences and aeronautical theory subjects at a level sufficient to satisfy the requirements for the issue of a Commercial Pilot's Licence (CPL), and Instrument Rating. The specific aims of the course are to provide students with the opportunity to: obtain level two accreditation from the Australian Computer Society (ACS) by passing all compulsory computer science subjects, and thus gaining professional recognition; develop skills and competence in aviation theory. The course is structured so that students can integrate practical flying training along with their academic studies and if choosing to do so and following the guidelines given, will complete the degree at the same time as qualifying for the issue of a Commercial Pilot's Licence (CPL) and Command Instrument Rating.

Careers: Commercial pilot, programmer and software trainer.

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course an applicant should have successfully completed Year 12 of the Victorian Certificate of Education (VCE), with a study score of at least 20 in English and 22 in Mathematical Methods, or have the equivalent of these qualifications. Completing Specialist Mathematics leads to an ENTER score 3 points higher.Alternatively, entry is via TAFE articulation or under mature age provisions. In addition, students must pass the prescribed medical examination conducted by a Civil Aviation Safety Authority-Approved Aviation Medical Examiner in order to be permitted to commence flying training.Applicants may be interviewed. Consideration by a Faculty panel may be given to relevant work experience, and any other activities undertaken demonstrating ability to achieve in this course.Applicants entering with a Private Pilot's License or higher will be given full credit for completed aviation subjects and can join the course with advanced standing provided they meet the admission requirements. The course provides existing pilots the opportunity to upgrade their non-flying skills as well as providing them with a degree qualification which is likely to be necessary if they are to further their career in the aviation industry.

COURSE STRUCTURE

To qualify for the award of Bachelor of Science (Computer Science and Aviation), a total of 288 credit points are needed. No stage completions exist for this course.

Year 1		
RCA1010	INTRODUCTORY AVIATION	12
RCM1115	COMPUTER SYSTEMS AND ARCHITECTURE	12
RCM1311	PROGRAMMING 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
RCM1114	INTRODUCTION TO COMPUTING AND THE INTERNET	12
RCM1312	PROGRAMMING 2	12
RCM1713	DISCRETE MATHEMATICS	12
RCA1020	BASIC AERONAUTICAL KNOWLEDGE	12
Year 2		
RCA2020	METEOROLOGY AND HUMAN FACTORS FOR THE CPL	12
RCA2030	NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL	12
RCM2312	SOFTWARE ENGINEERING 1	12
One computing elective from the list below 1 12		
RCA2040	AERODYNAMICS FOR THE CPL	12
RCA2050	AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL	12
RCA2060	OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL	12
RCM1211	DATABASE SYSTEMS 1	12
Year 3		
ACE3145	CSM PROFESSIONAL COMMUNICATION	12
RCA3010	INSTRUMENT RATING (IREX)	12
RCA3030	METEOROLOGY AND HUMAN FATORS FOR THE ATPL	12

RCA3040	FLIGHT PLANNING FOR THE ATPL	12
RCA3050	NAVIGATION AND AIR LAW FOR THE ATPL	12
RCA3060	AERODYNAMICS AND AIRCRAFT SYSTEMS FOR THE ATPL	12
RCA3070	PERFORMANCE AND LOADING FOR THE ATPL	12

One Computing Elective from the list below

Computing Electives

RCM2111	DATA COMMUNICATIONS AND NETWORKS 1	12
RCM2112	OPERATING SYSTEMS	12
RCM2213	COMPUTER GRAPHICS	12
RCM2311	OBJECT ORIENTED PROGRAMMING 1	12
RCM2313	SOFTWARE DEVELOPMENT	12
RCM2810	ADVANCED INTERNET PROGRAMMING	12
RCM2930	3D WEB TECHNOLOGIES	12
RCM3960	INTERNET SECURITY	12

BACHELOR OF SCIENCE (COMPUTER AND MATHEMATICAL SCIENCES)

Course Code: SBCM

Campus: Footscray Park.

This course is for Continuing students only.

Course Objectives: The two programs all aim to provide graduates with the analytical ability, factual knowledge and communication skills that will suit them for employment in business and industry in one or more of the following areas:

- Computing: programming, software development, systems design and analysis, applications development, technical support.
- Statistics: data analysis, quality improvement, market research, forecasting, econometrics.
- Operations Research: production planning and scheduling, simulation studies, transportation planning, resource allocation.
- Financial Modelling: investment analysis, project evaluation.

Secondary Teaching: mathematics, computer science. One of the most significant features of the courses is the attempt to involve students in the solution of real world problems. Naturally, problem-solving is a large component of all the subjects taught in the course but, starting in the first year, special emphasis is placed on problem formulation and report writing. All students undertake at least one industry project in the third year of the course. These projects tend to be related to problems encountered in specific areas of the manufacturing industry, banking or finance, government statutory authorities, or services such as hospitals and local councils. As evidenced by the high rate of job placement in the areas listed above, graduates have been well-received in industry, commerce and government.

Careers: This course is currently being phased out and was approved prior to commencement of CAMS. Hence, it is not necessary to complete this field.

Course Duration: 3 years.

Admission Requirements Year 12: Successful completion of Year 12 VCE, with a study score of at least 20 in English and 22 in Mathematical Methods, or have the equivalent of these qualifications. Completing Specialist Mathematics leads to an ENTER score 3 points higher.

Admission Requirements Mature Age: Mature Age provisions

Admission Requirements VET: TAFE articulation.

COURSE STRUCTURE

The program aims to provide graduates with the analytical ability, factual knowledge and communication skills that will suit them for employment in business and industry in one or more of the following areas: Computing, Statistics, Operations, Financial Modelling and Secondary Teaching.

Year 1 - Semester 1*

ACE1141	English Language and Communication 1	7
OR		
SCM1711	Mathematical Foundations 1	15
SCM1311	Programming 1	15
SCM1114	Introduction to Computing and the Internet	15
SCM1613	Applied Statistics 1	15

Year 1 Semester 2 *

ACE1142	English Language and Communication 2	8
OR,		
SCM1614	Applied Statistics 2,	
OR		
BAO9913	Accounting & Information Systems	15
SCM1712	Mathematical Foundations 2	15
SCM1312	Programming 2	15
SCM1115	Computer Systems and Architecture	15

Year 2 Semester 1

Five Electives from lists A and B (5 x 3 hours) 60

Year 2 Semester 2

Five Electives from lists A and B (5 x 3 hours) 60

Year 3 Semester 1

ACE3143 English Language and Communication 3		12
SCM3001	Project 1	12
Three Electives from lists A and B (3x3 hours)		36

Year 3 Semester 2

ACE3144 English Language and Communication 4		12
SCM3002 Project 2		12
Three Electives from lists A and B (3x3 hours)		36

*An enabling subject for those students identified as requiring assistance in English.

List A Second Year Subjects

SCM2111	Data Communications and Networks 1
SCM2112	Operating Systems
SCM2211	Database Systems 1
SCM2218	Database Systems 2
SCM2311	Object Oriented Programming 1
SCM2312	Software Engineering 1
SCM2313	Software Development
SCM2315	Advanced Programming
SCM2511	Image Processing 1 Second/Third Year Subjects
SCM2213	Computer Graphics

SCM3111	Data Communications and Networks 2	
SCM3311	Object Oriented Programming 2	
SCM3313	Software Engineering 2 Third Year Subjects	
SCM3112	User Interface Design	
SCM3113	Multimedia Systems Design	
SCM3115	Architectures for Enterprise Wide Computing	
SCM3211	Database Systems 3	
SCM3312	Intelligent Systems	
SCM3314	Object Oriented Analysis and Design	
SCM3315	Network Operating Systems Administration	
SCM3511	Image Processing 2	
SCM3808	Advanced Object Oriented Programming List B Second Year Subjects	
SCM2411	Mathematical Economics 1	
SCM2412	Mathematical Economics 2	
SCM2611	Linear Statistical Models	
SCM2612	Statistical Forecasting	
SCM2614	Statistical Data-mining	
SCM2711	Discrete Mathematics	
SCM2713	Modelling for Decision Making	
SCM2911	Linear Optimisation Modelling	
SCM2912	Production Scheduling	
SCM2915	Stochastic and Combinatorial Optimisation Third Year Subjects	
SCM3200	Selected Topics in Operations Research and Statistics	
SCM3411	Mathematical Economics 3	
SCM3613	Time Series Analysis	
SCM3617	Quality Improvement and Experimental Design	
SCM3618	Software and Hardware Reliability	
SCM3712	Coding, Cryptography and Computer Security	
SCM3714	Computational Modelling	
SCM3911	Simulation	

To qualify for the Bachelor of Science in Computer Science (SBCO), students must attain at least a pass grade in all first year subjects, making up a total of 120 credit points, at lease pass grades in ACE3143, ACE3144, SCM30001, SCM3002 and in a total of 16 other electives. At least 10 of these electives must be taken from the available list of computer science electives (List A). To qualify for the Bachelor of Science in Computer and Mathematical Sciences (SBCM), students must attain at least a pass grade in all first year subjects, making up a total of 120 credit points, at least pass grades in ACE3143, ACE3144, SCM3001, SCM3002 and in a total of 16 other electives where less than 10 (but at least 2) of these are taken from the available list of computer science electives (List A).

Year 1 - Semester 1 *

ACE1141 English Language and Communication 1		7
OR		
SCM1711	Mathematical Foundations	15
SCM1311	Programming 1	15
SCM1114	Introduction to Computing and the Internet	15
SCM1613	Applied Statistics 1	15

Year 1 - Semester 2 *

ACE1142 English Language and Communication 2		8
OR		
SCM1614	Applied Statistics 2	
OR		
BA09913	Accounting & Information Systems	15
SCM1712	Mathematical Foundations 2	15
SCM1312	Programming 2	15
SCM1115	Computer Systems and Architecture	15

Year 2 - Semester 1

Five Electives from lists A and B (5 x 3 hours) 60

Year 2 - Semester 2

Five Electives from lists A and B (5 x 3 hours) 60

Year 3 - Semester 1

ACE3143	English Language and Communication 3	12
SCM3001	Project 1	12

Three Electives from lists A and B (3 x 3 hours) 36

Year 3 - Semester 2

ACE3144	English Language and Communication 4	12
SCM3002	Project 2	12

Three Electives from lists A and B (3x3 hours) - 36

*An enabling subject for those students identified as requiring assistance in English.

List A Second Year Subjects

SCM2111	Data Communications and Networks 1
SCM2112	Operating Systems
SCM2211	Database Systems 1
SCM2218	Database Systems 2
SCM2311	Object Oriented Programming 1
SCM2312	Software Engineering 1
SCM2313	Software Development
SCM2315	Advanced Programming
SCM2511	Image Processing 1

Second/Third Year Subjects

SCM2213	Computer Graphics
SCM3111	Data Communications and Networks 2
SCM3311	Object Oriented Programming 2
SCM3313	Software Engineering 2

Third Year Subjects

SCM3112	User Interface Design
SCM3113	Multimedia Systems Design
SCM3115	Architectures for Enterprise Wide Computing
SCM3211	Database Systems 3

SCM3312	Intelligent Systems
SCM3314	Object Oriented Analysis and Design
SCM3315	Network Operating Systems Administration
SCM3511	Image Processing 2
SCM3808	Advanced Object Oriented Programming List B

Second Year Subjects

SCM2411	Mathematical Economics 1
SCM2412	Mathematical Economics 2
SCM2611	Linear Statistical Models
SCM2612	Statistical Forecasting
SCM2614	Statistical Data-mining
SCM2711	Discrete Mathematics
SCM2713	Modelling for Decision Making
SCM2911	Linear Optimisation Modelling
SCM2912	Production Scheduling
SCM2915	Stochastic and Combinatorial Optimisation Third Year Subjects
SCM3200	Selected Topics in Operations Research and Statistics
SCM3411	Mathematical Economics 3
SCM3613	Time Series Analysis
SCM3617	Quality Improvement and Experimental Design
SCM3618	Software and Hardware Reliability
SCM3712	Coding, Cryptography and Computer Security
SCM3714	Computational Modelling
SCM3911	Simulation

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

Course Code: SBCO

Campus: Footscray Park.

This course is for Continuing students only.

Course Objectives: The program aims to provide graduates with the analytical ability, factual knowledge and communication skills that will suit them for employment in business and industry in one or more of the following areas: computing: programming, software development, systems design and analysis, applications development, technical support. statistics: data analysis, quality improvement, market research, forecasting, econometrics. operations research: production planning and scheduling, simulation studies, transportation planning, resource allocation. financial modelling: investment analysis, project evaluation. secondary teaching: mathematics, computer science. One of the most significant features of the courses is the attempt to involve students in the solution of real world problems. Naturally, problem-solving is a large component of all the subjects taught in the course but, starting in the first year, special emphasis is placed on problem formulation and report writing. All students undertake at least one industry project in the third year of the course. These projects tend to be related to problems encountered in specific areas of the manufacturing industry, banking or finance, government statutory authorities, or services such as hospitals and local councils. As evidenced by the high rate of job placement in the areas listed above, graduates have been well-received in industry, commerce and government.

Careers: Computing: programming, software development, web design, information systems and computer networking; statistics: statistical analysis, quality improvement, market research, forecasting and econometrics, quality management and production planning, secondary teaching, and mathematics and information technology.

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course an applicant should have successfully completed Year 12 of the Victorian Certificate of Education (VCE), with a study score of at least 20 in English and 22 in Mathematical Methods, or have the equivalent of these qualifications. Completing Specialist Mathematics leads to an ENTER score 3 points higher.Alternatively, entry is via TAFE articulation or under mature age provisions.

COURSE STRUCTURE

The courses are offered on a full-time basis over three years. Summer evening subjects are also offered to assist students to complete their studies.

Computer Science

Year 1

Semester 1

ACE1145	CSM ENGLISH LANGUAGE AND COMMUNICATION	12
RCM1115	COMPUTER SYSTEMS AND ARCHITECTURE	12
RCM1311	PROGRAMMING 1	12
RCM1613	APPLIED STATISTICS 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12

Students can complete ACE1145 or RCM1613 in semester 1Semester 2

RCM1614	APPLIED STATISTICS 2	12
or		
RCM1114	INTRODUCTION TO COMPUTING AND THE INTERNET	12
RCM1211	DATABASE SYSTEMS 1	12
RCM1312	PROGRAMMING 2	12
RCM1613	APPLIED STATISTICS 1	12
RCM1713	DISCRETE MATHEMATICS	12

Students may complete RCM1114 or RCM1614 in Semester

2. Students who completed ACE1145 in Semester 1 may do RCM1613 in Semester 2

Year 2

Semester 1

RCM2312	SOFTWARE ENGINEERING 1	12

Plus three electives from lists A, B or C below (each worth 12 credit points) 36 credit pointsSemester 2Four electives from lists A, B or C below under SBIA (each worth 12 credit points) 36 credit points

Semester 2

Four electives from lists A, B or C below (each worth 12 credit points) 48 credit points

Year 3

Semester 1

ACE3145	CSM PROFESSIONAL COMMUNICATION	12
RCM3001	PROJECT 1	12

Plus two subjects from lists A, B or C below (each worth 12 credit points) 24 credit pointsSemester 2

RCM3002	PROJECT 2	12

Plus three electives from lists A, B or C (each worth 12 credit points) 36 credit points

List A

RCM2111	DATA COMMUNICATIONS AND NETWORKS 1	12
RCM2112	OPERATING SYSTEMS	12
RCM2113	MULTIMEDIA SYSTEMS DESIGN	12
RCM2213	COMPUTER GRAPHICS	12
RCM2218	DATABASE SYSTEMS 2	12
RCM2311	OBJECT ORIENTED PROGRAMMING 1	12
RCM2313	SOFTWARE DEVELOPMENT	12
RCM2315	ADVANCED PROGRAMMING	12
RCM2316	NETWORK OPERATING SYSTEM ADMINISTRATION	12
RCM2810	ADVANCED INTERNET PROGRAMMING	12
RCM2930	3D WEB TECHNOLOGIES	12

List B

RCM3111	DATA COMMUNICATIONS & NETWORKS 2	12
RCM3112	USER INTERFACE DESIGN	12
RCM3115	ARCHITECTURES FOR ENTERPRISE WIDE COMPUTING	12
RCM3211	DATABASE SYSTEMS 3	12
RCM3311	OBJECT ORIENTED PROGRAMMING 2	12
RCM3312	INTELLIGENT SYSTEMS	12
RCM3313	SOFTWARE ENGINEERING 2	12
RCM3314	OBJECT ORIENTED ANALYSIS AND DESIGN	12
RCM3820	INTERNET COMPUTING USING XML	12
RCM3950	INTERNET DATA MANAGEMENT	12
RCM3960	INTERNET SECURITY	12
RCM3970	COMPUTER GRAPHICS FOR GAME PROGRAMMING	12

List C

RCM1712	MATHEMATICAL FOUNDATIONS 2	12
RCM2321	MATHEMATICS OF CONTINUOUS PROCESSES B	12
RCM2511	IMAGE PROCESSING 1	12
RCM2611	LINEAR STATISTICAL MODELS	12
RCM2612	FORECASTING	12
RCM2614	STATISTICAL DATAMINING	12
RCM2712	MATHEMATICS OF CONTINUOUS PROCESSES A	12
RCM2713	MODELLING FOR DECISION MAKING	12
RCM2911	LINEAR OPTIMISATION MODELLING	12
RCM2912	PROJECT SCHEDULING	12
RCM2915	STOCHASTIC AND COMBINATORIAL OPTIMISATION	12
RCM3511	IMAGE PROCESSING 2	12
RCM3611	REGRESSION ANALYSIS	12
RCM3613	TIME SERIES ANALYSIS	12
RCM3615	MULTIVARIATE STATISTICS	12
RCM3617	QUALITY IMPROVEMENT AND EXPERIMENTAL DESIGN	12
RCM3711	COMPUTATIONAL METHODS	12
RCM3720	CRYPTOGRAPHY, COMPUTER AND NETWORK SECURITY	12
RCM3911	SIMULATION	12

Other Course Specific Notes To qualify for the award of Bachelor of Science in Computer Science, a total of 288 credit points are needed. No stage completions exist for this course.

Additionally, students must complete a minimum of 3 units from List A and 5 subjects from List B.

BACHELOR OF SCIENCE (ECOLOGY AND SUSTAINABILITY)

Course Code: SBES

This course is for Continuing students only.

About this course: Prospective students please refer Bachelor of Science (Specialisation) - SBSS course. This degree teaches students skills to perform a wide range of ecological and environmental science activities. It provides an awareness of environmental issues and community studies. Students also learn skills to communicate their ecological knowledge. The course is practical and flexible, allowing a mix of in-depth studies and specialisations with novel combinations of units of study across diverse disciplines not usually covered in science courses.

Course Objectives: This course provides the flexible combinations of professional education and technical training that are required to develop the practical solutions necessary to achieve sustainable management of the Australian environment. There is a strong emphasis on hands-on skills, including building links across scientific, social and business sectors environmental analysis, effective communication and project management. The course structure is based on a limited number of core subjects which provide a solid foundation to understanding of the biology, ecology and sustainable management of the Australian landscape, supplemented by a wide range of electives drawn from the environmental engineering, business, tourism, community development and human bioscience disciplines. Students can choose from electives according to the four major streams in the course: a) ecology and natural resource management (with specialisations in aquatic engineering and environmental engineering); b) ecology and community development; c) ecology and tourism/business; d) ecology and human bioscience/wellness. These are suggested streams only and students may select electives according to their desired academic and career pathway, subject to approval from the Course Coordinator. The course teaches students the necessary skills to perform a wide range of activities in ecology and environmental science in addition to environmental issues and community studies,provides the skills for communicating their ecological knowledge to science professionals and the general community. The course structure is practically based and flexible, allowing a mix of in-depth studies and specialisations in novel combinations of subjects across a wide range of disciplines.

Course Duration: 3 years.

Admission Requirements Year 12: The minimum entry requirement for persons under 21 years of age on 1 January 2005 is the satisfactory completion of a Year 12 course of study approved by the Victorian Curriculum and Assessment Board (VCAB) or an equivalent program approved by Victoria University for entry.The minimum ENTER score for 2005 is 70. Prerequisites are Units 3 and 4 - a study score of at least 20 in English (any).There is also provision for mature age entry and entry as a disadvantaged person. Mature age provisions apply to those persons aged 21 years and over as at 1 January 2006.

COURSE STRUCTURE

The Bachelor of Science in Ecology and Sustainability program requires the equivalent of three years full-time study. A fourth year may be taken in the Honours program.

Year 1, Semester 1

ACE1911	COMMUNICATIONS FOR THE PROF SCIENTIST 1	12
RBF1310	BIOLOGY 1	12
RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
or		
RCS1110	CHEMISTRY FOR BIOLOGICAL SCIENCES A	12
RMA1110	MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1	12

or elective

Year 1, Semester 2

ACE1912	COMMUNICATIONS FOR THE PROF SCIENTIST 2	12
RBF1320	BIOLOGY 2	12
RBF1160	AUSTRALIAN LANDSCAPES AND BIOTA	12
and/or		
RCS1120	CHEMISTRY FOR BIOLOGICAL SCIENCES B	12
and/or		
RMA1120	STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2	12

and/or elective

Year 2, Semester 1

RBF2610	FUNDAMENTALS OF ECOLOGY	12
RBF2640	AUSTRALIAN ANIMALS	12
and/or		
RCS1120	CHEMISTRY FOR BIOLOGICAL SCIENCES B	12
and/or		
RMA1110	MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1	12

and/or elective

Year 2, Semester 2

RBF2630	COMMUNITY AND ENVIRONMENT	12
RBF2620	AUSTRALIAN PLANTS	12
and/or		
RCS1120	CHEMISTRY FOR BIOLOGICAL SCIENCES B	12
and/or		
RMA1120	STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2	12

and/or elective

Prescribed and free electives

Year 3, Semester 1

Minimum of four from list below Plus up to four electives

RBF3110	MARINE & FRESHWATER ECOLOGY	12
RBF3610	BIOSTATISTICS	12
RBF3620	CONSERVATION AND SUSTAINABILITY	12
RBM3101	GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH	12

Year 3, Semester 2

RBF3630	ENVIRONMENTAL IMPACTS AND MONITORING	12
RBF3210	ENVIRONMENTAL REHABILITATION	12
RBF3650	POLLUTION BIOLOGY	12
RBF3660	INDIGENOUS SOCIETY AND ENVIRONMENTAL MANAGEMENT	12

Electives 3

1. Students taking the Ecology and Human Bioscience/Wellness stream can take RBF1310 Biology 1 or RBF1510 Human Bioscience 1A

2. Students enrolled in the Natural Resource Management stream would be advised to take RCS1110 Chemistry for Biological Sciences A and RCS1120 Chemistry for Biological Sciences B, as these Units of Study are prerequisites for some level 2 and 3 core units in that stream. Students in other streams would not be so advised.

   Students enrolled in the Natural Resource Management stream would be required to take RMA1110 Mathematics for the Biological & Chemical Sciences 1 and RMA1120 Mathematics for the Biological & Chemical Sciences 2 if they lack VCE Mathematics, but could take an elective if they have VCE Mathematics. This is at the discretion of the Course Coordinator.

   Students taking either of the Engineering specialisations within the Natural Resource Management stream should take RMA1110 Mathematics for the Biological & Chemical Sciences 1 and RMA1120 Mathematics for the Biological & Chemical Sciences 2 in the first year of study. All other students within the stream should take these units in their second year.

3. Prescribed and free electives are those listed below.

Electives

At least 6 electives are required to be taken over the course of the degree. Electives other than those listed below may be taken at the discretion of the Course Co-ordinator. The total credit points must be within the prescribed range and due consideration must be given for prerequisites.

Science electives may be chosen from any of the degree units offered by the Faculty of Health, Engineering and Science. Units from programs offered by other Faculties may also be selected as elective subjects, subject to the approval of the appropriate Faculty. Students should refer to the unit outlines listed within other Schools and Faculties for further information.

Students are advised to seek the assistance of academic staff when making their elective choice, as the judicious selection of electives can provide an opportunity to undertake a second major study alongside the primary degree specialisation.

Prescribed Electives

Ecology and Natural Resource Management Stream

RCS1110	CHEMISTRY FOR BIOLOGICAL SCIENCES A	12
RMA1110	MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1	12
RCS1120	CHEMISTRY FOR BIOLOGICAL SCIENCES B	12
RMA1120	STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2	12

These Units of Study are recommended.

Aquatic Engineering and Environmental Engineering Specialisations

It is possible to undertake a number of units in Aquatic Engineering and Environmental Engineering Specialisations. Please discuss with the Course Coordinator prior to selection.

Ecology and community Development Stream

ASA1023	COMMUNITY DEVELOPMENT FROM THE LOCAL TO THE GLOBAL	12
ASA1024	APPLIED HUMAN RIGHTS	12
ASA2023	WORKING WITH ORGANISATIONS: PROBLEMS AND POSSIBILITIES	12
ASA2024	SOCIAL MOVEMENTS, SOCIAL ACTIONS	12
ASC3095	CONFLICT RESOLUTION IN GROUPS AND COMMUNITIES	12

Ecology and Tourism/Business Stream

BHO1190	INTRODUCTION TO TOURISM	12
BHO2286	NATURE BASED TOURISM	12

Students taking this stream should choose two electives from the following:

BHO2255	TOURISM ENTERPRISE MANAGEMENT	12
BHO1193	TOURISM PRODUCT DESIGN AND DELIVERY	12
BHO3499	MANAGING SUSTAINABLE DESTINATIONS	12
BHO3500	HOSPITALITY AND TOURISM INDUSTRY PROJECT	12
BHO1171	INTRODUCTION TO MARKETING	12
BAO1101	ACCOUNTING FOR DECISION MAKING	12

Ecology and Human Bioscience/Wellness Stream

RBM2530	PATHOPHYSIOLOGY 1	12
RBM2540	PATHOPHYSIOLOGY 2	12
RBM3810	WELLNESS 1	12
RBM3820	WELLNESS 2	12

Students taking this stream could include electives from the following:

RBM2260	DIET AND NUTRITION	12
RBM2560	MEDICAL BIOCHEMISTRY	12
RBM2610	BIOMEDICAL SCIENCES AND SOCIETY	12
RBM1514	FUNCTIONAL ANATOMY 1	12
RBM1524	FUNCTIONAL ANATOMY 2	12
RBM2361	SAFETY PRACTICE	12

Suitable Free Electives

Some electives may be prescribed for certain streams

RCS1110	CHEMISTRY FOR BIOLOGICAL SCIENCES A	12
RMA1110	MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1	12
RCS1120	CHEMISTRY FOR BIOLOGICAL SCIENCES B	12
RMA1120	STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2	12
ASC3095	CONFLICT RESOLUTION IN GROUPS AND COMMUNITIES	12
BAO1101	ACCOUNTING FOR DECISION MAKING	12
BHO1171	INTRODUCTION TO MARKETING	12
BHO1190	INTRODUCTION TO TOURISM	12
BHO2255	TOURISM ENTERPRISE MANAGEMENT	12
BHO2286	NATURE BASED TOURISM	12
BHO3500	HOSPITALITY AND TOURISM INDUSTRY PROJECT	12
RBM1514	FUNCTIONAL ANATOMY 1	12
RBM1524	FUNCTIONAL ANATOMY 2	12
RBM2201	CONSERVATION GENETICS	12
RBM2260	DIET AND NUTRITION	12
RBM2361	SAFETY PRACTICE	12
RBM2530	PATHOPHYSIOLOGY 1	12
RBM2540	PATHOPHYSIOLOGY 2	12
RBM2560	MEDICAL BIOCHEMISTRY	12
RBM2610	BIOMEDICAL SCIENCES AND SOCIETY	12
RBM3101	GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH	12
RBM3810	WELLNESS 1	12
RBM3820	WELLNESS 2	12
RBF3530	ENVIRONMENTAL PHILOSOPHY	12
RBF3540	LEADERSHIP AND THE ENVIRONMENT	12

Other Course Specific Notes Students are advised to seek assistance and advice of academic staff when making their elective selection. Engineering and Tourism/Business units are offered only on the Footscray Park Campus in the first instance. Timetable constraints make combinations of units offered on more than one Campus difficult and so must be selected with care. Field trips Students will be required to participate in field trips throughout the course. These will vary from one-day excursions to three-day field camps. Some field trips may be held over weekends. Participation in these activities forms part of the required assessment of the units, and provides essential experience in field techniques. Exemption from these activities is available only by prior application to the Course Co-ordinator where circumstances preclude participation. Professional Recognition Graduates of the course are eligible to join professional and learned societies such as the Ecological Society of Australia and the Australian Institute of Biologists.

BACHELOR OF SCIENCE (SPECIALISATION)

Course Code: SBGG

Campus: St Albans, Werribee, Footscray Park.

This course is for Continuing students only.

About this course: Prospective students please refer Bachelor of Science (Specialisation) - SBSS course.

Course Objectives: Graduates from this course should be able to: locate, manage and use scientific information efficiently and effectively; solve scientific problems effectively in a range of settings including industry and community; exhibit high levels of numeracy skills in a range of scientific settings; communicate effectively in spoken and written forms on a range of scientific and mathematical topics to professional and community groups; apply an evidence-based research approach to a chosen area of science; respond with social and cultural awareness within local and global environments; and work autonomously and collaboratively as a professional in both industry and community settings.

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course, applicants must have: Science -Specialisation pre-requisites: Units 3 and 4, a study score of at least 25 in English (any) and in mathematics (any). Middle band: Completing biology, chemistry, food and technology, physics or specialist mathematics = an aggregate 3 points higher per study, to a maximum of 9 points. Education -Science Education pre-requisites: Units 3 and 4, a study score of at least 25 in English (any) and in mathematics (any). Alternative entry Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences that would enable them to successfully undertake the course, will be considered for admission. Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course. Applicants over the age of 21 years on the 1st January for the commencing academic year are eligible to apply for consideration under Mature Age entry. Applicants who consider that their capacity to qualify under normal entry provisions has been limited through disadvantage, for example, illness, disability, financial hardship or isolation, are eligible to apply for consideration as a disadvantaged person. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course. Students who successfully complete the VU alternative entry or foundations studies courses will be offered access into the SBGG degree.

Admission Requirements Other: Interview (some applicants only).Successful applicants will require a Working with Children Check.Students must complete a Working with Children Check prior to undertaking teaching placements.

COURSE STRUCTURE

Biotechnology

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RBF1310	BIOLOGY 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
RCS1601	CHEMISTRY 1A	12

Year 1, Semester 2

RBF1320	BIOLOGY 2	12
RCM1613	APPLIED STATISTICS 1	12
RCS1602	CHEMISTRY 1B	12

Plus one elective

Chemistry

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RBF1310	BIOLOGY 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
RCS1601	CHEMISTRY 1A	12

Year 1, Semester 2

RBF1320	BIOLOGY 2	12
RCM1613	APPLIED STATISTICS 1	12
RCS1602	CHEMISTRY 1B	12

Plus one elective

Community Science

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
SED1101	COMMUNITY BASED GENERAL SCIENCE 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12

Plus one elective

Year 1, Semester 2

RCM1712	MATHEMATICAL FOUNDATIONS 2	12
SED1202	COMMUNITY BASED GENERAL SCIENCE 2	12

Plus two electives

Computing

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RCM1114	INTRODUCTION TO COMPUTING AND THE INTERNET	12
RCM1311	PROGRAMMING 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12

Year 1, Semester 2

RCM1312	PROGRAMMING 2	12
RCM1613	APPLIED STATISTICS 1	12

Plus two electives

Ecology & Environmental Management

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RBF1310	BIOLOGY 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
RCS1601	CHEMISTRY 1A	12

Year 1, Semester 2

RBF1320	BIOLOGY 2	12
RCM1613	APPLIED STATISTICS 1	12
RCS1602	CHEMISTRY 1B	12

Plus one elective

Food Science

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RBF1310	BIOLOGY 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
RCS1601	CHEMISTRY 1A	12

Year 1, Semester 2

RBF1140	INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1	12
RCM1613	APPLIED STATISTICS 1	12
RCS1602	CHEMISTRY 1B	12

Plus one elective

Maths

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RCM1613	APPLIED STATISTICS 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12

Plus one elective

Year 1, Semester 2

RCM1614	APPLIED STATISTICS 2	12
RCM1712	MATHEMATICAL FOUNDATIONS 2	12

Plus two electives

Safety

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RBF1310	BIOLOGY 1	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
RCS1601	CHEMISTRY 1A	12

Year 1, Semester 2

RBF1320	BIOLOGY 2	12
RCM1613	APPLIED STATISTICS 1	12
RCS1602	CHEMISTRY 1B	12

Plus one elective

Physics

Year 1, Semester 1

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
REP1001	ENGINEERING PHYSICS 1A	12
VEF1003	ELECTRICAL FUNDAMENTALS 1A	12

Year 1, Semester 2

RCM1712	MATHEMATICAL FOUNDATIONS 2	12
RCM1613	APPLIED STATISTICS 1	12
REP1002	ENGINEERING PHYSICS 1B	12
VEF1004	ELECTRICAL FUNDAMENTALS 1B	12

Biotechnology

Year 2, Semester 1

RBF2300	MICROBIOLOGY 1	12
RBF2520	BIOCHEMISTRY 1	12

Plus two electives

Year 2, Semester 2

RBF2330	CELL BIOLOGY	12
RBF2390	MOLECULAR GENETICS	12

Plus two electives

Chemistry

Year 2, Semester 1

RCS2100	ORGANIC CHEMISTRY 2A	12
RCS2601	ANALYTICAL CHEMISTRY 2A	12

Plus two electives

Year 2, Semester 2

RCS2503	FORENSIC CHEMISTRY 2	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12

Plus two electives

Community Science

Year 2, Semester 1

RCM1613	APPLIED STATISTICS 1	12
SED2103	COMMUNITY BASED GENERAL SCIENCE 3	12

Plus two electives

Year 2, Semester 2

SED2204	COMMUNITY BASED GENERAL SCIENCE 4	12
RBF2620	AUSTRALIAN PLANTS	12
RCM1614	APPLIED STATISTICS 2	12

Plus one elective

Computing

Year 2, Semester 1

RCM1211	DATABASE SYSTEMS 1	12
RCM2111	DATA COMMUNICATIONS AND NETWORKS 1	12

Plus two electives

Year 2, Semester 2

RCM2312	SOFTWARE ENGINEERING 1	12
RCM2313	SOFTWARE DEVELOPMENT	12

Plus two electives

Ecology & Environmental Management

Year 2, Semester 1

RBF2610	FUNDAMENTALS OF ECOLOGY	12
RBF2640	AUSTRALIAN ANIMALS	12

Plus two electives

Year 2, Semester 2

RBF2620	AUSTRALIAN PLANTS	12
RBF2630	COMMUNITY AND ENVIRONMENT	12

Plus two electives

Food Science

Year 2, Semester 1

RBF2141	FOOD COMPONENTS AND INTERACTIONS	
RBF3730	FOOD MICROBIOLOGY	12

Plus two electives

Year 2, Semester 2

RBF2242	FOOD PRESERVATION	12
RBF2243	FOOD PROCESSING OPERATIONS	

Plus two electives

Maths

Year 2, Semester 1

RCM2101 - to be advised

RCM2612	FORECASTING	12

Plus two electives

Year 2, Semester 2

RCM2611	LINEAR STATISTICAL MODELS	12
RCM2911	LINEAR OPTIMISATION MODELLING	12

Plus two electives

Safety

Year 2, Semester 1

SAF2101 SAFETY SAF2102
SAFETY, HEALTH AND WELLNESS Plus two electives

Year 2, Semester 2

SAF2203 RISK ASSESSMENT

SAF2204 SAFETY PRACTICE Physics

Year 2, Semester 1

REP2001 to be advised.

VEF2001	LINEAR SYSTEMS AND MATHEMATICS 2A	12

Plus two electives

Year 2, Semester 2

RCM3721 to be advised.

REP2002 to be advised.

VEF2002	SYSTEMS AND MATHEMATICS 2B	12

Plus one elective

Pre-requisite for all Streams: Successful completion of years one and two SBGG

Biotechnology

Year 3, Semester 1

RIP3000 to be advised.

RMS3030	GENETIC ENGINEERING	12

Plus two electives

Year 3, Semester 2

RMS3020	GENOMICS, PROTEOMICS AND BIOINFORMATICS	12
RMS3050	ADVANCED MEDICAL MICROBIOLOGY	6
RMS3060	MICROBIAL TECHNOLOGY AND CELL CULTURE	6

Plus two electives

Chemistry

Year 3, Semester 1

RCS3601	ANALYTICAL CHEMISTRY 3A	12
RCS3605	FORENSIC METHODS 3A	12

Plus two electives

Year 3, Semester 2

RCS3602	ANALYTICAL CHEMISTRY 3B	12

RIP3000 to be advised

Plus two electives

Community Science

Year 3, Semester 1

RPH1111	ASTRONOMY	12
SED3105	COMMUNITY BASED GENERAL SCIENCE 5	12

Plus two electives

Year 3, Semester 2

RIP3000 to be advised

SED3206	COMMUNITY BASED GENERAL SCIENCE 6	12

Plus two electives

Computing

Year 3, Semester 1

RCM2112	OPERATING SYSTEMS	12

RIP3000 to be advised

Plus two electives

Year 3, Semester 2

RCM3002	PROJECT 2	12
RCM3820	INTERNET COMPUTING USING XML	12

Plus two electives

Ecology & Environmental Management

Year 3, Semester 1

RBM3101	GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH	12

RBF3110 to be advised

Plus two electives

Year 3, Semester 2

RBF3210	ENVIRONMENTAL REHABILITATION	12

RIP3000 to be advised

Plus two electives

Food Science

Year 3, Semester 1

RBF3143 to be advised.

RBF2210	NUTRITION AND FOOD ANALYSIS 1	12

Plus two electives

Year 3, Semester 2

RBF3244

RIP3000

Plus two electives

Maths

Year 3, Semester 1

RCM3711	COMPUTATIONAL METHODS	12

Plus three electives

Year 3, Semester 2

RCM3721

RIP3000

Plus two electives

Safety

Year 3, Semester 1

SAF3105 SAFETY SCIENCE

SAF3106 SAFETY HUMAN FACTORS

Plus two electives

Year 3, Semester 2

REP3000

SAF3107 RISK MANAGEMENT

Plus two electives

Physics

Year 3, Semester 1

REP3001

Plus three electives

Year 3, Semester 2

REP3002

RIP3000

Plus two electives

Electives: Students are not restricted in their choice of electives and will be encouraged to select from other streams.

Biochemistry

RBF2530	BIOCHEMISTRY 2	12
RMS3010	BIOPROCESSING APPLICATIONS	12
RMS3045	PROJECT 2 - BIOTECHNOLOGY	12
RMS3113	COMPARATIVE IMMUNOBIOLOGY	12

Chemistry

RCS2200	ORGANIC CHEMISTRY 2B	12
RCS2502	MEDICAL CHEMISTRY 2	12
RCS3603	MEDICAL CHEMISTRY 3 A	12
RCS3XXX		

Community Science

RBF2922	SCIENCE AND SOCIETY	12

Computing

RCM2316	NETWORK OPERATING SYSTEM ADMINISTRATION	12
RCM3112	USER INTERFACE DESIGN	12
RCM3312	INTELLIGENT SYSTEMS	12
RCM3960	INTERNET SECURITY	12

Ecology & Environmental Management

RBF1160	AUSTRALIAN LANDSCAPES AND BIOTA	12
RBF3620	CONSERVATION AND SUSTAINABILITY	12
RBF3610	BIOSTATISTICS	12
RBF3630	ENVIRONMENTAL IMPACTS AND MONITORING	12
RBF3650	POLLUTION BIOLOGY	12
RBM2201	CONSERVATION GENETICS	12

Food Science

RBF3230	ANIMAL FOOD PROCESSING	6
RBF3235	PLANT FOOD PROCESSING	6
RBF3240	FUNCTIONAL FOODS	12
RBF3255	PRODUCT DEVELOPMENT	6
RBFXXXX		
RBFXXXX		
RBFXXXX		
RBFXXXX		

Maths

RCM2614	STATISTICAL DATAMINING	12
RCM2915	STOCHASTIC AND COMBINATORIAL OPTIMISATION	12
RCM3413	FINANCIAL MODELLING	12
RCM3720	CRYPTOGRAPHY, COMPUTER AND NETWORK SECURITY	12

Safety

ASS3009	SOCIOLOGY OF LAW	12
BLO1105	BUSINESS LAW	12
BLO2233	HEALTH AND SAFETY LAW	12
BMO1102	MANAGEMENT AND ORGANISATION BEHAVIOUR	12
BMO3351	WORKPLACE INDUSTRIAL RELATIONS	12
BMO3476	TRAINING AND DEVELOPMENT	12

Physics

REP4100	DATA ACQUISITION	12
REP4300	EINSTEIN'S THEORY OF RELATIVITY	6
RPH1111	ASTRONOMY	12
VEF2003	SYSTEMS AND APPLICATIONS 2C	12
VEF2004	SYSTEMS & APPLICATIONS 2D	12
VEG4100	DIGITAL SIGNAL PROCESSING A	6
VEP3001	PHOTONICS	6
VEP3002	PHOTONICS 2	6

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

Course Code: SBIT

Campus: Footscray Park.

This course is for Continuing students only.

Course Objectives: The Information Technology course aims to equip students with the updated skills required to deal with advanced data processing. Students in Information Technology will develop skills and conceptual understanding needed to design, install, configure and manage various advanced data management technologies; and to develop data management processes at both the intranet and Internet level for modern organizations and enterprises.

Careers: This course is currently being phased out and was approved prior to commencement of CAMS. Hence, it is not necessary to complete this field.

Course Duration: 3 years.

Admission Requirements Year 12: Successful completion of Year 12 VCE, with a study score of at least 20 in English and 22 in Mathematical Methods or have the equivalent of these qualifications.

Admission Requirements International: N/A

Admission Requirements Mature Age: Mature age provisions

Admission Requirements VET: TAFE articulation.

COURSE STRUCTURE

The Information Technology course aims to equip students with the updated skills required to deal with advanced data processing. On completion of the course, students will:

- have acquired skills in the development of database applications such as relational, object-oriented and multimedia systems.
- be familiar with online transaction and application processing.
- be able to design, install, configure and maintain various data storage systems.
- have a sound understanding and competence in the use of technologies that are utilised in data warehousing and data mining.
- have a sound understanding of distributed systems, including the ability to establish and maintain data storage strategies within local area networks, wide area networks, and across the Internet.

Year 1 - Semester 1 (All Common subjects with SBCO and SBCM) *

ACE1141	English Language and Communication 1	7
SCM1114	Introduction to Computing and the Internet	15
SCM1311	Programming 1	15
SCM1613	Applied Statistics 1	15
SCM1711	Mathematical Foundations 1	15

Year 1, Semester 2 (All Common subjects with SBCO and SBCM) *ACE1142 English Language and Communication 2 8

SCM1115	Computer Systems and Architecture	15
SCM1312	Programming 2	15
SCM1712	Mathematical Foundations 2	15

*For those not doing ACE1141 and ACE1142 SCM1614 Applied Statistics 2 15

Total per Semester 60 Year 2, Semester 1 (4 Core subjects + 1 elective chosen from List A of the SBCO course) SCM2211 Database Systems 1 12

SCM2311	Object Oriented Programming 1	12
SCM2312	Software Engineering 1	12
SCM3112	User Interface Design	12
Elective		12

Year 2, Semester 2 (4 Core subjects + 1 elective chosen from List A of the SBCO course) SCM2111 Data Communications & Networks 1 12

SCM2112	Operating Systems	12
SCM2313	Software Development	12
SCM2218	Database Systems 2	12
Elective		12

Total per Semester 60 Year 3, Semester 1 (4 Core subjects + 1 elective chosen from List A)

ACE3143	English Language and Communication 3	12
SCM3001	Project 1	12
SCM3211	Database Systems 3	12
SCM3314	Object Oriented Analysis & Design	12
Elective		12

Year 3, Semester 2 (4 Core subjects + 1 elective chosen from List A) ACE3144 English Language and Communication 4 12

SCM3002	Project 2	12
SCM3312	Intelligent Systems	12
SCM3313	Software Engineering 2	12
Elective		12

Total per Semester 60 List A (Pool of second and third year Computing subjects used for SBCO, SBCM and proposed new course)

SCM 2111	Data Communications and Networks 1
SCM 2112	Operating Systems
SCM 2211	Database Systems 1
SCM 2218	Database Systems 2
SCM 2311	Object Oriented Programming 1
SCM 2312	Software Engineering 1
SCM 2313	Software Development
SCM 2315	Advanced Programming
SCM 2511	Image Processing 1
SCM 2912	Project Scheduling
SCM 3111	Data Communications and Networks 2
SCM 3313	Software Engineering 2
SCM 3311	Object Oriented Programming 2
SCM 3112	User Interface Design
SCM 3113	Multimedia Systems Design
SCM 3115	Architectures for Enterprise Wide Computing
SCM 3211	Database Systems 3
SCM 3312	Intelligent Systems
SCM 3314	Object Oriented Analysis and Design
SCM 3315	Network Operating Systems Administration
SCM 3511	Image Processing 2
SCM 3712	Cryptography, Computer and Network Security
SCM3808	Advanced Object Oriented Computing
SCM 3911	Simulation

BACHELOR OF SCIENCE (MEDICAL FORENSIC AND ANALYTICAL CHEMISTRY)

Course Code: SBMF

Campus: Werribee.

This course is for Continuing students only.

About this course: Prospective students please refer Bachelor of Science (Specialisation) - SBSS course.

Course Objectives: The course provides theoretical and practical training in medical, forensic and analytical chemistry. The design of the course has taken account of recent market research indicating that employers seek graduates with specific skills in analytical chemistry as applied to industrial, medical and forensic issues. Concomitant studies in Molecular Sciences, Biosciences, Communication, Mathematics and Computer Literacy give the graduate the employment skills that support the technical expertise.The course is designed to meet the professional membership requirements of The Royal Australian Chemical Institute (RACI).The course commences with a typical first year that exposes the student to a wide range of science disciplines. Second and third year have a core of subjects offering advanced studies in medical chemistry, forensic chemistry, analytical chemistry and organic chemistry. A number of molecular biology electives are available in second and third year for those students wishing to obtain expertise in this area and related medical and forensic fields or progress to further studies in molecular biology. In the final year chemical knowledge and applications are consolidated through appropriate choices of subjects and electives.

Course Duration: 3 years.

Admission Requirements Year 12: Admission will be based upon completion of VCE or equivalent Year 12 qualification. Prerequisites are Units 3 and 4 in English and Mathematics (any). Thus, in keeping with the intention of the University to operate an open access policy, the absence of prior studies in chemistry in particular, and science in general will not preclude admission to the proposed course. However, applicants who have successfully completed Chemistry and/or Specialist Mathematics and/or Physics will be deemed to have a TER of 3 percentage points higher for each study. Certain subjects passed in other courses at Victoria University or at other Institutions may be considered for advanced standing. Provision will be made for articulation from TAFE science programs with appropriate credit.

COURSE STRUCTURE

The course is offered on a full-time basis over three years or part-time equivalent. This course is also designed to allow mid-year entry.

Year 1

Semester One

ACE1913	PROFESSIONAL COMMUNICATION	12
RCS1601	CHEMISTRY 1A	12
RBF1310	BIOLOGY 1	12
RMA1110	MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1	12

Semester Two

RCS1000	MEDICAL, FORENSIC AND ANALYTICAL CHEMISTRY 1	12
RBF1320	BIOLOGY 2	12
RCS1602	CHEMISTRY 1B	12
RMA1120	STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2	12

Year 2

Semester One

RBF2520	BIOCHEMISTRY 1	12
RCS2502	MEDICAL CHEMISTRY 2	12
RCS2100	ORGANIC CHEMISTRY 2A	12
RCS2601	ANALYTICAL CHEMISTRY 2A	12

Semester Two

RCS2503	FORENSIC CHEMISTRY 2	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12
RMA2120	MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2	12

One of the following two Electives

RCS2200	ORGANIC CHEMISTRY 2B	12
RBF2390	MOLECULAR GENETICS	12

Year 3

Semester One

ACE3010	WRITTEN AND ORAL COMMUNICATION 3	6
RCS3601	ANALYTICAL CHEMISTRY 3A	12
RMA3071	INTRODUCTION TO COMPUTER UTILISATION	6

Two of the following three Electives*

RCS3603	MEDICAL CHEMISTRY 3 A	12
RCS3605	FORENSIC METHODS 3A	12
RMS3030	GENETIC ENGINEERING	12

*In Year 3 students must do at least one semester of Medical Chemistry 3 and one semester of Forensic Methods 3.Semester Two

ACE3010	WRITTEN AND ORAL COMMUNICATION 3	6
RCS3602	ANALYTICAL CHEMISTRY 3B	12

Two of the following Three Electives*

RCS3604	MEDICAL CHEMISTRY 3 B	12
RCS3606	FORENSIC METHODS 3B	12
RMS3020	GENOMICS, PROTEOMICS AND BIOINFORMATICS	12

One of the following Two Electives

RCS3607	ADVANCED ANALYTICAL ANALYSES	6
RCS3608	POLYMER TECHNOLOGY	6

*In Year 3 students must do at least one semester of Medical Chemistry 3 and one semester of Forensic Methods 3.

BACHELOR OF INFORMATION TECHNOLOGY (NETWORK AND SYSTEMS COMPUTING) (I)

Course Code: SBNS

Campus: Footscray Park.

About this course: The Bachelor of Information Technology (Network and Systems Computing) is a forward-looking course in the area of networks and systems. It is current, relevant and will prepare students for IT industry certifications in the fields of networking, databases, and systems administration. The course will equip students with the skills and support required to gain an entry level position within the IT industry, filling a growing market need for graduates skilled in systems administration with networking expertise.

Course Objectives: The degree is designed to produce graduates who will have a strong industry focus gained through relevant workplace experience in the program combined with an industry capstone project in the final year. The degree will: provide a solid foundation in information technology skills and knowledge that can be applied across a wide range of applications; provide an infrastructure through which students can gain technical, analytical, and managerial knowledge and interpersonal skills, and develop skills and abilities important for effective participation and leadership in industry; emphasise a hands-on approach to learning and create real-world learning experiences with a strong industry focus; facilitate preparation for industry certifications from large reputable vendors both locally and overseas; offer a solid preparation for different careers in the field of network and systems computing in sectors including government, banking and finance, retail, and manufacturing; engage students in lifelong learning and professional development activities that will equip the students as graduates with a competitive edge in their chosen career paths.

Careers: Completion of the course will prepare graduates for roles such as computing and network support, web-based programming, networking and systems administration, system security consultancy, database administration, I.T. business analysis, and project management in sectors including government, banking and finance, retail, and manufacturing.

Course Duration: 3 years.

Admission Requirements Year 12: The prerequisite subjects for admission into the first year of the course are based on entry at post Year 12, Victorian Certificate of Education, or equivalent level and are as follows: Units 3 & 4, study score of at least 20 in English (any) and in mathematics (any). Persons transferring from other courses or having overseas or other entrance qualifications of at least equivalent standard should apply for admission in the normal manner. Full-fee paying international students must have qualifications which are equivalent to those listed above. In addition, they must provide evidence of proficiency in the English language: IELTS - an overall band score of 6+, subject to individual profile; or TOEFL - a score of 550+, and a Test of Written English (TWE) score of 5+.

COURSE STRUCTURE

The Course is offered over 3 years (6 semesters) on full time basis and equivalent part time. To qualify for the award of BIT (Network and Systems Computing) a total of 288 credit points should be completed.

Year 1, Semester 1

ECB1111	INTRODUCTION TO COMPUTER SYSTEMS	12
ECB1121	PROGRAMMING PRINCIPLES	12
ECB1131	COMPUTER NETWORK CONCEPTS	12
ECB1151	COMMUNICATION AND INFORMATION MANAGEMENT	12

ECB1151 or Elective (12 credit points) approved by the Course Coordinator

Year 1, Semester 2

ECB1222	WEB DESIGN AND PROGRAMMING	12
ECB1223	INTRODUCTION TO SYSTEMS ANALYSIS AND DATABASES	12
ECB1232	NETWORK COMMUNICATIONS AND ROUTING	12
ECB1252	INTRODUCTION TO THE COMPUTING PROFESSION	12

Year 2, Semester 1

ECB2112	SECURITY, PRIVACY AND ETHICS	12
ECB2113	OPERATING SYSTEMS	12
ECB2123	PROGRAMMING FOR NETWORKS	12
ECB2124	WEB-BASED SYSTEMS DEVELOPMENT	12

Year 2, Semester 2

ECB2225	MULTI-USER DATABASE SYSTEMS	12
ECB2234	NETWORK SECURITY	12
ECB2241	WIRELESS NETWORKS	12
ECB2253	IT PROJECT MANAGEMENT	12

Year 3, Semester 1

ECB3135	SERVER ADMINISTRATION AND MAINTENANCE	12
ECB3142	ACTIVE DIRECTORY DESIGN AND MANAGEMENT	12
ECB3143	NETWORK MANAGEMENT	12
ECB3154	COMPUTING PROJECT ANALYSIS AND DESIGN	12

Year 3, Semester 2

ECB3214	VIRTUALISATION IN COMPUTING	12
ECB3244	ADVANCED NETWORK TECHNOLOGIES	12
ECB3255	SMALL IT BUSINESS DEVELOPMENT	12
ECB3256	COMPUTING PROJECT DEVELOPMENT AND IMPLEMENTATION	12

BACHELOR OF SCIENCE (SPECIALISATIONS IN BIOTECHNOLOGY, CHEMISTRY OR ENVIRONMENTAL MANAGEMENT)

Course Code: SBSC

Campus: Werribee, Footscray Park, Other, Year 1: Footscray Park campus. Year 2 & 3: Werribee campus.

About this course: The Bachelor of Science (Specialisations in Biotechnology, Chemistry or Environmental Management) course offers specialisations in the three science disciplines listed below: Biotechnology Chemistry Ecology & Environmental Management Students can choose to specialise in one or two of these science disciplines. This is a three year course with a common first year and a choice of sub-specialisations in the latter two years that allows students the flexibility to add other studies of interest to their specialisation. Sub-specialisations can be chosen from health, engineering, science, arts, business and law. Sub-specialisations are subject to the approval of the course coordinator and may be limited by prerequisite requirements and timetable clashes. Science sub-specialisations are listed below. analytical chemistry cell biology/microbiology community science computing environmental science environmental assessment & analysis forensic chemistry mathematics/statistics molecular biology. The BSc (Specialisations in Biotechnology, Chemistry or Environmental Management) is industry focused, offers an intensive hands-on laboratory and fieldwork experience, has modern laboratories with state-of-the-art equipment, provides opportunities for industry projects and placements and overall better prepares students for careers in the science profession. Those students with scientific research in mind can progress into Honours and postgraduate studies (subject to performance in the degree program). Biotechnology Specialisation Biotechnology involves the use of biological cells and their components for the benefit of society. It includes the application of the latest technologies to solve medical, environmental and agricultural problems. The biotechnology specialisation prepares students for exciting careers in cutting edge science. It provides in-depth education in many areas of modern biology including genetic engineering, medical research, cloning, forensic biology, environmental biotechnology, microbiology and biochemistry. There is a strong emphasis on the development of laboratory-based skills for which the university is equipped with state-of-the-art facilities. Chemistry Specialisation The chemistry specialisation has a strong industry focus and will produce graduates that are work ready by combining an extensive laboratory program with training on state-of-the-art equipment along with an industry placement program. The course combines studies in analytical, forensic and organic chemistry to develop measurement and investigative skills that are highly sought after by industry. After completing second year, students have the opportunity to work in one of over twenty chemical industries as part of their studies. The laboratory program includes hands-on training in modern analytical techniques including atomic absorption spectroscopy, inductively coupled plasma optical emission spectroscopy, gas chromatography including gas chromatography-mass spectrometry, liquid chromatography including liquid chromatography-mass spectrometry, ion chromatography, ultraviolet and visible spectroscopy, fluorescence spectroscopy and Fourier transform infra-red spectroscopy. Over a million dollars of state-of-the-art analytical equipment has recently been acquired and extensive training on this equipment including applications, theory of operation, optimisation, maintenance and troubleshooting forms a major part of second and third year studies. The laboratory program is designed to give our chemistry graduates a genuine head start into the work force. Ecology & Environmental Management Specialisation Australia and the rest of the world face significant challenges in balancing the needs of a sustainable society while protecting the natural environment. The Ecology and Environmental Management specialisation develops skills in environmental sciences that underpin achievable sustainability strategies. Subjects combine extensive practical experience in the field (terrestrial, marine and freshwater environments) and laboratory, with theory that is based on current research and management practices. In partnership with industry, government agencies, researchers and the community, this specialisation produces graduates that are work-ready. An emphasis on environmental research methodology across all subjects also leads to a high uptake into more highly specialised honours and postgraduate research projects. The Ecology and Environmental Management specialisation develops the knowledge and practical experience for working across social, environmental and economic contexts, to achieve ecological sustainability. Pathways to a Career in Teaching The BSc (Specialisations in Biotechnology, Chemistry or Environmental Management) offers a selection of units in mathematics and science, including six new innovative community science units, which prepare students wishing to pursue careers as maths/science teachers. The community science units are unique and emphasise learning in the workplace through placements in primary and secondary schools and in community education groups. To qualify for teaching in secondary schools graduates from the BSc (Specialisations in Biotechnology, Chemistry or Environmental Management) must apply for and complete the Graduate Diploma in Secondary Education.

Course Objectives: The Bachelor of Science (Specialisations in Biotechnology, Chemistry or Environmental Management) will produce graduates with a thorough knowledge of contemporary science for careers in industry, government and education. The selection of specialisations and sub-specialisations offered allows students the flexibility to customise their learning towards current and future career demands. Via various learning in the workplace and community strategies the course will make graduates 'work ready'. The course allows students wishing to pursue maths/science teaching via the Graduate Diploma in Secondary Education, a number of possibilities with respect to obtaining parts, sub-majors and majors in maths/science teaching specialist areas. Graduates from this course should be able to: locate, manage and use scientific information efficiently and effectively solve scientific problems effectively in a range of settings including industry and community exhibit high levels of numeracy skills in a range of scientific settings communicate effectively in spoken and written forms on a range of scientific and mathematical topics to professional and community groups apply an evidence-based research approach to a chosen area of science respond with social and cultural awareness within local and global environments work autonomously and collaboratively as a professional in both industry and community settings.

Careers: The Bachelor of Science (Specialisations in Biotechnology, Chemistry or Environmental Management) will produce graduates with a thorough knowledge of contemporary science for careers in industry, government and education. The flexibility of the course allows students to customise their learning towards current and future career demands. Biotechnology graduates pursue careers in a variety of areas including medical and pharmaceutical research, forensic science, agriculture and aquaculture, the food and beverage industry and education. Industries that employ our chemistry graduates include: agricultural chemicals, brewing and wine, chemical analysis, cosmetics, dairy, environmental science and water, food, forensics, horticulture, industrial chemicals, materials and polymers, petrochemicals, pharmaceutical, scientific sales, state and federal government departments. Careers in ecology and environmental management include: landcare/bushcare coordinator; environment officer or environmental planner; restoration ecology and land management officer; marine and freshwater ecosystem management officer; environmental educator; botanist/zoologist/ecologist and ecological and resource assessor. The course has been designed in collaboration with the School of Education and the science units offered provides pathways for students to pursue maths/science teaching. To qualify for teaching in secondary schools graduates from the BSc (Specialisations in Biotechnology, Chemistry or Environmental Management) must apply for and complete the Graduate Diploma in Secondary Education.

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course, an applicant must have successfully completed a course of study at year 12 or equivalent. Year 12 Prerequisites: Units 3 and 4 - study score of at least 20 in English (any) and in mathematics (any). Selection Mode: Current year 12 applicants: ATAR and two-stage process with a middle-band of approximately 20%. Middle-band: Completing biology, chemistry, environmental science, physics or specialist mathematics = an aggregate 3 points higher per study, to a maximum 9 points. Applicants who have not completed Year 12 but who possess appropriate educational qualifications work or life experiences which would enable them to successfully undertake the course will be considered for admission. Students who successfully complete the Victoria University Alternative Entry or Foundations Studies courses will be offered access into the course. Further information on how to apply for courses at Victoria University can be found at www.vu.edu.au/future-students.

Admission Requirements Other: Community science units of study include placements within schools and other community settings. Police check: Students may be required to complete a National Police Record Check prior to undertaking Community Science units of study. Working with Children Check: Students must complete a Working with Children Check prior to undertaking Community Science units of study.

COURSE STRUCTURE

To graduate with the SBSC Bachelor of Science (Specialisations in Biotechnology, Chemistry or Environmental Management) students must satisfy the following conditions:

- Successfully complete units of study totalling at least 288 credit points.
- A minimum of 240 credit points in approved units must be taken from the Faculty of Health, Engineering & Science.
- A maximum of 48 credit points in approved units can be taken from either the Faculty of Arts, Education & Human Development or the Faculty of Business & Law.
- Successfully complete either of the following specialisation and sub-specialisation combinations. Common Year 1 96 credit points + Specialisation 96 credit points + Specialisation 96 credit points or Common Year 1 96 credit points + Specialisation 96 credit points + Sub-specialisation 48 credit points + Sub-specialisation 48 credit points
- Units of study at the third year level totalling at least 48 credit points.
- Successfully complete in Year 3 the compulsory unit of study RSS3000 INDUSTRY PROJECT (12 credit points) taken in a chosen specialisation.

Semester One		
RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RBF1310	BIOLOGY 1	12
RCS1601	CHEMISTRY 1A	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12
Semester Two		
RBF1320	BIOLOGY 2	12
RCM1114	INTRODUCTION TO COMPUTING AND THE INTERNET	12

RCS1602	CHEMISTRY 1B	12
RCM1613	APPLIED STATISTICS 1	12

List A: Specialisations

Biotechnology Specialisation

Year 2

Semester One

RBF2300	MICROBIOLOGY 1	12
RBF2520	BIOCHEMISTRY 1	12

Choose Year 2 sem 1 units of another Specialisation from List A

OR

Choose Year 2 sem 1 units of two Sub-specialisations from List B

Semester Two

RBF2330	CELL BIOLOGY	12
RBF2390	MOLECULAR GENETICS	12

Choose Year 2 sem 2 units of another Specialisation from List A

OR

Choose Year 2 sem 2 units of two Sub-specialisations from List B

Year 3

Choose RSS3000 Industry Project in one Specialisation in consultation with the Course Coordinator.

RSS3000	INDUSTRY PROJECT	12

Choose other units to the value of 36 credit points in semesters 1 and 2 from that Specialisation in consultation with the Course Coordinator.

Semester One

RMS3030	GENETIC ENGINEERING	12
RMS3113	COMPARATIVE IMMUNOBIOLOGY	12

Choose Year 3 sem 1 units of another Specialisation from List A

OR

Choose Year 3 sem 1 units of two Sub-specialisations from List B

Semester Two

RMS3010	BIOPROCESSING APPLICATIONS	12
RMS3020	GENOMICS, PROTEOMICS AND BIOINFORMATICS	12

Choose Year 3 sem 2 units of another Specialisation from List A

OR

Choose Year 3 sem 2 units of two Sub-specialisations from List B

Chemistry Specialisation

Year 2

Semester One

RCS2100	ORGANIC CHEMISTRY 2A	12
RCS2601	ANALYTICAL CHEMISTRY 2A	12

Choose Year 2 sem 1 units of another Specialisation from List A

OR

Choose Year 2 sem 1units of two Sub-specialisations from List B

Semester Two

RCS2503	FORENSIC CHEMISTRY 2	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12

Choose Year 2 sem 2 units of another Specialisation from List A

OR

Choose Year 2 sem 2 units of two Sub-specialisations from List B

Year 3

Choose RSS3000 Industry Project in one Specialisation in consultation with the Course Coordinator.

RSS3000	INDUSTRY PROJECT	12

Choose other units to the value of 36 credit points in semesters 1 and 2 from that Specialisation in consultation with the Course Coordinator.

Semester One

RCS3601	ANALYTICAL CHEMISTRY 3A	12
RCS3605	FORENSIC METHODS 3A	12

Choose Year 3 sem 1 units of another Specialisation from List A

OR

Choose Year 3 sem 1 units of two Sub-specialisations from List B

Semester Two

RCS3602	ANALYTICAL CHEMISTRY 3B	12
RSS3000	INDUSTRY PROJECT	12

Choose Year 3 sem 2 units of another Specialisation from List A

OR

Choose Year 3 sem 2 units of two Sub-specialisations from List B

Ecology & Environmental Management Specialisation

Year 2

Semester One

RBF1160	AUSTRALIAN LANDSCAPES AND BIOTA	12
RBF2640	AUSTRALIAN ANIMALS	12

Choose Year 2 sem 1 units of another Specialisation from List A

OR

Choose Year 2 sem 1 units of two Sub-specialisations from List B

Semester Two

RBF2610	FUNDAMENTALS OF ECOLOGY	12
RBF2620	AUSTRALIAN PLANTS	12

Choose Year 2 sem 2 units of another Specialisation from List A

OR

Choose Year 2 sem 2 units of two Sub-specialisation from List B

Year 3

Choose RSS3000 Industry Project in one Specialisation in consultation with the Course Coordinator.

RSS3000	INDUSTRY PROJECT	12

Choose other units to the value of 36 credit points in semesters 1 and 2 from that Specialisation in consultation with the Course Coordinator.

Semester One

RBF3110	MARINE & FRESHWATER ECOLOGY	12
RBF3620	CONSERVATION AND SUSTAINABILITY	12

Choose Year 3 sem 1 units of another Specialisation from List A

OR

Choose Year 3 sem 1 units of two Sub-specialisations from List B

Semester Two

RBF3210	ENVIRONMENTAL REHABILITATION	12
RBM2201	CONSERVATION GENETICS	12

Choose Year 3 sem 2 units of another Specialisation from List A

OR

Choose Year 3 sem 2 units of two Sub-specialisations from List B

List B: *Sub-specialisations

Molecular Biology

Year 2

RBF2520	BIOCHEMISTRY 1	12
RBF2390	MOLECULAR GENETICS	12

Year 3

RMS3030	GENETIC ENGINEERING	12
RMS3020	GENOMICS, PROTEOMICS AND BIOINFORMATICS	12

Cell Biology/Microbiology

Year 2

RBF2300	MICROBIOLOGY 1	12
RBF2330	CELL BIOLOGY	12

Year Three

RMS3113	COMPARATIVE IMMUNOBIOLOGY	12
RMS3010	BIOPROCESSING APPLICATIONS	12

Analytical Chemistry

Year Two

RCS2601	ANALYTICAL CHEMISTRY 2A	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12

Year Three

RCS3601	ANALYTICAL CHEMISTRY 3A	12
RCS3602	ANALYTICAL CHEMISTRY 3B	12

Forensic Chemistry

Year Two

RCS2100	ORGANIC CHEMISTRY 2A	12

OR

RCS2601	ANALYTICAL CHEMISTRY 2A	12
RCS2503	FORENSIC CHEMISTRY 2	12

Year Three

RCS3605	FORENSIC METHODS 3A	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12

Community Science

Year Two

SED1101	COMMUNITY BASED GENERAL SCIENCE 1	12
SED1202	COMMUNITY BASED GENERAL SCIENCE 2	12

Year Three

SED2103	COMMUNITY BASED GENERAL SCIENCE 3	12
SED2204	COMMUNITY BASED GENERAL SCIENCE 4	12

Computing

Year Two

ECB2124	WEB-BASED SYSTEMS DEVELOPMENT	12
ECB1223	INTRODUCTION TO SYSTEMS ANALYSIS AND DATABASES	12

Year Three

ECB2113	OPERATING SYSTEMS	12
ECB2253	IT PROJECT MANAGEMENT	12

Environmental Science

Year Two

RBF2640	AUSTRALIAN ANIMALS	12
RBF2620	AUSTRALIAN PLANTS	12

Year Three

RBF3110	MARINE & FRESHWATER ECOLOGY	12
RBF3210	ENVIRONMENTAL REHABILITATION	12

Environmental Assessment and Analysis

(For Ecology & Environmental Management Specialisation students only)

Year Two

RBF3610	BIOSTATISTICS	12
RBF3630	ENVIRONMENTAL IMPACTS AND MONITORING	12

Year Three

RBM3101	GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH	12
RBF3650	POLLUTION BIOLOGY	12

Mathematics/Statistics

Year Two

RCM1712	MATHEMATICAL FOUNDATIONS 2	12
RCM1614	APPLIED STATISTICS 2	12

Year Three

RCM2712	MATHEMATICS OF CONTINUOUS PROCESSES A	12
RCM2611	LINEAR STATISTICAL MODELS	12

*Other sub-specialisations may be chosen from the Faculty of Health, Engineering & Science, Faculty of Arts, Education & Human Development or Faculty of Business & Law in consultation with the Course Coordinator.

BACHELOR OF SCIENCE (SPECIALISATION)

Course Code: SBSS

Campus: Werribee, Footscray Park, Other, Year 1: Footscray Park campus. Year 2 & 3: Werribee campus.

About this course: The Bachelor of Science (Specialisation) course offers specialisations in the three science disciplines listed below: Biotechnology Chemistry Ecology & Environmental Management Students can choose to specialise in one or two of these science disciplines. This is a three year course with a common first year and a choice of sub-specialisations in the latter two years that allows students the flexibility to add other studies of interest to their specialisation. Sub-specialisations can be chosen from health, engineering, science, arts, business and law. Sub-specialisations are subject to the approval of the course coordinator and may be limited by prerequisite requirements and timetable clashes. Science sub-specialisations are listed below. analytical chemistry cell biology/microbiology community science computing environmental science environmental assessment & analysis forensic chemistry mathematics molecular biology statistics. The BSc (specialisation) is industry focused, offers an intensive hands-on laboratory experience, has modern laboratories with state-of-the-art equipment, provides opportunities for industry projects and placements and overall better prepares students for careers in the science profession. Those students with scientific research in mind can progress into Honours and postgraduate studies (subject to performance in the degree program). Biotechnology Specialisation Biotechnology involves the use of biological cells and their components for the benefit of society. It includes the application of the latest technologies to solve medical, environmental and agricultural problems. The biotechnology specialisation prepares students for exciting careers in cutting edge science. It provides in-depth education in many areas of modern biology including genetic engineering, medical research, cloning, forensic biology, environmental biotechnology, microbiology and biochemistry. There is a strong emphasis on the development of laboratory-based skills for which the university is equipped with state-of-the-art facilities. Chemistry Specialisation The chemistry specialisation has a strong industry focus and will produce graduates that are work ready by combining an extensive laboratory program with training on state-of-the-art equipment along with an industry placement program. The course combines studies in analytical, forensic and organic chemistry to develop measurement and investigative skills that are highly sought after by industry. After completing second year, students have the opportunity to work in one of over twenty chemical industries as part of their studies. The laboratory program includes hands-on training in modern analytical techniques including atomic absorption spectroscopy, inductively coupled plasma optical emission spectroscopy, gas chromatography including gas chromatography-mass spectrometry, liquid chromatography including liquid chromatography-mass spectrometry, ion chromatography, ultraviolet and visible spectroscopy, fluorescence spectroscopy and Fourier transform infra-red spectroscopy. Over a million dollars of state-of-the-art analytical equipment has recently been acquired and extensive training on this equipment including applications, theory of operation, optimisation, maintenance and troubleshooting forms a major part of second and third year studies. The laboratory program is designed to give our chemistry graduates a genuine head start into the work force. Ecology & Environmental Management Specialisation Australia and the rest of the world face significant challenges in balancing the needs of a sustainable society while protecting the natural environment. The Ecology and Environmental Management specialisation develops skills in environmental sciences that underpin achievable sustainability strategies. Subjects combine extensive practical experience in the field (terrestrial, marine and freshwater environments) and laboratory, with theory that is based on current research and management practices. In partnership with industry, government agencies, researchers and the community, this specialisation produces graduates that are work-ready. An emphasis on environmental research methodology across all subjects also leads to a high uptake into more highly specialised honours and postgraduate research projects. The Ecology and Environmental Management specialisation develops the knowledge and practical experience for working across social, environmental and economic contexts, to achieve ecological sustainability. Pathways to a Career in Teaching The BSc (Specialisation) offers a selection of units in mathematics and science, including six new innovative community science units, which prepare students wishing to pursue careers as maths/science teachers. The community science units are unique and emphasise learning in the workplace through placements in primary and secondary schools and in community education groups. To qualify for teaching in secondary schools graduates from the BSc (Specialisation) must apply for and complete the Graduate Diploma in Secondary Education.

Course Objectives: The Bachelor of Science (Specialisation)will produce graduates with a thorough knowledge of contemporary science for careers in industry, government and education. The selection of specialisations and sub-specialisations offered allows students the flexibility to customise their learning towards current and future career demands. Via various learning in the workplace and community strategies the course will make graduates 'work ready'. The course allows students wishing to pursue maths/science teaching via the Graduate Diploma in Secondary Education, a number of possibilities with respect to obtaining parts, sub-majors and majors in maths/science teaching specialist areas. Graduates from this course should be able to: locate, manage and use scientific information efficiently and effectively solve scientific problems effectively in a range of settings including industry and community exhibit high levels of numeracy skills in a range of scientific settings communicate effectively in spoken and written forms on a range of scientific and mathematical topics to professional and community groups apply an evidence-based research approach to a chosen area of science respond with social and cultural awareness within local and global environments work autonomously and collaboratively as a professional in both industry and community settings.

Careers: The Bachelor of Science (Specialisation) will produce graduates with a thorough knowledge of contemporary science for careers in industry, government and education. The flexibility of the course allows students to customise their learning towards current and future career demands. Biotechnology graduates pursue careers in a variety of areas including medical and pharmaceutical research, forensic science, agriculture and aquaculture, the food and beverage industry and education. Industries that employ our chemistry graduates include: agricultural chemicals, brewing and wine, chemical analysis, cosmetics, dairy, environmental science and water, food, forensics, horticulture, industrial chemicals, materials and polymers, petrochemicals, pharmaceutical, scientific sales, state and federal government departments. Careers in ecology and environmental management include: landcare/bushcare coordinator; environment officer or environmental planner; restoration ecology and land management officer; marine and freshwater ecosystem management officer; environmental educator; botanist/zoologist/ecologist and ecological and resource assessor. The course has been designed in collaboration with the School of Education and the science units offered provides pathways for students to pursue maths/science teaching. To qualify for teaching in secondary schools graduates from the BSc (Specialisation) must apply for and complete the Graduate Diploma in Secondary Education.

Course Duration: 3 years.

Admission Requirements International: To be considered to study this course, applicants must: ·have achieved an IELTS (Academic Module) result with an overall score of 6 (no band less than 6) or equivalent · have completed a secondary school qualification equivalent to Australia's year 12 or VCE qualification · completed studies in mathematics as part of their qualification

Admission Requirements Other: Provide an equivalent Police Check from your country prior to undertaking Community Science units of study. Applicants will also need to provide an equivalent working with Children Check prior to undertaking Community Science units of study.

COURSE STRUCTURE

To graduate with the SBSS Bachelor of Science (Specialisation) students must satisfy the following conditions:

- Successfully complete units of study totalling at least 288 credit points.
- A minimum of 240 credit points in approved units must be taken from the Faculty of Health, Engineering & Science.
- A maximum of 48 credit points in approved units can be taken from either the Faculty of Arts, Education & Human Development or the Faculty of Business & Law.
- Successfully complete either of the following specialisation and sub-specialisation combinations. Common Year 1 96 credit points + Specialisation 96 credit points + Specialisation 96 credit points or Common Year 1 96 credit points + Specialisation 96 credit points + Sub-specialisation 48 credit points + Sub-specialisation 48 credit points

- Units of study at the third year level totalling at least 48 credit points.
- Successfully complete in Year 3 the compulsory unit of study RSS3000 INDUSTRY PROJECT (12 credit points) taken in a chosen specialisation.

Semester One

RBF1150	GLOBAL ENVIRONMENTAL ISSUES	12
RBF1310	BIOLOGY 1	12
RCS1601	CHEMISTRY 1A	12
RCM1711	MATHEMATICAL FOUNDATIONS 1	12

Semester Two

RBF1320	BIOLOGY 2	12
RCM1114	INTRODUCTION TO COMPUTING AND THE INTERNET	12
RCS1602	CHEMISTRY 1B	12
RCM1613	APPLIED STATISTICS 1	12

List A: Specialisations

Biotechnology Specialisation

Year 2

Semester One

RBF2300	MICROBIOLOGY 1	12
RBF2520	BIOCHEMISTRY 1	12

Choose Year 2 sem 1 units of another Specialisation from List A

OR

Choose Year 2 sem 1 units of two Sub-specialisations from List B

Semester Two

RBF2330	CELL BIOLOGY	12
RBF2390	MOLECULAR GENETICS	12

Choose Year 2 sem 2 units of another Specialisation from List A

OR

Choose Year 2 sem 2 units of two Sub-specialisations from List B

Year 3

Choose RSS3000 Industry Project in one Specialisation in consultation with the Course Coordinator.

RSS3000	INDUSTRY PROJECT	12

Choose other units to the value of 36 credit points in semesters 1 and 2 from that Specialisation in consultation with the Course Coordinator.

Semester One

RMS3030	GENETIC ENGINEERING	12
RMS3113	COMPARATIVE IMMUNOBIOLOGY	12

Choose Year 3 sem 1 units of another Specialisation from List A

OR

Choose Year 3 sem 1 units of two Sub-specialisations from List B

Semester Two

RMS3010	BIOPROCESSING APPLICATIONS	12
RMS3020	GENOMICS, PROTEOMICS AND BIOINFORMATICS	12

Choose Year 3 sem 2 units of another Specialisation from List A

OR

Choose Year 3 sem 2 units of two Sub-specialisations from List B

Chemistry Specialisation

Year 2

Semester One

RCS2100	ORGANIC CHEMISTRY 2A	12
RCS2601	ANALYTICAL CHEMISTRY 2A	12

Choose Year 2 sem 1 units of another Specialisation from List A

OR

Choose Year 2 sem 1units of two Sub-specialisations from List B

Semester Two

RCS2503	FORENSIC CHEMISTRY 2	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12

Choose Year 2 sem 2 units of another Specialisation from List A

OR

Choose Year 2 sem 2 units of two Sub-specialisations from List B

Year 3

Choose RSS3000 Industry Project in one Specialisation in consultation with the Course Coordinator.

RSS3000	INDUSTRY PROJECT	12

Choose other units to the value of 36 credit points in semesters 1 and 2 from that Specialisation in consultation with the Course Coordinator.

Semester One

RCS3601	ANALYTICAL CHEMISTRY 3A	12
RCS3605	FORENSIC METHODS 3A	12

Choose Year 3 sem 1 units of another Specialisation from List A

OR

Choose Year 3 sem 1 units of two Sub-specialisations from List B

Semester Two

RCS3602	ANALYTICAL CHEMISTRY 3B	12
RSS3000	INDUSTRY PROJECT	12

Choose Year 3 sem 2 units of another Specialisation from List A

OR

Choose Year 3 sem 2 units of two Sub-specialisations from List B

Ecology & Environmental Management Specialisation

Year 2

Semester One

RBF1160	AUSTRALIAN LANDSCAPES AND BIOTA	12
RBF2640	AUSTRALIAN ANIMALS	12

Choose Year 2 sem 1 units of another Specialisation from List A

OR

Choose Year 2 sem 1 units of two Sub-specialisations from List B

Semester Two

RBF2610	FUNDAMENTALS OF ECOLOGY	12
RBF2620	AUSTRALIAN PLANTS	12

Choose Year 2 sem 2 units of another Specialisation from List A

OR

Choose Year 2 sem 2 units of two Sub-specialisation from List B

Year 3

Choose RSS3000 Industry Project in one Specialisation in consultation with the Course Coordinator.

RSS3000	INDUSTRY PROJECT	12

Choose other units to the value of 36 credit points in semesters 1 and 2 from that Specialisation in consultation with the Course Coordinator.

Semester One

RBF3110	MARINE & FRESHWATER ECOLOGY	12
RBF3620	CONSERVATION AND SUSTAINABILITY	12

Choose Year 3 sem 1 units of another Specialisation from List A

OR

Choose Year 3 sem 1 units of two Sub-specialisations from List B

Semester Two

RBF3210	ENVIRONMENTAL REHABILITATION	12
RBM2201	CONSERVATION GENETICS	12

Choose Year 3 sem 2 units of another Specialisation from List A

OR

Choose Year 3 sem 2 units of two Sub-specialisations from List B

List B: *Sub-specialisations

Molecular Biology

Year 2

RBF2520	BIOCHEMISTRY 1	12
RBF2390	MOLECULAR GENETICS	12

Year 3

RMS3030	GENETIC ENGINEERING	12
RMS3020	GENOMICS, PROTEOMICS AND BIOINFORMATICS	12

Cell Biology/Microbiology

Year 2

RBF2300	MICROBIOLOGY 1	12
RBF2330	CELL BIOLOGY	12

Year Three

RMS3113	COMPARATIVE IMMUNOBIOLOGY	12
RMS3010	BIOPROCESSING APPLICATIONS	12

Analytical Chemistry

Year Two

RCS2601	ANALYTICAL CHEMISTRY 2A	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12

Year Three

RCS3601	ANALYTICAL CHEMISTRY 3A	12
RCS3602	ANALYTICAL CHEMISTRY 3B	12

Forensic Chemistry

Year Two

RCS2100	ORGANIC CHEMISTRY 2A	12

OR

RCS2601	ANALYTICAL CHEMISTRY 2A	12
RCS2503	FORENSIC CHEMISTRY 2	12

Year Three

RCS3605	FORENSIC METHODS 3A	12
RCS2602	ANALYTICAL CHEMISTRY 2B	12

**Community Science

Year Two

SED1101	COMMUNITY BASED GENERAL SCIENCE 1	12
SED1202	COMMUNITY BASED GENERAL SCIENCE 2	12

Year Three

SED2103	COMMUNITY BASED GENERAL SCIENCE 3	12
SED2204	COMMUNITY BASED GENERAL SCIENCE 4	12

Computing

Year Two

ECB2124	WEB-BASED SYSTEMS DEVELOPMENT	12
ECB1223	INTRODUCTION TO SYSTEMS ANALYSIS AND DATABASES	12

Year Three

ECB2113	OPERATING SYSTEMS	12
ECB2253	IT PROJECT MANAGEMENT	12

Environmental Science

Year Two

RBF2640	AUSTRALIAN ANIMALS	12
RBF2620	AUSTRALIAN PLANTS	12

Year Three

RBF3110	MARINE & FRESHWATER ECOLOGY	12
RBF3210	ENVIRONMENTAL REHABILITATION	12

Environmental Assessment and Analysis

(For Ecology & Environmental Management Specialisation students only)

Year Two

RBF3610	BIOSTATISTICS	12
RBF3630	ENVIRONMENTAL IMPACTS AND MONITORING	12

Year Three

RBM3101	GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH	12
RBF3650	POLLUTION BIOLOGY	12

Mathematics and Statistics

Choose four units in consultation with Course Coordinator

Year Two

RCM1712	MATHEMATICAL FOUNDATIONS 2	12
RCM1614	APPLIED STATISTICS 2	12
Year Three		
RCM2712	MATHEMATICS OF CONTINUOUS PROCESSES A	12
RCM2611	LINEAR STATISTICAL MODELS	12

*Other sub-specialisations may be chosen from the Faculty of Health, Engineering & Science, Faculty of Arts, Education & Human Development or Faculty of Business & Law in consultation with the Course Coordinator. **Two further units of Community Science are available (see Course Coordinator).

GRADUATE DIPLOMA IN COMPUTER SCIENCE

Course Code: SGCS

Campus: Footscray Park, Off-shore, Other, Education Centre of Australia, Sydney.

About this course: The Graduate Diploma course is designed for graduates who want to acquire professional competence in Computer Science. This course develops graduates who have a sound conceptual foundation, including practical understanding of recent developments in computer technology and how these may be applied to solve a wide range of problems in business and industry.

Course Objectives: The Graduate Diploma course is designed for graduates who want to acquire professional competence in Computer Science. This course develops graduates who have a sound conceptual foundation, including practical understanding of recent developments in computer technology and how these may be applied to solve a wide range of problems in business and industry.

Careers: Completion of the course will prepare graduates for variety of computing careers such as software development, software engineering, web-based programming, networking administration.

Course Duration: 1 year.

Admission Requirements Year 12: Entry to the course is open to applicants with a first degree. Preference will be given to applicants whose degree contains major studies in a quantitative discipline. Other applicants whose occupation or experience indicates that they have the capacity to succeed may be accepted into the course.

COURSE STRUCTURE

The Graduate Diploma of Science in Computer Science (SGCS) is an eight (8) unit of study course (96 Credit Points) offered on a full-time basis over one year or on an equivalent part-time basis. The SGCS constitutes the first year of a two year nested Master of Science (Computer Science) course [SMCS]. Successful completion of the SGCS or an equivalent course allows a direct entry into the second year of SMCS course. Depending on demand, some of the following Computer Science streams may be offered:

- Software Development;
- Software Engineering;
- Network and Security.

Semester 1 4 x Approved units (12 credit points each) selected from the Unit List.
Semester 2 4 x Approved units (12 credit points each) selected from the Unit List.

Unit List

RCM5800	OBJECT ORIENTED PROGRAMMING GD1	12
RCM5802	INFORMATION SYSTEMS	12
RCM5803	DATA STRUCTURES AND PROGRAMMING	12
RCM5805	COMMUNICATION AND NETWORKS	12
RCM5810	SOFTWARE DEVELOPMENT	12
RCM5811	OPERATING SYSTEMS	12
RCM5813	ARTIFICIAL INTELLIGENCE	12
RCM5814	COMPUTER GRAPHICS	12
RCM5820	NETWORK OPERATING SYSTEMS ADMINISTRATION	12
RCM5824	OBJECT ORIENTED PROGRAMMING GD2	12
RCM6812	CRYPTOGRAPHY COMPUTER & NETWORK SECURITY	12
RCM6813	INTERNET SECURITY	12
RCM6822	INTERNET PROGRAMMING	12
RCM6841	SOFTWARE ENGINEERING 2	12
RCM6844	SOFTWARE ENGINEERING 1	12

BACHELOR OF SCIENCE (HONOURS) (APPLIED BIOLOGY) (I)

Course Code: SHAB

Campus: St Albans.

Course Objectives: An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level that builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a 'credit' average, or equivalent, in the final year of the degree.

COURSE STRUCTURE

The structure of the honours course is as follows:

Semester 1		
RBF4001	SCIENCE HONOURS	48
Semester 1		
RBF4002	SCIENCE HONOURS	48

(48 credit points per semester)

BACHELOR OF SCIENCE (HONOURS) BIOLOGY (BIOTECHNOLOGY) (I)

Course Code: SHBB

Campus: Werribee.

About this course: The aim of the honours program is to provide a course of advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

Course Objectives: An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in: working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

Careers: Medical, biotechnology and pharmaceutical research or further studies to PhD.

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a 'credit' average, or equivalent, in the final year of the degree. Applicants must also have an approved project and supervisor prior to admission to the course.

COURSE STRUCTURE

The courses are offered on a full-time basis over one year or equivalent if on a part-time basis. Entry to the Honours program for the Conservation Biology and Environmental Management specialisation can be either at the beginning of the academic year (February) or at a mid-year intake (July) to allow for field-based research with seasonal limitations.

Semester 1

RBF4001	SCIENCE HONOURS	48

Semester 2

RBF4002	SCIENCE HONOURS	48

Other Course Specific Notes The course consists of advanced coursework and a research thesis. Assessment will be based on written assignments, seminar presentations, a written examination and the research thesis.

Coursework assessment will be based on seminar presentations, written assignments and examination.

BACHELOR OF SCIENCE (HONOURS) (CHEMICAL SCIENCES) (I)

Course Code: SHCB

Campus: Werribee, Footscray Park.

Course Objectives: (for SHBT, SHFT and SHCB)An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in: working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication

Careers: Analytical or research chemist in fields including pharmaceuticals, food, polymers, forensics.

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a 'credit' average, or equivalent, in the final year of the degree. Applicants must also have an approved project and supervisor prior to admission to the course.

COURSE STRUCTURE

The courses are offered on a full-time basis over one year or equivalent if on a part-time basis. Entry to the Honours program for the Conservation Biology and Environmental Management specialisation can be either at the beginning of the academic year (February) or at a mid-year intake (July) to allow for field-based research with seasonal limitations.

Year 1

Semester 1

RCS4201	HONOURS COURSEWORK	24
RCS4601	HONOURS PROJECT PART TIME	24

Semester 2

RCS4602	HONOURS PROJECT	48
RCS4610	HONOURS PROJECT PART TIME	24

Part Time students enrol in RCS4610 over 2 semesters (24 credit points each semester)

The course consists of advanced coursework and a research thesis. Assessment will be based on written assignments, seminar presentations, a written examination and the research thesis.

Coursework assessment will be based on seminar presentations, written assignments and examination.

BACHELOR OF SCIENCE (HONOURS) (COMPUTER SCIENCE) (I)

Course Code: SHCS

Campus: Footscray Park.

About this course: Students who do exceptionally well in their degree studies may be given the opportunity to gain an Honours degree by completing a fourth year of study in a specific field. This year is designed to assist students who may wish to proceed to higher degrees by research, but it also enables students to concentrate their studies more intensely on areas of particular interest. The Honours year requires students to select coursework units from one of the fields of Computer Science, Statistics, and Operations Research. As well, a minor thesis must be completed.

Course Objectives: Students who do exceptionally well in their degree studies may be given the opportunity to gain an Honours degree by completing a fourth year of study in a specific field. This year is designed to assist students who may wish to proceed to higher degrees by research, but it also enables students to concentrate their studies more intensely on areas of particular interest

Careers: Entry into a higher degree by research Programming, software development, software engineering Web design.

Course Duration: 1 year.

Admission Requirements International: A three-year Bachelor degree in Computer Science, Information Technology, or equivalent, with a high average over the degree. An IELTS (Academic Module) result with an overall score of 6 must have been achieved (with no band less than 6).

Admission Requirements Other: A three-year Bachelor degree in Computer Science, Information Technology, or equivalent, with a high average over the degree.

COURSE STRUCTURE

This course is 1 year full-time or 2 years part-time.

Semester 1

RCM6106	THESIS (2 UNITS)	24
RCM6827	RESEARCH PERSPECTIVES IN COMPUTER SCIENCE	12
RCM6104	THESIS (1 UNIT)	12

Semester 2

RCM6107	THESIS (2 UNITS)	24
RCM6105	THESIS (1 UNIT)	12

1 approved Computer Science elective (1 x 12 credit points)

Elective approved at the discretion of the Honours Coordinator.

BACHELOR OF SCIENCE (HONOURS) (PHYSICS) (I)

Course Code: SHPC

Campus: Footscray Park.

About this course: This course aims to broaden knowledge and understanding of physics and provide basic training to undertake research in physics. A research project is normally undertaken in one of the following areas: optical fibre sensors, laser physics, optoelectronic imaging, applied optics or vacuum technology.

Course Objectives: Research training will include the ability to devise, design and carry out research intended to yield data relevant to the solution of specific problems, the ability to develop and refine working hypotheses, to critically analyse data and to report results in an appropriate manner. The research project is normally undertaken in one of the following areas of expertise of the section: optical fibre sensors, laser physics, optoelectronic imaging, applied optics and vacuum technology.

Careers: Technical and scientific positions in a range of fields such as telecommunications.

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for entry to the Honours program the applicant should have completed the requirements for a pass degree with major studies in an appropriate discipline. Entry is at the discretion of the Applied Physics section and applicants should normally have obtained a 'credit' average in the final year of the pass degree. For mature age applicants, an appropriate combination of qualifications and experience will be considered.

COURSE STRUCTURE

The course will be offered on a full-time basis over one year or part-time equivalent.

Semester 1

RPH4411	PHYSICS 4 (HONOURS)	48

Semester 2

RPH4412	PHYSICS 4 (HONOURS)	48

Academic Progression

A student will not be allowed to repeat the Honours year or any component of it without the permission of the Course Coordinator.

MASTER OF SCIENCE (COMPUTER SCIENCE)

Course Code: SMCS

Campus: Footscray Park, Off-shore, Other, Education Centre of Australia, Sydney.

About this course: The Master of Science in Computer Science course develops a sound theoretical knowledge of contemporary Computer Science techniques. Emphasis is also placed on the application of these techniques in areas of business and industry.

Course Objectives: The Master of Science in Computer Science course develops a sound theoretical knowledge of contemporary Computer Science techniques. Emphasis is also placed on the application of these techniques in areas of business and industry.

Careers: Completion of the course will prepare graduates for variety of computing careers such as software development, software engineering, web-based programming, systems analyst, consultancy, networking and security, networking administration, database administration, system analysis in sectors including government, banking and finance, web-based publishing, retail, and manufacturing.

Course Duration: 2 years.

Admission Requirements Year 12: To qualify for admission to the course an applicant must have successfully completed an appropriate degree or an equivalent combination of qualifications and experience. Applicants must be competent in tertiary level computing. Applicants with any of the following qualifications may apply for credits against specific coursework subjects up to the indicated maximum. (a) A degree in computer science (8). (b) A four year Honours degree in computer science (8). (c) A pass degree (without a major in computer science) followed by an appropriate graduate diploma (8). (d) A combination of qualifications and experience equivalent to (a), (b), or (c) above.

COURSE STRUCTURE

The Master of Science (Computer Science) [SMCS] is 192 Credit Points postgraduate course offered on a full-time basis over two years or on an equivalent part-time basis. Since SMCS is a nested course, successful completion of eight (8) units approved by the course coordinator provides exit points to Postgraduate Diploma in Computer Science (SGCS) or to Postgraduate Diploma in Software Engineering (SGSE).

Year 1 Semester 14 x Approved units (12 credit points each) selected from the Unit List. Semester 24 x Approved units (12 credit points each) selected from the Unit List. Year 2 96 Credit Points including at least 24 CP that are from the thesis list and approved by the course coodinator.

Unit List

RCM5800	OBJECT ORIENTED PROGRAMMING GD1	12
RCM5802	INFORMATION SYSTEMS	12
RCM5803	DATA STRUCTURES AND PROGRAMMING	12
RCM5805	COMMUNICATION AND NETWORKS	12
RCM5810	SOFTWARE DEVELOPMENT	12
RCM5811	OPERATING SYSTEMS	12
RCM5813	ARTIFICIAL INTELLIGENCE	12
RCM5814	COMPUTER GRAPHICS	12
RCM5820	NETWORK OPERATING SYSTEMS ADMINISTRATION	12
RCM5824	OBJECT ORIENTED PROGRAMMING GD2	12
RCM6702	INTERNET DATA REPRESENTATION 1	12
RCM6710	INTERNET DATA MANAGEMENT 1	12
RCM6812	CRYPTOGRAPHY COMPUTER & NETWORK SECURITY	12
RCM6813	INTERNET SECURITY	12
RCM6819	USER INTERFACE DESIGN	12
RCM6820	DISTRIBUTED SYSTEMS	12
RCM6822	INTERNET PROGRAMMING	12
RCM6823	DATABASE DESIGN, MANAGEMENT AND ADMINISTRATION	12
RCM6827	RESEARCH PERSPECTIVES IN COMPUTER SCIENCE	12
RCM6841	SOFTWARE ENGINEERING 2	12
RCM6842	ADVANCED TOPICS IN SOFTWARE ENGINEERING	12

RCM6843	SOFTWARE ENGINEERING PROJECT	12
RCM6844	SOFTWARE ENGINEERING 1	12
RCM6845	OBJECT ORIENTED TECHNOLOGY	12
RCM6846	OBJECT ORIENTED DESIGN	12
Thesis List		
RCM6102	THESIS (2 UNITS)	24
RCM6103	THESIS (4 UNITS)	48
RCM6104	THESIS (1 UNIT)	12
RCM6105	THESIS (1 UNIT)	12
RCM6106	THESIS (2 UNITS)	24
RCM6107	THESIS (2 UNITS)	24

DOCTOR OF PHILOSOPHY

Course Code: SPNL

Campus: Footscray Park.

This course is for Continuing students only.

About this course: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Computer Science or Mathematics.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Computer Science or Mathematics.

Careers: Academic and research focused positions in the relevant fields of study.

Course Duration: 4 years.

Admission Requirements International: 1) Achieved an IELTS (Academic Module) result with an overall score of 6.5 (no band less than 6) or equivalent, 2) Completed a Master degree by research or coursework or a relevant four year Honours degree or its equivalent at a high standard in Computer Science, Information Technology or Mathematics.

Admission Requirements Other: Completed a Master degree by research or coursework or a relevant four year Honours degree or its equivalent at a high standard in Computer Science, Information Technology or Mathematics.

COURSE STRUCTURE

This course is of 4 year duration on a full time basis or part time equivalent.

Semester 1		
RCM8001	RESEARCH THESIS 1 FULL TIME	48
RCM8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
RCM8002	RESEARCH THESIS 2 FULL TIME	48
RCM8012	RESEARCH THESIS 2 PART TIME	24

MASTER OF SCIENCE

Course Code: SRNL

Campus: Footscray Park.

About this course: The Master of Science is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Computer Science or Mathematics.

Course Objectives: The Master of Science is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in research fields of Computer Science or Mathematics.

Careers: Academic and research focused positions in the relevant fields of study.

Course Duration: 2 years.

Admission Requirements Other: Completed a Master degree by research or coursework or a relevant four year Honours degree or its equivalent at a high standard in Computer Science, Information Technology or Mathematics.

COURSE STRUCTURE

This course is of 2 year duration on a full time basis or part time equivalent.

Semester 1		
RCM8001	RESEARCH THESIS 1 FULL TIME	48
RCM8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
RCM8002	RESEARCH THESIS 2 FULL TIME	48
RCM8012	RESEARCH THESIS 2 PART TIME	24

UNITS

Below are unit details for courses offered by the School of Engineering and Science in 2012.

IMPORTANT NOTICE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

ECB1111 INTRODUCTION TO COMPUTER SYSTEMS

Locations: Footscray Park.

Description: This unit will introduce students to the fundamentals of digital systems and computer hardware. It will include the following topics: Digital systems fundamentals; binary, octal and hexadecimal number systems; Boolean logic; AND, OR, NAND, NOR, EXOR gates; Computer architecture types RISC, CISC; CPU, memory systems, storage devices, input/output ports; assembly language programming.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain the fundamentals of binary numbers and Boolean logic;
2. Explain the different components of a computer architecture and how they operate;
3. Develop basic assembly language programs.

Class Contact: Forty eight (48) hours for one semester comprising lectures and laboratories.

Required Reading: Structured Computer Organization Tanenbaum, A. 2006 5th Ed. Prentice Hall

Assessment: Assignment, Assignment-1 (4-5 technical questions), 20%. Assignment, Assignment-2 (4-5 technical questions), 20%. Test, Test-1, 20%. Test, Test-2, 40%.

ECB1121 PROGRAMMING PRINCIPLES

Locations: Footscray Park.

Description: This unit provides basic understanding of a modern object oriented language. The unit develops skills in software development, through an algorithmic approach and the application of principles of objected oriented programming. Content includes: introduction to programming; basic constructs of a programming language; sequence, selection and iteration; classes and objects, inheritance, use of predefined classes from libraries; one dimensional arrays; graphical user Interface.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Discuss and apply fundamental aspects of computer program development;
2. Describe software development activities;
3. Develop algorithms using basic programming constructs;
4. Manipulate primitive data types and structured data types;
5. Apply basic object-oriented software principles in problem solving.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and laboratories.

Required Reading: Java foundations: Introduction to program design and data structures Lewis J., DePasquale P., & Chase J. (2008) Pearson International Edition

Assessment: Assignment, Programming Assignment (300-500 lines of code), 25%. Laboratory Work, 5-6 Programming tasks, 25%. Test, Test-1, 20%. Test, Test-2, 30%.

ECB1131 COMPUTER NETWORK CONCEPTS

Locations: Footscray Park.

Description: This unit provides an introduction to data communication fundamentals, network transmission technologies and network protocols. It introduces students to basic design and communicational issues related to local area networks, wide area networks and the Internet. Content includes: History and fundamentals of data communications and networks; standards; communication media types; data communications principles and protocols; network architectures and protocols, standard interfaces and transmission techniques; data integrity and security; Local Area Networks (LAN); data link control; connecting LANs; networking technologies such as Ethernet.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of modern business and personal applications of data communication systems;
2. Apply various technologies to solving data communication and networking problems;
3. Document communication requirements of an application environment;
4. Compute communication parameters such as bandwidth, throughput, and response time.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorial and practical sessions.

Required Reading: Computer Networking James F. Kurose, Keith W. Ross (2010) 5th Ed. Pearson 31 Days Before Your CCNA Exam: A Day-by-Day Quick Reference Study Guide Scott Bennett (2009) 2nd Ed Cisco Press

Assessment: Assignment, Assignment-1 (400-500 Words), 10%. Assignment, Assignment-2 (500-700 Words), 15%. Test, Test-1, 25%. Test, Test-2, 25%. Laboratory Work, 5-6 Practical tasks, and quizzes based on these tasks., 25%.

ECB1151 COMMUNICATION AND INFORMATION MANAGEMENT

Locations: Footscray Park.

Description: This unit aims to develop a set of skills associated with oral, written, technical and online communication. Students will be involved in locating and assembling reliable sources of information for collation and presentation. Information is stored and managed electronically for effective storage and communication. Content includes: overview of the Internet, characteristics and functions of browsers, web design and authoring, resources on the Internet, using search engines effectively, use of technology in information gathering, storage and reporting, formal and academic written communication, oral and online presentation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Locate relevant Web-based and other resources;
2. Conduct basic research to gather information;
3. Assess reliability of resources;
4. Access and collate information from a variety of sources;
5. Apply a variety of approaches to present researched information;
6. Design and develop online material;
7. Develop communication and team work skills.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, practical sessions, and group activities.

Required Reading: Web Development and Design Foundations with XHTML Felke-Morris, T. (2009) 5th Ed. Pearson Education

Assessment: Assignment, Web page design and development, 40%. Test, Test-1, 20%. Test, Test-2, 20%. Laboratory Work, 4-5 Practical tasks, 20%.

ECB1222 WEB DESIGN AND PROGRAMMING

Locations: Footscray Park.

Description: This unit provides an introduction to coding Websites using XHTML (Extensible Hyper Text Markup Language); client-side scripting is a form of programming used in conjunction with XHTML; design and implementation of client-side scripting. Contents include: XHTML; objects and methods; objects in the context of the document object model; cookies; embedding JavaScript within HTML documents; use of client-side versus server-side programming and simple animation effects.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply Web design principles in the effective design of Websites;
2. Design and develop Websites using XHTML and JavaScript;
3. Design and program client-side scripts using JavaScript.

Class Contact: Forty eight (48) hours for one semester comprising lectures and laboratories.

Required Reading: Mastering the Internet, XHTML, and JavaScript Zeid, I. (2004) 2nd Ed. Pearson Education

Assessment: Assignment, Assignment-1 (Web development), 20%. Assignment, Assignment-2 (Web development), 20%. Examination, Final 3 hours written examination, 60%.

ECB1223 INTRODUCTION TO SYSTEMS ANALYSIS AND DATABASES

Locations: Footscray Park.

Description: This unit introduces fundamental concepts underpinning the analysis and design of information systems and explains the role and purpose of systems analysis. Students gain mastery of standard techniques to identify system requirements and design a simple database system. Content includes: systems concepts; role of the analyst; Systems Development Life Cycle (SDLC), process modelling, Entity-Relationship (ER) modelling; relational database design using ER and Extended ER modelling, relational algebra, SQL (Structured Query Language), normalisation; and database management systems (DBMS).

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: 1 Describe the benefits and functions of databases and their applications; 2 Design a database using key relational database model concepts; 3 Develop and apply ER and EER diagrams; 4 Illustrate a database and its relationships with a relational schema; 5 Implement a relational database with multiple tables using a relational DBMS; 6 Apply query languages and manage a database using SQL; 7 Normalise relations in a relational database system.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and practicals.

Required Reading: Fundamentals of Database Systems Elmasri, R. and Navathe, S. (2006) 5th Ed. Addison Wesley

Assessment: Assignment, Assignment (3-4 technical questions), 15%. Test, Test, 10%. Laboratory Work, 5-6 Practical tasks, and quizzes based on these tasks, 15%. Examination, Final 3 hours written examination, 60%.

ECB1232 NETWORK COMMUNICATIONS AND ROUTING

Locations: Footscray Park.

Prerequisites: ECB1131 - COMPUTER NETWORK CONCEPTS

Description: This unit enhances and deepens the knowledge on Communications and Protocols. Content includes: Wide Area Networks (WANs), virtual LANs and routers; other networking devices such as: bridges and gateways; routing techniques and protocols; Transmission Control Protocol/Internet Protocol (TCP/IP) suite; and subnets.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Identify and apply network protocols for particular network layers;
2. Discuss the functionality of the physical, data link, IP, TCP/UDP, and application layers;
3. Identify the key issues in network design and management.
4. Implement routing protocols using industry standard technologies for LANs, WANs and the Internet.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and laboratories.

Required Reading: TCP/IP Protocol Suite Forouzan, B.A. (2010) 4th Ed. McGraw Hill

Assessment: Assignment, Assignment (3-4 technical questions), 15%. Laboratory Work, 5-6 Practical tasks, and quizzes based on these tasks, 25%. Examination, Final 3 hours written examination, 60%.

ECB1252 INTRODUCTION TO THE COMPUTING PROFESSION

Locations: Footscray Park.

Description: This unit articulates the role and importance of the computing profession within the local and global communities. Content includes: the role of a computing professional; understanding how computers impact on society; ethical issues including: privacy and ownership, issues in storing and retrieving information, responsibilities to install, maintain and upgrade software; dealing with clients and problem solving; career options in IT; job application and interviews skills.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Identify the key roles of computing in the local and global communities;
2. Identify ethical issues in computing;
3. Communicate effectively by writing on a range of computer-related topics using appropriate language;
4. Communicate effectively using oral and visual presentations on range of computer-related topics;
5. Work individually and with others in teams;
6. Prepare Curriculum Vitae and demonstrate general job seeking skills;
7. Initiate an educational plan for learning and career goals.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, seminars and group activities.

Required Reading: Reading material will be negotiated in consultation with the lecturer and will be appropriate to the topic under investigation.

Assessment: Assignment, Assignment-1 (500-1000 words), 10%. Assignment, Assignment-2 (1000-1500 words), 20%. Presentation, Oral presentation-1 based on Assignment-1, 10%. Presentation, Oral presentation-2 based on Assignment-2, 20%.

Portfolio, Initiate the creation of Web-based portfolio, 40%.

ECB2112 SECURITY, PRIVACY AND ETHICS

Locations: Footscray Park.

Description: The unit examines a wide range of ethical, privacy and security issues and concepts in the ICT field. The unit develops student critical thinking skills by introducing topical and controversial issues related to computing ethics, privacy and security problems. Content includes: information security concepts as applied to the management of information systems; different industry policies; mechanisms for implementing these policies; ethical implications of security, particularly with respect to privacy; Australian Computer Society (ACS) code of ethics; social issues of privacy, intellectual property, and the digital divide.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of the different principles underlying ethical decision making;
2. Critically discuss social and ethical issues in Information and Communication Technology (ICT) domains;
3. Identify and relate appropriate privacy measures and their management for computing environments;
4. Discuss electronic security concerns for the individual and for organisations;
5. Identify specific ethical, privacy and security issues in networked computing environments;
6. Design an appropriate security solution given a set of constraints.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, practical sessions, and group activities.

Required Reading: Ethics for the Information Age Quinn, M.J. (2009) 4th Ed. Pearson International

Assessment: Assignment, Assignment-1 (1500-2000 words), 20%. Assignment, Assignment-2 (1500-2000 words), 20%. Examination, Final 3 hours written examination, 60%.

ECB2113 OPERATING SYSTEMS

Locations: Footscray Park.

Prerequisites: ECB1111 - INTRODUCTION TO COMPUTER SYSTEMS

Description: This unit introduces students to modern computer operating systems, their major components and roles. Students will be exposed to at least two popular operating systems including a mobile OS. Content includes: Operating System (OS) concepts, OS architectures; threads and processes; concurrency, daemons and services; memory management, devices and device drivers; file systems, security; basic scripting.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of the basic OS architectures, functions and roles;
2. Cite the history and identify social impacts of different operating systems, including mobile OS;
3. Describe OS components for processes, devices, files and memory management;
4. Research and report information on operating system types;
5. Partake in peer assessment to evaluate critically written essays.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, practical sessions, and tutorials.

Required Reading: Understanding Operating Systems McIver-McHoes A. & Flynn, I. (2008) 6th Ed. Cengage Learning

Assessment: Assignment, Assignment (2500-3000 words), 30%. Examination, Final 3 hours written examination, 70%.

ECB2123 PROGRAMMING FOR NETWORKS

Locations: Footscray Park.

Prerequisites: ECB1121 - PROGRAMMING PRINCIPLES

Description: This unit explores the methodologies and approaches used in programming for computer networks through using appropriate features and the application programming interface of a modern programming language. Content includes: In-depth study of classes and objects, polymorphism; advanced graphical user interfaces (GUI), programming for Transmission Control Protocol (TCP) and Universal Datagram Protocol (UDP); multithreading to support graphics and networking applications; file input and output; object streams and exception handling.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of networking with URLs (Uniform Resource Locators), sockets and datagrams;
2. Establish a simple server using TCP/IP protocol;
3. Implement a network client;
4. Create multithreaded programs that correctly execute with GUIs and/or networks;
5. Program basic client-server communications;
6. Demonstrate general network programming ability.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, practical sessions, and tutorials.

Required Reading: Java How to Program Deitel & Deitel (2010) 8th Ed. Pearson Education

Assessment: Assignment, Assignment-1 (Network programming tasks), 25%. Assignment, Assignment-2 (Network programming tasks), 25%. Examination, Final 3 hours written examination, 50%.

ECB2124 WEB-BASED SYSTEMS DEVELOPMENT

Locations: Footscray Park.

Prerequisites: ECB1222 - WEB DESIGN AND PROGRAMMING

Description: This unit prepares students for developing web-based applications that require content to be dynamically generated from a variety of data sources. Content includes: server-side scripting; dynamic generation of XHTML based on data retrieved from databases; web services; server and database system programming for dynamic web applications.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply object-oriented programming to plan and design web applications for real-world clients;
2. Integrate data sources with web applications;
3. Create and utilise web services;
4. Build a multi-tier web application.

Class Contact: Forty eight (48) hours for one semester comprising lectures and laboratories.

Required Reading: Microsoft®.NET Framework 3.5 ASP.NET Application Development Mike Snell, Tony Northrup, Glenn Johnson (2009) Microsoft Press

Assessment: Assignment, Assignment-1 (Web systems development), 20%. Assignment, Assignment-2 (Web systems development), 20%. Examination, Final 3 hours written examination, 60%.

ECB2225 MULTI-USER DATABASE SYSTEMS

Locations: Footscray Park.

Prerequisites: ECB1223 - INTRODUCTION TO SYSTEMS ANALYSIS AND DATABASES

Description: This unit provides students with an in-depth understanding of the design and implementation of modern multi-user database systems. Content includes: design and implementation of robust and scalable database applications; issues pertaining to multi-user database environments, such as transaction management and performance; in-depth study of Structured Query Language (SQL); database application development tools; database performance optimisation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain design principles underlying multi-user database management systems; Apply database theories to real-life database applications; Demonstrate knowledge of the technologies that underpin multi-user database systems; Analyse a real-life problem, and design and implement a system using a commercial database management system; Evaluate the robustness and scalability of database systems.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and practicals.

Required Reading: Database Systems: A Practical Approach to Design, Implementation and Management Connolly, T.M., and Begg, C.E. (2010) 5th Ed. Pearson International

Assessment: Assignment, Assignment-1 (4-5 technical questions), 20%. Assignment, Assignment-2 (5-6 technical questions), 30%. Examination, Final 3 hours written examination, 50%.

ECB2234 NETWORK SECURITY

Locations: Footscray Park.

Prerequisites: ECB1232 - NETWORK COMMUNICATIONS AND ROUTING

Description: This unit investigates processes of security at local and network levels, including security policies and practices, software, hardware and human issues. Content includes: physical and system security; cryptosystems; authentication and authorization; Access Control List (ACL); firewalls and port security; secure and insecure web protocols (e.g. telnet, ssh); secure email protocols (e.g. PGP and S/MIME); intrusion detection and system hardening; security in Virtual Private Networks (VPN), cloud computing, and databases.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Audit a system for security vulnerabilities;

2. Manage and use system security and logging tools;

3. Identify strengths and weaknesses in security products;

4. Apply security tools to strengthen a networked system;

5. Analyse a system for deploying the most appropriate security solution;

6. Design and implement a security solution given a set of constraints.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, practical sessions, and group activities.

Required Reading: Security Engineering: A Guide to Building Dependable Distributed Systems Ross J. Anderson (2008) 2nd Ed. Wiley

Assessment: Assignment, Assignment (1000-1500 words), 15%. Laboratory Work, 4-5 Practical tasks, and quizzes based on these tasks, 15%. Examination, Final 3 hours written examination, 70%.

ECB2241 WIRELESS NETWORKS

Locations: Footscray Park.

Prerequisites: ECB1131 - COMPUTER NETWORK CONCEPTS

Description: This unit provides students with an in-depth awareness of the fundamentals of Cisco WLAN and an overview of current technologies, together with an understanding of some scientific aspects of wireless communications and the necessary techniques to implement a WLAN. Content includes: wireless regulatory bodies; Wireless Local Area Networks (WLAN) fundamentals, such as Bluetooth, WiMAX, ZigBee; cordless phone technologies; wireless standards such as 802.11; authentication and encryption methods; wireless systems architectures, such as Cisco Unified Wireless Network Architecture.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of WLAN fundamentals;

2. Install and manage a WLAN and clients;

3. Conduct WLAN troubleshooting and maintenance.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and practicals.

Required Reading: CCNA Wireless Official Exam Certification Guide Brandon James Carroll (2008) Cisco Press

Assessment: Assignment, Assignment-1 (4-5 technical questions), 15%. Assignment, Assignment-2 (4-5 technical questions), 15%. Laboratory Work, 4-5 Practical tasks, 20%. Examination, Final 3 hours written examination, 50%.

ECB2253 IT PROJECT MANAGEMENT

Locations: Footscray Park.

Prerequisites: ECB1121 - PROGRAMMING PRINCIPLES

ECB1252 - INTRODUCTION TO THE COMPUTING PROFESSION

Description: This unit investigates aspects of professional practice and specific tasks that need to be undertaken in order to initiate and implement an IT project. Content includes many aspects of Software Engineering, definition of a project; characteristics of IT projects; project life cycle; project team; project management aspects; scope, time, cost, quality, human resource; communications, risk, procurement, and integration management; project planning and scheduling; Critical Path Method (CPM); project execution and monitoring; project closure; project management software.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Define a project, and identify the special characteristics of IT projects;

2. Describe the key elements of a project plan, including cost and time schedules;

3. Prepare a software project management plan;

4. Perform the allocated role in the project team;

5. Execute an industry/community IT project.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and group activities.

Required Reading: Information Technology Project Management Schwalbe, K. (2010) 6th Ed. Thomson Course Technology

Assessment: Assignment, 2 Assignments including LiWC aspects (approx.1000 words each), 30%. Test, 2 Tests (10% each), 20%. Project, Group project documentation (2000-2500 words), 40%. Presentation, Oral presentation on project completion, 10%.

ECB3135 SERVER ADMINISTRATION AND MAINTENANCE

Locations: Footscray Park.

Prerequisites: ECB1232 - NETWORK COMMUNICATIONS AND ROUTING

Description: This unit provides students with the knowledge of server administration, including database and operating system administration. Content includes: database (DB) administration; operating system (OS) administration; system administration: network connection, data backup, software administration; TCP/IP (Transmission Control Protocol/Internet Protocol) configuration; creating DNS (Domain Name Servers), wireless communication systems administration; firewalls, IPSec protocols.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain fundamentals of database, operating systems, and server administration;

2. Develop server administration and maintenance skills;

3. Configure real-life network infrastructures, including wireless systems.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and practicals.

Required Reading: Principles of Network and System Administration Mark Burgess (2004) John Wiley & Sons

Assessment: Assignment, Assignment (4-5 technical questions), 15%. Laboratory Work, 5-6 Practical tasks, and quizzes based on these tasks, 25%. Examination, Final 3 hours written examination, 60%.

ECB3142 ACTIVE DIRECTORY DESIGN AND MANAGEMENT

Locations: Footscray Park.

Prerequisites: ECB1232 - NETWORK COMMUNICATIONS AND ROUTING

Description: This unit provides students with knowledge and skills for Active Directory (AD) design, implementation and management. Content includes: Active Directory technology, Active Directory Infrastructure (ADI), Domain Name Systems (DNS), Active Directory Objects (ADO), Active Directory group policy, design and implementation of AD, management and administration of AD.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply core knowledge of Active Directory;

2. Plan and construct Active Directory Infrastructure;

3. Manage and maintain Active Directory Infrastructure;

4. Design and develop Domain Name Systems for Active Directory;

5. Create and manage Active Directory Objects;

6. Plan and develop Active Directory group policy.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and practicals.

Required Reading: MCTS Windows Server 2008 Active Directory Services Study Guide Dennis Suhanovs (2008) McGraw Hill

Assessment: Laboratory Work, Design problem-1, 3-4 tasks and report, 20%. Laboratory Work, Design problem-2, 3-4 tasks and report, 20%. Examination, Final 3 hours written examination, 60%.

ECB3143 NETWORK MANAGEMENT

Locations: Footscray Park.

Prerequisites: ECB1232 - NETWORK COMMUNICATIONS AND ROUTING

Description: This unit examines principles and practice of network management, and introduces network management functions. Content includes: fault identification; configuration, accounting, performance and security management in networks; Simple Network Management Protocol (SNMP); network management tools and systems, such as CiscoWorks LAN Management Solution (LMS).

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain the principles of network management;

2. Develop the skills required to manage networks;

3. Perform network management tasks.

Class Contact: To be advised.

Required Reading: Network Management Fundamentals Alexander Clemm/(2006) Cisco Press

Assessment: Assignment, Assignment (4-5 technical questions), 15%. Laboratory Work, 5-6 Practical tasks, and quizzes based on these tasks, 25%. Examination, Final 3 hours written examination, 60%.

ECB3154 COMPUTING PROJECT ANALYSIS AND DESIGN

Locations: Footscray Park.

Prerequisites: ECB2123 - PROGRAMMING FOR NETWORKS

ECB2124 - WEB-BASED SYSTEMS DEVELOPMENT

ECB2253 - IT PROJECT MANAGEMENT

Description: This unit centres on an industry sponsored group project. In a team students develop an IT solution to solve a real-world problem for their client. Student activities include: business case analysis, requirements modelling, data and process modelling, and project management. This unit brings together the knowledge and skills acquired by students in earlier units and apply them to a real-world system development project.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate knowledge for working on a real-world software development project;

2. Apply software engineering and database design methodologies;

3. Master IT project management skills, such as liaising with clients, working in a team;

4. Create and produce project documentation;

Class Contact: Forty-eight (48) hours for one semester comprising group project work.

Required Reading: Reading material will be negotiated in consultation with the lecturer and will be appropriate to the topic under investigation.

Assessment: Presentation, Oral presentation-1 on project progress, 10%. Presentation, Oral presentation-2 on project update, 15%. Project, Group project documentation (4000-5000 Words), 75%.

ECB3214 VIRTUALISATION IN COMPUTING

Locations: Footscray Park.

Description: This unit provides students with knowledge and skills of virtualisation in computing including design, implement and management of virtualisation. Content: fundamentals of virtualisation in computing, server virtualisation, storage virtualisation, desktop virtualisation, application virtualisation, design and develop virtualised environments, manage and administration of virtualised systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply core knowledge of virtualisation;

2. Manage a virtualisation environment with industry products;

3. Design and develop virtual machines with main-stream industry technologies;

4. Design, develop and manage desktop virtualisation;

5. Design, develop and manage application virtualisation.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and practicals.

Required Reading: Microsoft Virtualization with Hyper-V Jason Kappel, Anthony Velte, and Toby Velte (2009) McGraw Hill

Assessment: Laboratory Work, Design problem-1, 3-4 tasks and report, 20%. Laboratory Work, Design problem-2, 3-4 tasks and report, 20%. Examination, Final 3 hours written examination, 60%.

ECB3244 ADVANCED NETWORK TECHNOLOGIES

Locations: Footscray Park.

Prerequisites: ECB2234 - NETWORK SECURITY

ECB2241 - WIRELESS NETWORKS

Description: This unit will introduce students to the latest networking technologies and their ability to handle advanced communications applications. Students will work with an industry or community organisation to design an advanced network for their current and/or future networking and data communication needs. Content includes: advanced networking technologies, such as Ad-hoc Networks, ubiquitous networks, and sensor networks; an industry standard framework for network design and evaluation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe important features of advanced networking technologies;

2. Assess the networking needs of an industry or community organisation;

3. Apply network design principles to develop a model of the required network;

4. Evaluate a number of network technologies to meet the design requirements;

5. Design a network to meet the organisation needs;

6. Apply good design and project management principles.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and industry design project.

Required Reading: Cisco Network Design Solutions for Small-Medium Businesses Peter Rybaczyk (2004) CISCO Press

Assessment: Test, 2 Tests, 10% each, 20%. Project, Group project design and documentation (2000-3000 words), 30%. Presentation, Group project oral presentation, 20%. Examination, Final 2 hours written examination, 30%.

ECB3255 SMALL IT BUSINESS DEVELOPMENT

Locations: Footscray Park.

Prerequisites: ECB1252 - INTRODUCTION TO THE COMPUTING PROFESSION

Description: The unit will prepare students for starting and running a small IT business. It will enable students to research and develop a new IT business proposal. Contents include: forms of business ownership: sole proprietor, partnership, corporation and trusts; types of IT-related businesses; business plan development; business functions: marketing, location, operations, staffing, accounting; government assistance; e-business; home-based business; taxation; borrowing; franchising; social, environmental and ethical considerations.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Discuss the various forms of small businesses, including IT businesses;

2. Evaluate various IT business opportunities;

3. Prepare a proposal for starting a business;

4. Create a detailed plan for running the business;

5. Appraise sources of finance for starting and running the business.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, and group activities.

Required Reading: Small Business Management: Entrepreneurship and Beyond Timothy S Hatten (2012) 5th edition Cengage Learning

Assessment: Assignment, Assignment -1 (4-5 questions), 10%. Assignment, Assignment -2 (6-8 questions) including LiWC aspects, 20%. Test, 2 Tests, 10% each, 20%. Project, Group project documentation (2000-2500 Words), 35%. Presentation, Oral presentation on project completion, 15%.

ECB3256 COMPUTING PROJECT DEVELOPMENT AND IMPLEMENTATION

Locations: Footscray Park.

Prerequisites: ECB3154 - COMPUTING PROJECT ANALYSIS AND DESIGN

Description: This unit centres on an industry sponsored group project. In a team students continue developing the IT project initiated in ECB315

Student activities include: develop project strategies with an increased focus on object modelling and project management for producing stipulated deliverables. Students also gain knowledge of quality assurance techniques, systems implementation strategies, and testing methodologies. Students are required to submit a final project report and demonstrate working software system.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Gain practical skills in quality assurance, systems implementation and testing;

2. Apply software engineering and database methodologies;

3. Extend their oral and written communication skills;

4. Extend their team working and project management skills.

Class Contact: Forty-eight (48) hours for one semester comprising group project work.

Required Reading: Reading material will be negotiated in consultation with the lecturer and will be appropriate to the topic under investigation.

Assessment: Presentation, Oral presentation-1 on project continuity, 10%. Presentation, Oral presentation-2 on project completion, 15%. Project, Group project documentation (4000-5000 Words), 75%.

EES4100 OPERATING SYSTEMS AND NETWORK PROGRAMMING

Locations: Footscray Park.

Prerequisites: ENE3102 - SYSTEMS & APPLICATIONS

ENE3202 - EMBEDDED AND NETWORKED SYSTEMS

Description: This unit of study is designed to provide students with a good understanding of computer networking protocols, the management of computer networks, computer Operating Systems (OS) and the facilities within an OS that support network operations. This unit will cover: Topics include: network models: OSI, TCP/IP; Network Layer, IP addressing, subnetting, netmask, IP protocols, ARP, ICMP, IP routing; Transport Layer, TCP, UDP protocols, flow control, error control, BSD sockets; Application Layer: DNS, HTTP. Operating systems topics include: Process: thread, process synchronisation, semaphore, thread library, consumer-producer problem, dead locks, resource allocation, scheduling. Files systems: directory structures, access control, implementation. Memory Management: memory allocation, protection, virtual memory. Grid Computing : principles and applications.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe the principle and practice of computer networking protocols;
2. Design, configure and manage a computer network;
3. Describe the structure and operations of a modern computer system;
4. Create application programs that access the OS facilities by means of a high level language (C/C++, etc);
5. Create multithreaded application programs for a modern OS (Unix, etc);
6. Describe the principle of operation, typical application areas, advantages and limitations of a GRID computing environment.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and group practical activities.

Required Reading: Computer Networks Tanenbaum, A., 2003 4th Edition Prentice Hall Operating Concepts Silberschatz. A., 2005 7th Edition Wiley

Assessment: Test, Mid-semester test, 20%. Assignment, Semester assignment, 20%. Examination, Final examination, 60%.

EES4200 REAL TIME ASIC BASED SYSTEMS

Locations: Footscray Park.

Prerequisites: ENE3102 - SYSTEMS & APPLICATIONS

ENE3202 - EMBEDDED AND NETWORKED SYSTEMS

Description: This unit of study integrates the hardware and software knowledge from earlier years of study into the production of Application Specific Integrated Circuits (ASICs). The aim of the unit is for the students to learn how to bring together one (or more) microprocessors, memory blocks (containing a C++ real time program), I/O blocks and the student designed special purpose devices onto a single VLSI device. Managing the design of complex systems and the commercial considerations in using Intellectual Propriety (IP) soft-core building blocks. The use of a Real Time Operating System (RTOS) for task management including task scheduling, inter-task communication and performance profiling.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to:

1. Design and implement a single chip digital system (FPGA) containing single or multiple customized soft-core microprocessors;
2. Use VHDL or symbolic library components to create customized hardware single chip designs;
3. Create embedded software for single chip systems using high level programming (C) and operating under the control of an RTOS;
4. Describe the problems associated with creating designs that include over 1 million logic gate equivalents;
5. Describe the process for and the commercial implications of employing soft-core IP modules and RTOS kernels in manufactured devices.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of lectures, tutorials and group practical activities.

Required Reading: MicroC/OS II The Real Time Kernel Labrosse, J. J., 2002 2nd edition CMP

Assessment: Test, Mid-semester test, 20%. Assignment, Semester assignment, 20%. Examination, Final examination, 60%.

EMS4100 IC DESIGN AND EDA TOOLS

Locations: Footscray Park.

Description: The design of basic CMOS integrated circuits is covered, including overview of MOS technology, complex complementary CMOS design, combinational design techniques including dynamic and domino logic. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools for custom and semi-custom nanoelectronic design. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Have gained knowledge of basic custom and semi-custom integrated circuits design;
2. Have gained knowledge of custom and semi-custom integrated circuit design flow and circuit design;
3. Carried out significant tasks designed to improve desired generic skills and attributes;
4. Have gained knowledge of industry standard electronic design automation tools;
5. Have gained knowledge of electronic design automation tools for custom and semi-custom IC designs.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials, laboratory work, and project work.

Required Reading: Digital Integrated Circuits Rabaey, J. M., 2002 2nd Edition Prentice Hall

Assessment: Laboratory Work, Laboratory based excercises, 30%. Project, Industry based project, 30%. Examination, End-of-semester examination, 40%.

EMS4200 ANALOG AND MIXED SIGNAL DESIGN

Locations: Footscray Park.

Prerequisites: EMS4100 - IC DESIGN AND EDA TOOLS

Description: The design of CMOS analog and mixed-signal integrated circuits is covered. Design concepts of high speed low power amplifiers, filters, sample and hold circuits, comparators, digital to analog and analog to digital converters are fully analysed. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe most common integrated circuit design, and D/A and D/A converters;

2. Use industry standard Software design tools.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials, laboratory work, and project work.

Required Reading: Design of analog CMOS integrated circuits Behzad Razavi, 2001 McGraw Hill International Edition

Assessment: Laboratory Work, Laboratory based excercises, 20%. Project, Industry based project, 20%. Examination, End-of-semester examination, 60%.

ENE2100 ENGINEERING DESIGN AND PRACTICE 2A

Locations: Footscray Park.

Description: This is a practical, PBL mode subject in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from ENE2101 and ENE210

Teams of students will have an Electrical Engineering staff member as a coach or mentor whilst working on these problems. Specialist staff from the ENE2101 and ENE2102 subjects will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other Faculties will be available to provide workshops to assist students with the development of generic skills.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply knowledge of basic science and engineering fundamentals;

2. Communicate effectively, not only with engineers but also with the community at large;

3. Demonstrate technical competence in at least one engineering discipline;

4. Undertake problem identification, formulation and solution;

5. Utilise a systems approach to design and operational performance;

6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;

7. Describe the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;

8. Define the principles of sustainable design and development;

9. Define professional and ethical responsibilities and display a commitment to them;

10. Display the capacity to undertake lifelong learning;

11. Locate, evaluate, manage and use information effectively.

Class Contact: One hundred and twenty (120) hours for one semester comprising lectures and tutorials.

Required Reading: Nil

Assessment: Other, Attendance and participation, 10%. Project, Project demonstrations, 10%. Presentation, Oral presentations, 10%. Assignment, Written technical paper, 10%. Report, Written project report, 10%. Portfolio, Demonstrate the attainment of learning outcomes, 50%. In the portfolio students are required to demonstrate the attainment of learning outcomes using: peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

ENE2101 FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS

Locations: Footscray Park.

Prerequisites: ENF1202 - ENGINEERING PHYSICS 2

Description: Independent sources, real voltage sources. Nodal Voltage Method. Supernodes. Dependent sources. Introduction to Operational Amplifiers, Inverting Amplifier, Non-inverting amplifiers, Comparator, Buffer and Summing Amplifier circuits. Real Resistors. Nominal values, tolerance, power rating and temperature coefficient. Volt-ampere characteristics. Equivalence. Thevenin's Theorem & Equivalent Circuit. Norton's theorem & Equivalent Circuit. Diode VI characteristics, Rectifier diodes and their application. Zener diodes. Capacitance. Parallel plate capacitor. Stray capacitance. Permittivity. Step response of RC circuit. Capacitor discharge. Time constant of RC circuit. Time delay and voltage ramp circuits. Electrostatic fields and energy storage in a capacitor. Ideal transformer. TRU circuits. Capacitors in power supplies. Real capacitors, electrolytic & non-electrolytic. Voltage regulators. Principle of Superposition. Non-ideal DC characteristics of real operational amplifiers. Introduction to AC circuits. Sinusoids. AC voltage applied to ideal resistor, and to ideal capacitor. Ractance. Phasors. AC voltage applied to RC series circuit. AC power in a resistor. RMS value. Crest and form factors. True RMS meters. Introductory description of mains electricity. Electric shock and safety. Introduction to magnetism. Induced voltage. Faraday's Law. Coils and self-inductance. Lenz's Law. Energy stored in a magnetic Field. Inductors in DC circuits. Switching induction circuits. LR series circuits and transient behvaiour. AC voltage applied to ideal self-inductor. Inductive reactance. RL series AC circuit. J operator. Revision of complex numbers. Use of complex numbers in AC circuit analysis. Complex impedance. Series RLC circuits. ESR and ESL of real capacitors. Resonance in series RLC circuits. Voltage multiplication. Parallel AC circuits. Parallel to seies and Series to parallel conversions. Admittance and susceptance. Input impedance of an amplifier. Resonance in parallel circuits.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Analyse simple DC and AC circuits using the methods outlined above;

2. Incorporate the presented material into subsequent design exercises;

3. Successfully study subsequent downstream Units of Study.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of lectures and tutorials.

Required Reading: Provided Lecture Notes.

Assessment: Test, Mid-semester test, 20%. Examination, End-of-semester examination, 80%.

ENE2102 DIGITAL & COMPUTER SYSTEMS

Locations: Footscray Park.

Description: This unit introduces students to electronics circuits and engineering computer programming using a high level language(C/C++). An overview of a typical computer system. The program creation process (for an embedded microcontroller); editing, compiling and debugging. Data types, correct choice of type and their range. The use of variable, assignment, arithmetic and logical operations. Flow control using loops; if, while and switch statements. An Introduction to arrays. System library and user defined functions, function calls and parameters passing. An introduction to data structures and uses. Use of microcontroller PORTS for simple sensor/actuator interfacing. Logic gates, truth tables and Boolean algebra. Equation formation in Sum of Products and Product of Sums forms. Graphical methods of equation minimization including Venn diagrams and the Karnaugh map. Circuit implementation using universal gate sets. Combinational equation implementation using simple Programmable Logic Devices (PLDs). Latches and flip-flops, types, triggering, synchronous and asynchronous signals. Asynchronous counter design using flip-flop chains and manufacturer's devices. Simple multi-mode synchronous counter and state machine design. Electrical characteristics of logic devices.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Construct truth tables, formulate logic expressions, minimize logic expressions using Boolean Algebra and Karnaugh maps;
2. Design and construct simple combinational logic circuits in Sum of Products (SOP) and Product of Sums (POS) forms using simple gates and through VHDL and PLDs;
3. Design and construct sequential logic digital circuits using D and J-K flip-flops and logic gates;
4. Design simple sequential circuits through the use of state diagrams and implement on PLDs using VHDL;
5. Convert numbers between bases (decimal, binary and hexadecimal forms), perform binary and hexadecimal arithmetic and determine the permissible range of a number (signed and unsigned) given a word length;
6. Write programs in the C language to solve simple problems that may include use of selection and repetition structures, create arrays, store and manipulate data, employ library and user created function calls, pointers and simple data structures,etc;
7. Embed C programs onto a microcontroller and make appropriate use of input/output ports, interrupts, timers and external interface devices including simple sensors and displays.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and group laboratory practical activities.

Required Reading: Digital Sytems: Principles and Applications Tocci, R., Widmer, N. and Moss, G., 2007 Pearson/Prentice-Hall

Assessment: Test, Mid-semester test, 20%. Assignment, Semester assignment, 20%. Examination, End-of-semester examination, 60%.

ENE2200 ENGINEERING DESIGN AND PRACTICE 2B

Locations: Footscray Park.

Prerequisites: ENE2100 - ENGINEERING DESIGN AND PRACTICE 2A

Description: This is a practical, PBL mode subject in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from ENE2201 and ENE2202.

Teams of students will have an Electrical Engineering staff member as a coach or mentor whilst working on these problems. Specialist staff from the ENE2201 and ENE2202 subjects will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other Faculties will be available to provide workshops to assist students with the development of generic skills.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply knowledge of basic science and engineering fundamentals.
2. Communicate effectively, not only with engineers but also with the community at large.
3. Apply In-depth technical competence in at least one engineering discipline.
4. Undertake problem identification, formulation and solution.
5. Utilise a systems approach to design and operational performance.
6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member.
7. Define the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development.
8. Describe the principles of sustainable design and development.
9. Define the professional and ethical responsibilities and display a commitment to them.
10. Display the capacity to undertake lifelong learning.
11. Ability to locate, evaluate, manage and use information effectively.

Class Contact: One hundred and twenty (120) hours for one semester comprising lectures and tutorials.

Required Reading: Nil.

Assessment: Other, Attendance and participation, 10%. Project, Project demonstrations, 10%. Presentation, Oral presentations, 10%. Assignment, Written technical paper, 10%. Report, Written report, 10%. Portfolio, Demonstrate the attainment of learning outcomes, 50%. In the portfolio students are required to demonstrate the attainment of learning outcomes using: - peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

ENE2201 LINEAR SYSTEMS WITH MATLAB APPLICATIONS

Locations: Footscray Park.

Prerequisites: ENF1201 - ENGINEERING MATHEMATICS 2

ENE2101 - FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS

Description: Analysis of linear time-invariant systems in time-domain. Lumped models of linear time-invariant system elements. Formulation of system equations and initial conditions for systems described by first-order and second-order linear constant-coefficients ordinary differential equations. Zero-input response and zero-state response. Unit-impulse function. Sifting property. Unit-step function. Laplace transformation and solution of ordinary linear differential equations with constant coefficients. Obtaining zero-input response and zero-state response for first-order and second-order systems by using Laplace transforms. Relationship between impulse response and transfer function. Poles and zeros and their significance. Transient response and steady-state response decomposition. Elementary eigenvalue-eigenvector problems and solution of a set of ordinary linear first-order differential equations with constant coefficients. Analysis of linear time-invariant systems in frequency-domain. Introduction to Fourier series and Fourier transforms. Frequency response and Bode diagrams.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Perform time-domain analysis of linear time-invariant systems using Laplace transforms;
2. Perform frequency-domain analysis of linear time-invariant systems using Fourier series and Fourier transforms;
3. Apply linear algebra to find trajectories of linear systems modelled as a system of first-order linear ordinary differential equations with constant coefficients;
4. Employ simple MatLab commands and Simulink to analyse linear time-invariant systems.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Fundamental of Electric Circuits Alexander, C.K. and M.N.O. Sadiku, 2004 McGraw-Hill Contemporary Linear Systems using MatLab Strum, R.D. and D.E. Kirk, 2000 Brooks/Cole Advanced Engineering Mathematics Kreyszig, E., 2006 John Wiley

Assessment: Test, Semester tests, 20%. Report, Laboratory report, 20%. Examination, End-of-semester examination, 60%.

ENE2202 ELECTRONIC SYSTEMS

Locations: Footscray Park.

Prerequisites: ENE2101 - FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS

ENE2102 - DIGITAL & COMPUTER SYSTEMS

Description: Internal architecture of a small embedded microcontroller. An overview of instruction set and Assembler Language. Use of microcontroller on-chip peripherals and features including: - timer/counters, interrupts, Analog to Digital converters. Interfacing to LCDs and digital displays. Logic data path element description (counters, registers, multiplexers, encoders, decoders, comparators etc) using VHDL and implementation on PLDs. PLD architectures. Applications of datapath elements. PN diodes, electrical characteristics, applications. Zener diodes. Bipolar transistors, characteristics, small signal model analysis and design. MOSFET devices, characteristics, configurations and use in amplifier design. Voltage regulators, series and shunt types.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe applications of common digtal datapath elements;
2. Describe the structure, benefits and limitations of simple and complex PLDs;
3. Design interconnected logic circuits comprising several datapath elements all described in VHDL and implemented on PLDs;
4. Describe the internal architecture of a simple embedded microcontroller and create and analyse simple Assembler Language programs;
5. Write C programs that respond to external and internal interrupts and maintain a simple real-time flow and interface to common display devices including 7-sement displays and LCDs;
6. Describe the characteristics of semiconductor devices (Diodes, Bipolar and Metal Oxide Transistors);
7. Analyse and design of simple rectifier based power supplies and small signal amplifiers.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and group laboratory practical activities.

Required Reading: Fundamentals of Logic Design Roth, C.H., 2004 5th edition Thomson Learning Microelectronic Circuits Sedra, A. and Smith, K, 2004 5th edition Oxford University Press

Assessment: Test, Mid-semester tests, 20%. Assignment, Semester assignments, 20%. Examination, End-of-semester examination, 60%.

ENE2203 INDUSTRIAL CONTROL AND AUTOMATION

Locations: Footscray Park.

Prerequisites: ENE2102 - DIGITAL & COMPUTER SYSTEMS

Description: Programmable Logic Controllers: Introduction to PLCs, programming and application. Introduction to Digital Control: Control loops, Process responses, PID algorithm. Loop tuning. Sensors and Actuators: Resistive, inductive, capacitive, photo-electric, Stepping Motors, Solenoids and applications. Analog to Digital Conversion, Digital to Analog Conversion and Signal Conditioning Circuits. SCADA : Concepts, Human Interface, Remote Terminal Unit, Master Station, Communication Infrastructure, Controller Area Network, Machine to machine communication, Security. System Design and Implementation. Electronics Manufacturing: PCB Design, Routing, Components Placement, Signal Integrity, Electromagnetic Compatibility, Design for Manufacturing, Schematic and Netlist, Library, Components and Data Sheets.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Program PLC;
2. Apply PID algorithm to effectively control a system;
3. Use appropriate sensors and actuators in an engineering setting:
4. Use A-to-D and D-to-A for interfacing;
5. Explain SCADA systems and its components as well as being able to design a SCADA system for a simple manufacturing plant;
6. Explain the whole electronics manufacturing process in general and PCB design and production in particular;
7. Design a PCB for a given electronic circuit that could be produced in volume by outsourcing to other companies.

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials and laboratory sessions.

Required Reading: Class notes (Rev. ed.) Ng, Y., 2008 Footscray, Australia: Victoria University, School of Electrical Engineering

Assessment: Assignment, Laboratory assignments, 30%. Test, Tests throughout semester, 10%. Examination, End-of-semester examination, 60%.

ENE3100 ENGINEERING DESIGN AND PRACTICE 3A

Locations: Footscray Park.

Prerequisites: ENE2200 - ENGINEERING DESIGN AND PRACTICE 2B

Description: This unit is designed to create the opportunity for students to integrate generic skills with the learning and content from the concurrent third year subjects. The PBL approach to this unit of study requires students to form a holistic consideration of problems which are not only technical in nature but also exercise the students generic skills. Students are required to demonstrate critical thinking, problem solving skills, systems thinking and professional engineering practice. The unit is delivered in PBL mode and will encourage students to become independent learners and self reflective about professional communication processes and practices.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge of basic science and engineering fundamentals; Communicate effectively, not only with engineers but also with the community at large; Apply in-depth technical competence in at least one engineering discipline; Undertake problem identification, formulation and solution; Utilise a systems approach to design and operational performance; Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member; Define the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development; Describe the principles of sustainable design and development; Define the professional and ethical responsibilities and display a commitment to them; Display a capacity to undertake lifelong learning; Locate, evaluate, manage and use information effectively.

Class Contact: One hundred and twenty (120) hours for one semester comprising lectures, tutorials and group work.

Required Reading: Given the diverse nature of the Unit there is no set textbook for this module. However, study material will be handed out during the course of the Unit and this will be considered as essential reading.

Assessment: Other, Workshop attendance and participation, 10%. Presentation, Oral presentation, 10%. Presentation, Semester and final team product demonstration, 30%. Report, Written technical report, 30%. Portfolio, Reflective Journal Portfolio, 20%. In the portfolio students are required to demonstrate the attainment of learning outcomes using: peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

ENE3101 SYSTEMS ENGINEERING

Locations: Footscray Park.

Prerequisites: ENE2201 - LINEAR SYSTEMS WITH MATLAB APPLICATIONS

Description: Probability theory. Continuous random variables and probability density functions. Normal distribution. Expected value, mean and variance. Joint and marginal distributions. Baye s theorem, conditional distribution. Functions of random variables. Conditional expectation and maximum likelihood estimation. Confidence intervals and hypothesis testing. Introduction to random processes, Gaussian processes. Correlation, covariance, and power spectrum. Examples of communication systems, cellular telephony systems and Internet. Communication signal analysis using Fourier series and Fourier transforms. Convolution. Spectral standards and bandwidth calculations. Waveform distortion. Nyquist sampling theorem. Implication of Shannon s theorem. Pulse Code Modulation (PCM) as an analog to digital converter. Line codes in baseband communication systems. Thermal noise and their effects in communication systems. Feedback problems and their solutions. Low sensitivity design. Dynamic characteristics and closed-loop stability, algebraic stability tests. Introduction to PID controllers.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Understand the applications of probability theory in the analysis of engineering systems; Explain the principles of digital communication systems and the implication of Shannon s theorem in information theory; Perform spectral calculations for line codes employed in baseband communication systems; Compute signal to quantization noise ratio in PCM systems; Perform stability analysis on control systems; State and differentiate the purposes and requirements of communication systems and control systems; Perform elementary time-domain and frequency-domain analyses of simple communication systems and control systems; Employ simple MatLab commands and Simulink to analyse simple communication systems and control systems. The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Modern Digital and Analog Communication Systems Lathi, B.P., 1998 Oxford University Press Contemporary communication systems using MATLAB Proakis, J. G., & Salehi, M., 2002 Belmont, CA: Thomson Brooks/Cole Control Systems Engineering Nise, N.S., 2003 John Wiley

Assessment: Laboratory Work, Continuous assessment in laboratory work, 20%. Test, Mid-semester written test, 20%. Examination, End-of-semester examination, 60%.

ENE3102 SYSTEMS & APPLICATIONS

Locations: Footscray Park.

Prerequisites: ENE2202 - ELECTRONIC SYSTEMS

Description: Synchronous system design; Moore and Mealy models. Description in VHDL. An introduction to Algorithmic State Machine Design through VHDL description and PLD implementation. Controller and data-processor partitioning. Mechanical and Electromagnetic Fundamentals: Magnetic field, Faraday s Law and Lenz s Law. DC shunt motors Frequency response of amplifiers; an introduction to wide-band and high frequency amplifier design. Differential amplifiers, models of operation, gain, CMMR; design for performance characteristic. Feedback: Classification and the effect on driving point impedance and transfer functions. Series and Shunt feedback, Stability and gain and phase margins and compensation. Introduction to Switch mode power supply.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Implement optimal state machines for a range of electronic engineering applications;
2. Apply a system level approach to digital design using the algorithmic state-machine design paradigm;
3. Synthesize ASM controllers using: the traditional method, ROM based method and one-hot method;
4. Describe the fundamental principles of mechanical and electromagnetic energy conversion;
5. Analyse simple power systems containing DC machines and transformers;
6. Analyse a range of analogue circuit types and assess the circuit performance;
7. Apply the negative feedback on electronic circuits to achieve specific performance and stability;
8. Design analogue circuits to meet performance criteria and select suitable components for circuit realization.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and group laboratory practical activities.

Required Reading: Fundamentals of Logic Design Roth, C.H., 2004 5th edition Thomson Learning Microelectronic Circuits Sedra, A. and Smith, K., 2004 5th edition Oxford University Press Electric Machinery and Power System Fundamentals Chapman, S. J., 2002 McGraw Hill

Assessment: Test, Mid-semester tests, 20%. Assignment, Semester assignments, 20%. Examination, End-of-semester examination, 60%.

ENE3200 ENGINEERING DESIGN AND PRACTICE 3B

Locations: Footscray Park.

Prerequisites: ENE3100 - ENGINEERING DESIGN AND PRACTICE 3A

Description: This unit is designed to create the opportunity for students to integrate generic skills with the learning and content from the concurrent third year subjects. The PBL approach to this unit of study requires students to form a holistic consideration of problems which are not only technical in nature but also exercise the students generic skills. Students are required to demonstrate critical thinking, problem solving skills, systems thinking and professional engineering practice. The unit is delivered in PBL mode and will encourage students to become independent learners and self reflective about professional communication processes and practices.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply knowledge of basic science and engineering fundamentals.
2. Communicate effectively, not only with engineers but also with the community at large.
3. Apply in-depth technical competence in at least one engineering discipline.
4. Undertake problem identification, formulation and solution.
5. Utilise a systems approach to design and operational performance.
6. Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member.
7. Describe the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development.
8. Define the principles of sustainable design and development.
9. Describe the professional and ethical responsibilities and display a commitment to them.
10. Display a capacity to undertake lifelong learning.
11. Locate, evaluate, manage and use information effectively.

Class Contact: One hundred and twenty (120) hours for one semester comprising lectures, tutorials and group work.

Required Reading: Given the diverse nature of the Unit there is no set textbook for this module. However, study material will be handed out during the course of the Unit and this will be considered as essential reading.

Assessment: Other, Workshop attendance and participation, 10%. Presentation, Oral presentation, 10%. Presentation, Semester and final team product demonstration, 30%. Report, Written technical report, 30%. Portfolio, Reflective Journal Portfolio, 20%. In the portfolio students are required to demonstrate the attainment of learning outcomes using: peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

ENE3201 ELECTRICAL MACHINES AND CONTROL

Locations: Footscray Park.

Prerequisites: ENE2101 - FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS

ENE3101 - SYSTEMS ENGINEERING

Description: Electrical Machines: Balanced 3-phace systems; transformers, equivalent circuits and performance analysis; induction machines, equivalent circuits, performance analysis, starting methods; synchronous machines, generator characteristics and analysis, infinite bus, synchronous condenser and power factor calculations, motor operation of synchronous machines. Control Systems: Transfer functions. Root Locus. Introduction to P, PI, PID, lead, lag and lag-lead controllers. Time and frequency domain design of lead, lag and lag-lead controllers. Introduction to state-space models. State-Space and transfer function models conversion. Introduction to discrete-time control systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able: Appreciate fundamentals of mechanical and electromagnetic energy conversion; Analyse simple power systems containing transformers; Analyse and solve 3 phase AC power systems; Develop an understanding of the structure of A.C. electrical machines and the purpose of the various components; Develop equivalent circuit models for the machines; Calculate the operating characteristics of machines using the equivalent models (power, torque, efficiency, power factor etc.); Develop an understanding of starting dynamics of motors; Develop an understanding of appropriate applications of A.C. machines in industries; Display a basic understanding of the use of transfer functions, signal flow graphs and block diagrams in the description and analysis of control systems; Calculate an overall transfer function by use of both Mason s Gain Formula and Block Diagram Reduction; Appreciate the difference between real systems and the models of these systems; Show awareness of the limitations of simulation software; Write a quantitative specification of system performance; Use Root Locus Techniques to analyse the performance of LTI SISO systems; Perform analysis and design of continuous-time control systems with the use of Bode diagrams; Design P, PI, PID, lead, lag and lag-lead controllers to improve the behaviour of a LTI SISO systems; Display an introductory knowledge of state-space models; Use Matlab/Simulink to analyse the behaviour of LTI SISO systems (including use of LTI viewer and rltool); Display an introductory knowledge of discrete-time control systems. The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Electric Machinery and Transformers Bhag S. Guru, Huseyin R. Hiziroglu, 2001 3rd edition Oxford University Press Introduction to Control Systems 3B Lecture Notes Ives, R., 2008 Victoria University

Assessment: Laboratory Work, Laboratory assessment, 20%. Test, Mid-semester test, 20%. Examination, End-of-semester examination, 60%.

ENE3202 EMBEDDED AND NETWORKED SYSTEMS

Locations: Footscray Park.

Prerequisites: ENE2202 - ELECTRONIC SYSTEMS

Description: This unit extends the study of Embedded Computing from year 2 of the program and introduces the principles of operation of networked computer systems. The unit includes the learning of basic concepts of computer communication. Data and signals, Frequency Spectrum and bandwidth, Data encoding, Framing and synchronisation. Modulation of data, Modems. Physical layer interfaces. Transmission of data, Transmission media, Multiplexing. Error detection and correction. Data link control, Data link protocols. Local area networks. The Embedded Systems area includes system design involving real-time constraints, Pulse Width Modulation for actuator control, sensor interfacing using direct digital sensors and analogue to digital conversion, inter-device communication using industry standard methods: - USART, SPI, I2C and CAN.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe basic principles and techniques used in computer data communication.
2. Analyse a situation that requires a computer networking system and make recommendations on the system specification and formulate an implementation plan.
3. Analyse an industrial control system application and derive an embedded system specification for the application
4. Implement a real-time, embedded industrial control system using an embedded microcontroller with associated interface and communication devices.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and group practical activities.

Required Reading: PIC Microcontroller and Embedded Systems using Assembly Language and C for PIC18 Mazidi, McKinlay and Causey, 2008 Pearson/Prentice-Hall Data Communication and Networking Forouzan. B., Fagan. S. C., 2006 McGraw Hill

Assessment: Test, Mid-semester test, 20%. Assignment, Semester assignment, 10%. Examination, End-of-semester examination, 70%.

ENE3203 POWER ELECTRONICS AND MACHINES

Locations: Footscray Park.

Prerequisites: ENE2101 - FUNDAMENTALS OF ELECTRICAL & ELECTRONIC CIRCUITS

Description: This unit of study is intended to provide a sound knowledge of induction and synchronous machines including equivalent circuits, performance analysis based on the equivalent circuits, and operating characteristics under varying operating conditions. Power electronics theory and applications: AC-DC conversion, DC-DC switching, and motor speed controls The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented. Unit Content Introduction to induction motor and rotating field. Equivalent circuit of an induction motor. Power, torque, efficiency, power factor calculations. Induction motor starting. Speed control of induction motor. Introduction to synchronous machines. Synchronous motors and their characteristics. Synchronous generators. Loci of synchronous motor. Synchronous motor starting. Introduction to the theory, design and analysis of conversion of electric power by means of power electronics, including AC to DC and DC to DC power converters. The fundamental knowledge of electronic speed control techniques for DC motor drives for different applications. AC-DC single-phase and three-phase power converters: Diode and SCR bridge rectifiers. DC-DC Switching Mode Power Converters, buck converters and boost converters, Buck-boost converters. Unipolar and bipolar voltage switching method. Fly-back converters, push pull converters. First quadrant, two quadrant and four quadrant drive. Different electronic speed control techniques for DC motor drives.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to : Develop equivalent circuit models for the machines. Calculate the operating characteristics of machines using the equivalent models (power, torque, efficiency, power factor etc.). Show an understand the starting dynamics of motors. Display and understanding of appropriate applications of A.C. machines in industries. Display an understanding of the basics and operations of power semiconductor switches. Define the building blocks of power electronics conversion. Analyse AC/DC and DC/DC power converters. Analyse and design different types of switching power supplies in different modes of operation. Demonstrate the knowledge of electronic speed control techniques for DC motor drives for different applications.

Demonstrate the knowledge of electronic speed control techniques for DC motor drives for different applications.

Class Contact: Sixty (60) hours for one semester comprising Lectures, Tutorials and Laboratory work.

Required Reading: Electrical Machines, Drives and Power Systems, Theodore Wildi, 2002, fifth Edition, Prentice Hall. Power Electronics - Converters, Applications, and Design, N. Mohan, T. M. Undeland & W. P. Robbins, 2003, John Wiley & Sons.

Assessment: Test, Test, 20%. Laboratory Work, Laboratory, 15%. Examination, Written, 65%.

ENE4100 ENGINEERING DESIGN AND PRACTICE 4A

Locations: Footscray Park.

Prerequisites: Completion of all 3rd year units.

Description: Students will commence a major engineering project resulting in a complete and working outcome which meets the agreed specifications and demonstrates an understanding of relevant professional engineering standards. The project will continue in the follow-on second semester unit ENE4200. The student will define the problem, develop functional specifications (in collaboration with the project supervisors), and write a concise project contract and comprehensive project plan. A feasibility study is the next stage. Possible alternative engineering solutions are conceptualised and evaluated using objective criteria functions. Cost, reliability, sustainability and environmental impacts should also be considered in choosing the best approach, which the student should be able to defend in an objective way. All progress work on the design should be documented in notebooks. Written progress reports, oral presentation and interim product demonstrations will be required during the course of the problem. This unit includes a mandatory series of lectures on professional conduct and ethics.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Undertake problem identification, formulation and solution;
2. Demonstrate an understanding of environmental and sustainability issues in problem solution;
3. Utilise a systems approach to complex design problems;
4. Demonstrate the ability to synthesise solutions, and use analysis to verify designs, using computing tools where appropriate;
5. Demonstrate skills in prototyping and testing engineering projects;
6. Display capabilities in managing a project, designing to specification, and meeting the sponsor's outcomes and reporting timelines;
7. Demonstrate the ability to manage information and documentation;
8. Interface with and communicate with other designers who may be working on related project tasks;
9. Display the capacity to write a competent feasibility study, and progress report;
10. Display fluency in delivering oral progress presentations to external sponsors.
11. Demonstrate proper and ethical professional conduct.

Class Contact: One hundred and twenty (120) hours or equivalent for one semester comprising of Individual project work generally outside of formal classes. However, students are expected to maintain regular weekly contact with their academic and industrial Supervisors. There will be lectures provided in Project and Business Management and technical lectures and workshops will be organised as required by the project. The project Sponsor will usually be someone other than the project Supervisor, and some will be external to the University. Where this occurs, the student is should establish a communications protocol (i.e. decide on the mode and frequency of the communication) with the Sponsor early on in the project. This will ensure that communication with the Sponsor is appropriate and effective.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Report, Feasability Study, 20%. Project, Project Contract, 10%. Project, Project Plan, 20%. Presentation, 1st Progress Presentation, Interim Demonstration and Progress Report, 50%.

ENE4101 ANALOG AND OPTOELECTRONICS

Locations: Footscray Park.

Prerequisites: ENF1202 - ENGINEERING PHYSICS 2

ENE3102 - SYSTEMS & APPLICATIONS

Description: This unit provides students with knowledge in analogue electronic, Integrated Circuits, semiconductors, functions and applications in electrical engineering systems and, in particular, an introduction to photonics and optoelectronics. In this unit students will be presented with a description of the nature of light, the generation of light (light sources and their properties such as lasers, light emitting diodes), the transmission of light (optical fibres and waveguides, optical amplifiers), and detection. The primary delivery means of the syllabus will be by lecture, supported by project-based laboratories.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Perform analysis and design calculations on common electronic circuits;
2. Design electronic circuit for specific application to meet performance criteria and select suitable components for the circuit realisation;
3. Calculate performance characteristics on semiconductor devices including light emitting and laser diodes and photodectors;
4. Calculate performance characteristics in solar cells;
5. Determine operating characteristics of single mode and multimode optical fibres;
6. Determine losses and dispersion in optical fibres;
7. Use properties of light to interact with the environment for sensing applications.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of lectures, tutorials and laboratory projects.

Required Reading: Fibre Optic Communications Palais, J.C., 2004 5th edn Prentice Hall: N.J Microelectronic Circuits Sedra A & Smith K., 2004 5th edn Oxford University Press

Assessment: Test, Class test, 25%. Project, Projects throughout semester, 50%. Examination, End-of-semester examination, 25%.

ENE4202 WIRELESS AND BROADBAND COMMUNICATIONS

Locations: Footscray Park.

Prerequisites: ENE3101 - SYSTEMS ENGINEERING

Completion of the Second Year of degree.

Description: Overview of digital modulations with emphasis on wireless applications: QPSK, MSK, GMSK, QAM. Vector space representation of digital signals, Correlation receiver, Matched filter receiver, Signal-space representation of noise, Maximum likelihood sequence estimation (MLSE) detector, Performance in AWGN channels. CDMA. OFDM and its application to wireless LAN and ADSL, Cellular System Engineering, GSM, WCDMA. Layered structure of computer communication protocols. ISO OSI 7 layer model and TCP/IP protocol suit. LANs. Ethernet. WANs. PPP. X. 25. Frame relay. ATM. Network connecting devices. Repeaters, hubs, bridges, routers, and gateways. IP and IP addressing. Sub-netting and super-netting. Routing protocols. ARP and RARP. ICMP and IGMP. Transport layer protocols. UDP and TCP. Flow control, error control, and congestion control in TCP. Routing protocols. RIP, OSPF, and BGP. Multicast routing. Application layer. Concurrent clients and servers. BOOTP and DHCP. Domain name system. Socket interface. FTP and TFTP. SMTP. SNMP. HTTP. WWW

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain digital communications and modulation as used in weird and wireless transmission; Explain receiver techniques for digital modulation links; Introduce key wireless systems. GSM, WCDMA and WLAN; Discuss the basic principles involved in data communication systems; Explain the data network architecture, operation, and performance analysis; Evaluate the protocols employed in data networks; Explain the particular aspects of local area and wide area networks; Discuss wireless networks, their operation, and interfacing with network backbone; Explain the analytical techniques employed in data network performance estimation; Explain the basic queuing theory and its application to data networks; Describe data network switching and switching systems; Discuss the principles involved in data network design and the heuristic algorithms employed; Explain cost effective designs of local and wide area networks. Explain information theory, source coding, and data compression. The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and laboratory work.

Required Reading: 'TCP/IP Protocol Suite' Forouzan, B.A., 2003 McGraw Hill Communication Systems Haykin, S. 2001 4th Edition John Wiley & Sons.

Assessment: Laboratory Work, Continuous assessment in laboratory work., 20%. Test, Mid-semester, 20%. Examination, Final, 60%.

ENE4203 ALTERNATIVE ENERGY SYSTEMS AND POWER ELECTRONICS

Locations: Footscray Park.

Description: Alternative Energy Systems: Introduce students to unconventional energy sources such as solar, wind, biomass and fuel cells etc. and energy storage; problem facing the Electricity Supply Industries in Australia and its choices. The unit will focus on: Overview of major alternative sources and their energy content; environmental and economic advantages of using alternative energy generation technologies along with the concept of sustainability in order to provide the basis for the consideration of alternative energy systems The unit will cover: Conventional energy systems and green house effect; evaluation and feasibility studies of solar energy, wind energy, fuel cells, hydrogen generation, bio-fuel, tidal and geothermal systems; analysis and modelling of above systems; economic analysis of above systems; design of hybrid systems and integration. Power System Communication: Introduction to communication principles and terminologies used in power systems; Leading global organisations and their standards; Power system automation and integration concepts *Discussion on architectures, protocols as utilised in power system communication networks; Middleware technologies; Information embedded power systems; Power system security aspects; SCADA and contingency analysis; Network sensitivity methods; Generation dispatch; Operational metering; Tariffs and wholesale energy trading; Future technologies and their implications for power system communications.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Define different alternative energy sources and their availability; Describe the design and operation principles of alternative energy systems; Analyse economic and environmental impact of the alternative energy systems; Demonstrate an awareness of current applications of alternative energy systems; Recognise the role of communications in power systems and identify various communication requirements needed in power system protection and distribution networks; Display a basic understanding of the use of communication media and architectures in power systems; Show an understanding of the value of what global organisations like IEC and EPRI bring to the development of new technologies and structures for the advancement of power systems; Comprehend system automation and integration concepts; Display a basic knowledge about the communication standards, protocols and architectures most commonly employed in power system protection and distribution networks; Comprehend the importance of security and contingency analysis in the operation of power system networks; Identify the different instrumentation used in power systems; Show a basic understanding about operational metering, tariffs and wholesale energy trading.

Class Contact: Sixty (60) hours for one semester comprising Lectures, Tutorials and Laboratory work.

Required Reading: Alternative Energy Systems, Kalam, A., 2008, Victoria University (Web Publication). Power System Protection and Communications, Kalam, A. and Kothari, D.P., 2009, New Age International (P) Ltd

Assessment: Test, Mid-semester, 30%. Examination, Final, 70%.

ENE4204 COMPUTER AND FUZZY LOGIC CONTROL SYSTEMS

Locations: Footscray Park.

Prerequisites: ENE3201 - ELECTRICAL MACHINES AND CONTROL

Description: Pulse transfer functions. Conversion of a continuous-time transfer function model into a zero-order hold equivalent pulse transfer function model. Convert between pulse transfer function models and difference equation models. Analysis and design of discrete-time control systems with the Root Locus method and Bode diagrams in conjunction with the Bilinear transformation. Performance trade-off in control design problems. Introduction to fuzzy sets theory: fuzzy set definitions, properties of fuzzy sets, operations on fuzzy sets. Fuzzy relations: classical relations, fuzzy relations, operation on fuzzy relations, the extension principal. Natural language formalisation and approximate reasoning: linguistic variables, fuzzy propositions, fuzzy if - then statements, inference rules. Theoretical fundamentals of fuzzy control: the structure of a fuzzy controller, the rule base, the data base, the inference engine, choice of fuzzification and defuzzification procedures. Fuzzy controller design and implementation. Applications of fuzzy control.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the basis of use of pulse transfer functions in the description and analysis of computer controller systems. Convert a continuous-time transfer function model into a zero-order hold equivalent pulse transfer function model. Convert between pulse transfer function models and difference equation models. Perform analysis and design of discrete-time control systems with the Root Locus method. Perform analysis and design of discrete-time control systems with the use of Bode diagrams in conjunction with the Bilinear transformation. Explain the need of performance trade-off in control design problems. Define the basic mathematical concepts of fuzzy sets. Describe the structure of fuzzy logic controller. Design and implement fuzzy logic controller. Use MatLab/Simulink to analyse and design discrete-time and fuzzy logic control systems. Use the DSpace DS1102 DSP card and Real-Time Workshop for rapid prototyping of discrete-time and fuzzy logic control systems. The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Discrete-Time Control Systems, Ogata, K., 1995 Prentice-Hall Fuzzy Control K.M. Passino and S. Yurkovich, 1998 Addison-Wesley.

Assessment: Laboratory Work, Laboratory Work, 30%. Test, Mid-semester, 20%. Examination, Final, 50%.

ENE4205 DIGITAL SYSTEM DESIGN

Locations: Footscray Park.

Prerequisites: ENE3102 - SYSTEMS & APPLICATIONS

Description: This unit extends the study of digital electronics for year 2 into a systems level design approach based on the use of top-down design methods and implementation on very large scale programmable logic devices including simple and Complex Programmable Logic Devices (PLDs) and Field Programmable Gate Arrays (FPGAs). The design approach employs the partitioning of the task into a controller and associated data-processing sections. Synchronous and asynchronous approaches are examined along with optimization methods for operational speed and logic circuit gate count. The unit also includes the use of modern Computer Aided Engineering (CAE) tools and the study of the automated logic synthesis method.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Design simple and complex digital systems using the ASM and RTL design methods;
2. Implement designs on small and complex PLDs and FPGAs;
3. Use modern Computer Aided Engineering (CAE) tools to predict design performance in terms of power consumption, propagation delay etc. and optimize according to application requirements;
4. Describe the principle of operation of automated logic synthesis software and be able to guide the synthesis process through the structure of a VHDL hardware description;
5. Prepare manufacturing information for the transfer of a design from an FPGA onto a mass produced hard copy version.

Class Contact: Sixty (60) hours or equivalent for one semester comprising: - lectures, tutorials and group practical activities.

Required Reading: Digital Design with CPLD Applications and VHDL, Dueck, R.K. 2005 2nd edition, Thomson Learning Rapid Prototyping of Digital Systems: A Tutorial Approach, Hamblen, J.O. 2001 2nd edition, Kluwer Academic Pub

Assessment: Assignment, Assignment, 20%. Test, Mid-semester, 20%. Examination, Final, 60%.

ENE4206 HETEROGENEOUS SYSTEMS

Locations: Footscray Park.

Description: Overview of current trends in semiconductor technology, fundamental physical and economic constrains, technology roadmap for semiconductors, challenges and needs for nano-electronics, organic and molecular microelectronics, system implementation issues, development of mixed signal and RF systems, MEMS, and VLSI circuits for biomedical applications. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit of study will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe current trends in semiconductor technology;
2. Display knowledge of simulation and design of heterogeneous systems;
3. Carry out significant tasks designed to improve desired generic skills and attributes.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures, tutorials, laboratory work, and project work.

Required Reading: Future Trends in Microelectronics, Luryi, et al., 2004

Assessment: Laboratory Work, Laboratory based exercies., 30%. Project, Project, 30%. Examination, Final, 40%.

ENF1101 ENGINEERING MATHEMATICS 1

Locations: Footscray Park.

Prerequisites: Year 12 Mathematics or its equivalent.

Description: Basic algebra, including index, log laws, indicial and log equations, absolute value, inequalities, algebraic expansions; functions, straight line, parabola, ellipse, hyperbola etc., domain, range, inverse functions; trigonometric identities, functions and their graphs, period amplitude, frequency, inverse trigonometric functions. Limits, continuity, derivatives of polynomials, trigonometric, logarithms and exponentials functions, differentiation rules, higher derivatives, concavity of graph, implicit differentiation. Statistics, frequency distribution, histograms, mean, mode, median, range, variance, standard deviation, Normal distribution; probability, expectation of events from an experiment, mutually exclusive and independent events, permutations and combinations, binomial and Poisson probability distributions, normal curve, confidence limits. Parametric differentiation; tangents and normal lines, derivatives of logs and exponentials; Newton-Raphson method, rates of change, maximum and minimum problems, small change. Introduction to integration, definite integral, fundamental theorem of integral calculus; Integration methods, substitution technique, integration by parts, partial fractions; areas, mean value of a function; methods of integration, partial fractions, simple integration by parts.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Solve and graph functions;
2. Perform basic differentiation and integration;
3. Apply calculus to engineering-related problems;
4. Perform statistical analysis on real data and make valid inference from samples.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Modern Engineering Mathematics James, G., 2007 4th edn Pearson Prentice Hall

Assessment: Test, Weekly in-class tests, 15%. Test, Mid-semester test, 35%. Examination, End-of-semester examination, 50%.

ENF1102 ENGINEERING PHYSICS 1

Locations: Footscray Park.

Prerequisites: Nil

Description: Units and measurements: Physical units and dimensions, unit conversions, significant figures, uncertainty calculations. Mechanics: Scalars and vectors, resolving of vectors, unit vectors, vector algebra; displacement, velocity and acceleration, one-dimensional motion, two-dimensional motion; Newton s laws and forces, equilibrium of forces, friction, work, energy; conservation of energy, impulse and momentum; Waves and Sound: Simple harmonic motion (SHM), damped harmonic motion, forced oscillations and resonance, oscillatory motion, mechanical and acoustic waves, superposition and standing waves, Doppler effect.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Use Newton s laws to calculate displacement, velocity and acceleration;
2. Apply the rules of conservation of energy and momentum to engineering-related problems;
3. Apply the principles of SHM and waves to engineering-related problems;
4. Perform calculations on sound intensity levels and the Doppler effect in engineering-related problems.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Physics for Scientists and Engineers with Modern Physics Giancoli, D.C., 2008 4th Edition Prentice Hall

Assessment: Report, Laboratory report/assignment, 20%. Test, Weekly in-class tutorial tests, 30%. Examination, End-of-semester examination, 50%.

ENF1103 ENGINEERING AND THE COMMUNITY

Locations: Footscray Park.

Prerequisites: Nil

Description: Role and importance of engineering in society and the local and global community; development of engineering as a profession; disciplines of engineering practice and career exploration; ethical and sustainable practice in engineering; written communication skills in different genres; oral presentation skills, being a successful student.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Identify the key roles of engineering in the local and global communities;
2. Describe the key features of the different disciplines of engineering practice;
3. Identify ethical and sustainability issues in engineering practice;
4. Develop their own learning and career goals with an educational plan to achieve these goals;
5. Communicate effectively with others by writing on a range of engineering-related topics using appropriate language;
6. Communicate effectively with others by oral and visual presentation on a range of engineering-related topics using appropriate language;
7. Work individually and with others, as both a team member and leader in both formal and informal teams, to complete tasks.

Class Contact: Sixty (60) hours for one semester comprising of lectures, tutorials and field trips.

Required Reading: Engineering Your Future: an Australasian Guide Dowling, D, Carew, A, Hadgraft, R, 2010 John Wiley Australia, Milton. Communication Skills Handbook for First Year Students in the Faculty of Health, Engineering and Science VU, Faculty of Arts, 2009 9th edn Victoria University.

Assessment: Assignment, Assignments throughout semester, 35%. Presentation, Oral presentation, 15%. Examination, End-of-semester examination, 50%.

ENF1104 PROBLEM SOLVING FOR ENGINEERS

Locations: Footscray Park.

Description: This unit is based on a series of problems designed to both introduce students to systematic problem solving methods and to apply knowledge introduced in other first year semester 1 units (Engineering Mathematics 1, Engineering Physics 1, and Engineering and the Community). The problems will focus on a range of issues related to engineering practice and sustainability. The unit will also include an introduction to both the problem-based learning (PBL) approach used, and to engineering drawing. This unit includes an introduction to Laboratory Safety.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply fundamental knowledge of mathematics and science to solving engineering problems;
2. Apply systematic approaches to solving engineering problems;
3. Find, organise and apply information related to engineering problems;
4. Identify and respond to broad sustainability issues in finding solutions to engineering problems;
5. Communicate effectively with others orally, in writing and by means of basic engineering drawings;
6. Work individually and collaboratively, as both a team member and leader, to complete tasks and evaluate own and others performance using prescribed methods;
7. Demonstrate awareness of social and cultural perspectives that impact on learning and working in a team;
8. Demonstrate reflection of learning by keeping a personal journal;
9. Demonstrate safe practise for non-specialised laboratory based exercises and an ability to identify potential safety hazards.

Class Contact: Sixty (60) hours for one semester comprising of team workshops, supporting lectures and labs.

Required Reading: PBL in Engineering Manual VU, School of Engineering and Science, 2009 2nd edn Victoria University Communication Skills Handbook for First Year Students in the Faculty of Health, Engineering and Science VU, Faculty of Arts, 2009 9th edn Victoria University

Assessment: Portfolio, Individual portfolio, 100%.

ENF1201 ENGINEERING MATHEMATICS 2

Locations: Footscray Park.

Prerequisites: ENF1101 - ENGINEERING MATHEMATICS 1

Description: Matrices, determinants, Cramer's rule matrix algebra, special matrices, matrix inversion, solution of simultaneous equations by matrix inversion. First order linear differential equations (DEs) with constant coefficients, separable DEs, integrating factor, homogenous method, initial value problems; first order DEs in engineering applications. Second-order linear DEs with constant coefficients, second order homogenous linear DEs, simple double and complex roots of auxiliary equation; second order linear DEs in engineering applications. Algebra with complex numbers, Argand diagram, complex conjugate, modulus and argument, polar form, exponential form. Introduction to series and some convergence tests, radius of convergence; Taylor series, Maclaurin series, convergence of power series. Partial differentiation, higher order derivatives, chain rule, engineering applications of partial derivatives, maxi/min, approximate value.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Use matrices to solve simultaneous linear equations;
2. Apply first order and second order differential equations to engineering-related problems;
3. Perform simple complex number calculations;
4. Test series for convergence and use Maclaurin method to generate power series;
5. Apply partial differentiation to engineering problems.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Modern Engineering Mathematics James, G., 2007 4th edn Pearson Prentice Hall

Assessment: Test, Weekly in-class tests, 15%. Test, Mid-semester test, 35%. Examination, End-of-semester examination, 50%.

ENF1202 ENGINEERING PHYSICS 2

Locations: Footscray Park.

Prerequisites: ENF1102 - ENGINEERING PHYSICS 1

Description: Electricity and magnetism: Electric charges, forces and fields, electric flux and potential, magnetic forces and fields, electromagnetic induction. Electric circuits: Ohm's law, resistors in series and parallel, equivalent resistive circuits, AC and DC sources, RMS values in AC/DC circuits, Kirchhoff's laws, single loop circuits, multi-loop circuits, voltage dividers. Thermodynamics: Temperature, thermal expansion, heat capacity, specific and latent heat, ideal gases, work and heat in the thermal process, first law of thermodynamics, heat engines and the second law of thermodynamics.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply principles of electric and magnetic fields to engineering-related problems;
2. Calculate the forces acting on charged particles in electric and magnetic fields;
3. Apply Ohm's law and Kirchhoff's laws in single-loop and multi-loop circuits;
4. Apply principles of heat and temperature to engineering-related problems.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Physics for Scientists and Engineers with Modern Physics Giancoli, D.C., 2000 3rd Edition Prentice Hall

Assessment: Report, Laboratory reports/assignments, 20%. Test, Weekly in-class tutorial tests, 30%. Examination, End-of-semester examination, 50%.

ENF1203 ENGINEERING COMPUTING

Locations: Footscray Park.

Description: The unit covers the following topics: Introduction to the fundamentals of computers, introduction to the application of computers to solving engineering problems, modern computer programming environments, storage and retrieval of data and information, organisation of data in rows and columns, operations on matrices, introduction to programming languages. It also covers fundamental programming concepts that include: variables, iteration, loops, logical operations, functions, Boolean operators, graphical representation of engineering data in 2D and 3D, histograms, the least squares method and curve fitting., engineering applications of numerical differentiation and integration, principles of measurement and fundamentals of measurement systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Use computers in a variety of engineering contexts;
2. Use high level programming language to store, retrieve, visualise and analyse engineering data;
3. Develop computer programs to solve a range of engineering problems;
4. Use computerised data acquisition and measurement systems.

Class Contact: Sixty (60) hours for one semester comprising of lectures, tutorials and workshops.

Required Reading: MATLAB: A Practical Introduction to Programming and Problem Solving Stormy Attaway, 2009. Butterworth-Heinemann

Assessment: Laboratory Work, Weekly laboratory assessment, 20%. Examination, End-of-semester 2 hr examination, 50%. Project, 2 mini projects, 30%. Student must pass all components of the assessments.

ENF1204 INTRODUCTION TO ENGINEERING DESIGN

Locations: Footscray Park.

Prerequisites: Nil

Description: This unit is based on a series of problems designed to both introduce students to the design process and to apply knowledge introduced in other Year 1 units of study. The problems will therefore emphasise creative thinking in design, generating and evaluating alternatives against a range of technical, environmental, social and economic criteria, and making the final design decisions. The unit also incorporates a module on professional drawing practice including projections and views, dimensioning, different drawing types and using computer-aided design (CAD) software.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply a systematic approach to engineering design;
2. Find, organise and evaluate information on a range of topics related to problems in engineering design;
3. Identify and evaluate technical, environmental, social and economic factors impacting on the solution of engineering design problems;
4. Use computer-aided design (CAD) software to develop and present design solutions;
5. Communicate effectively with others orally, in writing and by means of

engineering drawings;

6. Demonstrate an ability to learn individually and collaboratively in a team environment;

7. Use a personal reflective journal and demonstrate improvements in their effectiveness as learners;

8. Respond to diverse learning situations in a socially and culturally responsible manner.

Class Contact: Sixty (60) hours for one semester comprising of team workshops, including supporting lectures and labs.

Required Reading: Sustainable Design: The Science of Sustainability and Green Engineering Vallero, DA, and Brasier, C, 2008 Wiley PBL in Engineering Manual VU, School of Engineering and Science, 2009 2nd edn Victoria University Communication Skills Handbook for First Year Students in the Faculty of Health, Engineering and Science VU, Faculty of Arts, 2009 9th edn Victoria University

Assessment: Report, Group reports, 30%. Portfolio, Individual portfolio, 70%.

EPS4100 ELECTRICAL POWER SYSTEMS, ANALYSIS AND OPERATION

Locations: Footscray Park.

Prerequisites: ENE3201 - ELECTRICAL MACHINES AND CONTROL

Description: This unit of study presents a study of electrical power systems, their analysis and operation. The students will be introduced to fundamental concepts in the field such as the per-unit system. The unit will cover topics of generation, transmission, distribution, analysis, and operation at introductory levels. Concepts of power, frequency, and voltage control will be examined. Different types of transmission/distribution systems and their associated gears will be presented. Models of long, medium and short transmission lines will be introduced to assist in calculation of power, voltage, current and power factor in an electrical system. Fault analysis in three-phase balanced systems will be studied. An outline of the electricity distribution in the deregulated Australian power industry will be given. Network calculations and the bus-admittance matrix will be covered. The concept of load flow analysis will be studied. The Gauss-Siedel, Newton-Raphson, and Fast Decoupled load flow analysis methods and their application to the solution of complex networks will be introduced. Economic operation of power systems is to be covered. The planning, design and operation of electrical energy transmission and distribution networks will be examined. An introduction to electrical insulation properties and characteristics, insulator selection, insulation co-ordination in electric energy network. Circuit interruption theory and circuit breaker operation will also be covered.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe the basic principles of electric power systems;

2. Identify power systems components;

3. Describe the configuration and operation of a power system;

4. Show competency in the use of the per-unit system in network calculations;

5. Distinguish transmission-line parameters and transmission line modeling, and skills in calculating the electrical parameters in a power system;

6. Show ways of controlling frequency, power and voltage in a power system;

7. Carry out fault analysis in a balanced three-phase system using an equivalent single phase circuit;

8. Develop an understanding of the admittance model and the impedance model;

9. Describe the effect of voltage and angle on real and reactive power;

10. Apply techniques of load flow solutions including calculations of voltage, angles, losses, generated reactive power, slack power, etc.; 1

1. Model accurately a multi-bus system and carry out load flow studies; 1

2. Identify solutions to power system problems; 1

3. Display an understanding of circuit breaker operation.

Class Contact: Sixty (60) hours for one semester comprising of lectures, tutorials, and laboratory work.

Required Reading: Power System Analysis, H. Saadat, 200

2. 2nd ed., McGraw Hill

Assessment: Laboratory Work, Laboratory Reports, 20%. Test, Mid-semester, 20%. Examination, Final, 60%.

EPS4200 ELECTRIC ENERGY SYSTEMS PROTECTION AND COMMUNICATION

Locations: Footscray Park.

Prerequisites: ENE3201 - ELECTRICAL MACHINES AND CONTROL

Description: Protection: This subject covers the planning, design and operation of electrical protection systems for the generation, transmission and distribution systems of electric energy: planning, design standards and performance requirements; principles and types of protection systems (over-current, impedance, differential, backup, fuses); application of protection to generators, motors, transmission lines, transformers, busbars, and distribution; sources of overvoltage, lightning impact on transmission and distribution networks, surge propagation theory, circuit interruption theory; instrument transformers steady state and transient behaviour; electrical studies for planning and design of protection systems; power system communications for protection application. Power Electronics: Introduction to the theory, design and analysis of conversion of electric power by means of power electronics, including AC to DC and DC to DC power converters. The fundamental knowledge of electronic speed control techniques for DC motor drives for different applications. AC-DC single-phase and three-phase power converters: Diode and SCR bridge rectifiers. DC-DC Switching Mode Power Converters, buck converters and boost converters, Buck-boost converters. Unipolar and bipolar voltage switching method. Flyback converters, push pull converters. First quadrant, two quadrant and four quadrant drive. Different electronic speed control techniques for DC motor drives.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify and apply different protection schemes applicable to generation, transmission and distribution systems; Design protection systems including relay settings and protection coordination;

3. Define the basics and operations of power semiconductor switches;

4. Describe the building blocks of power electronics conversion;

5. Analyse AC/DC and DC/DC power converters;

6. Analyse and design different types of switching power supplies in different modes of operation;

7. Demonstrate the knowledge of electronic speed control techniques for DC motor drives for different applications.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Lecture notes hand outs. System Protection and Communications, Kalam, A. and Kothari, D.P., 2009, New Age International (P) Ltd, Power Electronics - Converters, Applications, and Design, N. Mohan, T. M. Undeland & W. P. Robbins, 2003, John Wiley & Sons.

Assessment: A pass in each component of assessment is required for a subject pass.Assignment, Assignment and Laboratory Exercises, 40%. Examination, Final, 60%.

RBF1160 AUSTRALIAN LANDSCAPES AND BIOTA

Locations: Werribee.

Description: This unit introduces students to both the range of environments and landscapes present across the Australian continent and the nature of the plants and animals that inhabit these landscapes. This will be achieved by: 1) discussing the factors that have shaped the various Australian environments, including geomorphological and climatic processes, and historical factors; 2) introducing the distinctive flora and fauna of Australia and the evolutionary pressures that have shaped the Australian biota; and 3) reviewing relationships between the biota and the environment. The unit also provides foundational knowledge on the Australian environment for students not continuing in the biological sciences.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe factors that have shaped various Australian environments, including geomorphological, climatic, historical and evolutionary; Explain the relationships between the biota and the environment; Use a limited range of practical skills appropriate to the field; Produce written tasks indicating critical thinking and basic research skills.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and a series of all-day field trips.

Required Reading: De Blij, H. J., & Muller, P. O. (1993). Physical geography of the global environment. Canada: Wiley.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Other, Field Work Reports, 40%. Assignment, Assignments, 20%. Examination, Examination, 40%.

RBF1310 BIOLOGY 1

Locations: St Albans, Footscray Park.

Description: This unit introduces students to the structure and function of living organisms, with an emphasis on animals. Topics covered include cell biology; internal transport mechanisms; sensory systems; gas exchange systems; digestive systems; support and movement; defence against pathogens; and homeostasis.

Credit Points: 12

Learning Outcomes: On successful completion of thus unit, students are expected to be able to: Identify major organelles and structures in a typical cell; Use a microscope in a laboratory setting; Describe the relationship between surface area and volume in a cell and explain its significance in biological systems; Describe processes in major organ systems; Identify key structures of the mammalian heart and eye; Gather and interpret data in a laboratory setting.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures and practical classes.

Required Reading: Knox, R. B., Ladiges, P., Evans, B., & Saint, R. (2005). Biology: An Australian focus (3rd ed.). Roseville, NSW: McGraw-Hill or Solomon, E., Berg, L., & Martin, D. W. (2007). Biology (8th ed.). Brooks Cole.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Essay, Essay, 10%. Other, Practical Work, 30%. Examination, Written, 60%.

RBF1320 BIOLOGY 2

Locations: St Albans, Footscray Park.

Description: This unit complements material covered in RBF1310 Biology 1.

Topics covered include structure and function of plants; photosynthesis and cell respiration; the cell cycle; principles of genetics; evolution and biodiversity; and basic population and community ecology.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify structures and major cell types in flowering plants; Describe the flow of water and nutrients through the vascular system of a flowering plant; Construct and use a simple dichotomous key; Compare and contrast the effects of genetic drift and selection on populations; Perform and write up experiments in laboratory settings.

Class Contact: Sixty (60) hours or equivalent for one semester comprising lectures and practical classes.

Required Reading: Knox, R. B., Ladiges, P., Evans, B., & Saint, R. (2005). Biology: An Australian focus (3rd ed.). Roseville, NSW: McGraw-Hill or Solomon, E., Berg, L., & Martin, D. W. (2007). Biology (8th ed.). Brooks Cole.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passedEssay, Essay, 10%. Other, Practical work, 30%. Examination, Written examination, 60%.

RBF2243 FOOD PROCESSING OPERATIONS

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

Description: A basic introduction to unit operations. Preservation by moisture control: water activity, intermediate moisture foods, concentration, dehydration and freeze drying. Preservation by heat treatment: pasteurisation, sterilisation, canning. Preservation by chilling and freezing. Chemical preservation and fermentation. Preservation by irradiation. Modified atmospheres. Influence of processing on product safety, quality and nutritional value of food. Principles of food packaging, packaging requirements.

Credit Points: 0

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss different methods of spoilage of various food groups; Explain different methods of preservation and fermentation; Suggest appropriate methods of preservation including the concept of hurdles to control a given deterioration; Describe the issues associated with food packaging.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures and tutorials.

Required Reading: Toledo, R. T. (2007). Fundamentals of food process engineering (3rd ed.). New York: Springer.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Assignments, 40%. Examination, Final open-book examination, 60%.

RBF2300 MICROBIOLOGY 1

Locations: Werribee.

Prerequisites: RBF1310 Biology 1.

Description: Introduction to the biology of bacteria, protozoans, fungi and viruses. Microbial cell morphology; structure and function of cell components. Growth, reproduction and enumeration of micro-organisms. Control of microbial growth: the effect of physical and chemical environments on growth. Microbial metabolism and genetics.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Five hours per week comprising three hours of lectures per week and eight three-hour laboratory classes during the semester.

Required Reading: To be advised by lecturer.

Assessment: Assignment, 20%; practical work, 25%; examination, 55%.

RBF2330 CELL BIOLOGY

Locations: St Albans, Werribee.

Prerequisites: RBF1310 Biology 1 or RBM1528 Human Physiology 2.

Description: This unit provides a strong foundation for students moving into areas such as: biotechnology, molecular biology, medical sciences and environmental sciences. Topics include: Eukaryotic cell organisation (covering all of the major organelles) and compartmentalisation; membranes and transport mechanisms; the cell surface; intracellular targeting of proteins including cotranslational and post translational pathways; transport and docking of vesicles; motor proteins, movement and the cytoskeleton; communication between cells including receptors and signal transduction pathways; cell cycle and its regulation; apoptosis; the molecular basis of cancer. Students will gain practical skills in plant and mammalian cell culture in the laboratory setting.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe in detail eukaryotic cell structures and their respective functions; Define the pathways of signal transduction and the cell cycle in normal and cancerous cells; Identify mechanisms of intracellular transport; Discuss the molecular basis of cancer; Appraise and synthesise relevant scientific literature. Demonstrate competency in plant and mammalian cell culture techniques.

Class Contact: Sixty-six (66) hours for one semester comprising lectures, laboratories and tutorials.

Required Reading: Becker, W., Kleinsmith, L.J., & Hardin, J. (2008). The world of the cell (7th ed.). Benjamin Cummings.

Assessment: In order to obtain a pass or higher in this graded unit, all components of assessment must be passed.Assignment, Assignment (one 1500 word assignment), 20%. Examination, A 3 hour written examination, 50%. Practicum, Practical Reports, 30%.

RBF2390 MOLECULAR GENETICS

Locations: Werribee.

Prerequisites: RBF2520 Biochemistry I.

Description: Introduction to developments at the forefront of molecular biology of gene structure and function and molecular genetics. The subject will build on material covered in Biochemistry 1 and Cell Biology and strengthen the foundations for the unit 'Genetic Engineering' in the final year of the degree program. Main topics include: organisation of eukaryotic genomes including repetitive and nonrepetitive DNA sequences, multigene families, pseudogenes; organisation of prokaryotic genomes; genomic rearrangements including transposable genetic elements, retroviruses and other mechanisms, genetic rearrangements in the immune system, replication of DNA, telomeres and telomerases, methylation and imprinting of DNA, mutations and repair mechanisms, regulation of gene expression, specialised genetic systems including genes in early development, genes responsive to hormones and heat shock.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week, comprising three hours of lectures and one hour tutorial, for one semester.

Required Reading: To be advised by the lecturer.

Assessment: Assignment work, 40%; examination, 60%.

RBF2520 BIOCHEMISTRY 1

Locations: St Albans, Werribee.

Prerequisites: RBF1310 Biology 1 and RCS1601 Chemistry 1A or equivalent.

Description: This subject aims to provide a general introduction to biochemistry and includes: structure and functions of carbohydrates, lipids, proteins and nucleic acids. Biological membranes. Enzymes: kinetics and regulatory enzymes. Metabolism: bioenergetics, glycolysis, citric acid cycle, chemiosmosis, gluconeogenesis, amino acid metabolism, fatty acid metabolism, photosynthesis. DNA: structure, replication, expression, and basic gene cloning.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Six hours per week, comprising three hours of lectures, two hours of laboratory, and one hour of tutorial work for one semester.

Required Reading: To be advised by lecturer.

Assessment: Practical work, 30%; final examination, 55%; assignment/test, 15%.

RBF2530 BIOCHEMISTRY 2

Locations: Werribee.

Prerequisites: SBF2520 Biochemistry 1.

Description: The aim of this subject is to expand on material covered in Biochemistry 1, and complement the Molecular Cell Biology and Microbiology subjects. Along with Biochemistry 1, this subject will provide a solid foundation in biochemical principles, reactions and applications. Topics covered include bioenergetics, the pentose phosphate pathway, amino acid and nucleotide metabolism, photosynthesis, aspects of plant metabolism and biochemistry of neurotransmitters. Other topics covered will include the structure and function of biological molecules, ligand binding and conformational changes, mechanisms of enzyme action, advanced enzyme kinetics, regulation of biochemical systems such as hormonal and transcriptional control. Applied aspects of biochemistry will also be considered.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Six hours per week, comprising three hours of lectures, two hours of laboratory work and one hour tutorial for one semester.

Required Reading: To be advised by lecturer.

Assessment: Assignments, 15%; practical work (including test), 25%; final examination 60%.

RBF3110 MARINE & FRESHWATER ECOLOGY

Locations: St Albans.

Prerequisites: RBF1310 - BIOLOGY 1

RBF1320 - BIOLOGY 2

RBF2610 - FUNDAMENTALS OF ECOLOGY

or equivalents.

Description: This unit provides an overview to the ecology and management of freshwater, estuarine and marine ecosystems in southern Australia. The material covered includes: ecology of upland and lowland-floodplain rivers (including impact of flow regulation and environmental water allocations); ecology of lakes and reservoirs (including algal bloom control and impacts of recreation); wetland ecology and management (including international conventions on waterbirds); seagrass, mangrove and saltmarsh ecology and management; significance of rocky shore habitats in southern Australia; estuarine ecology (with particular emphasis on Port Phillip Bay and the Gippsland Lakes) and environmental degradation and repair of aquatic systems.

Credit Points: 12

Learning Outcomes: On successful completeion of this unit, students are expected to be able to: Distinguish marine and freshwater environments found in southern Australia Display skills in biological techniques utilized in marine and freshwater ecology; Identify forms of environmental degradation that occur in marine and freshwater environments; Differentiate amongst different management strategies applied in marine and freshwater ecology and critique their effectiveness.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, tutorial/directed learning, and two (2) whole-day field excursions.

Required Reading: Boulton, A.J., & Brock, M.G. (1999). Australian freshwater ecology. Canberra: CRCFE Press. Underwood, A. J., & Chapman, M. G. (1995). Coastal marine ecology of south-eastern Australia. Sydney: UNSW Press

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Other, Continuous (within-semester) assessment at weeks 6 and 12, 60%. Report, Two field reports, 40%.

RBF3650 POLLUTION BIOLOGY

Locations: Other.

Prerequisites: RBF2610 Fundamentals of Ecology, RBF1310 Biology 1, RBF1320 Biology 2, Biometrics RBF3610, or subject coodinators discretion.

Description: This subject aims to introduce students to the impact of pollutants on natural ecosystems. Topics covered include: Principles and concepts which apply to the analysis and evaluation of pollutant impacts on the natural environment. Experimental methodology employed in the evaluation of organism and ecosystem responses to pollutant exposure with special emphasis on statistical procedures which can be employed in evaluating impacts. Types of and significance of different groups of pollutants. Tolerance and susceptibility of organisms and biological systems to pollutants; pollution monitoring, biological indicators of pollution induced environmental stress; sequestering of exogenous compounds; partitioning; sources and environmental transport; uptake and depuration; case studies.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two hours of lectures and two hours of practical.

Required Reading: To be advised

Assessment: Practicals and assignments: 40 %; examination: 60 %.

RBM3101 GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH

Locations: St Albans.

Prerequisites: RBF2610 - FUNDAMENTALS OF ECOLOGY

RBF2620 - AUSTRALIAN PLANTS

RBF2640 - AUSTRALIAN ANIMALS

OR RBM2260 Diet and Nutrition, RBM2530 Pathophysiology 1, RBM2540 Pathophysiology 2

Description: Types of data. GIS software applications in common use. Methods for data collection and entry, specific plotting and mapping of integrated data. The interpretation of complex temporal and spatial data. Practical applications of GIS including the use of data from programs that monitor and manage endangered species in the Australian context. Computer simulations and the formulation of models to predict the outcome of the effects of habitat degradation, conservation management activities or health service provision.

Credit Points: 12

Learning Outcomes: The development of high level skills in locating, processing and evaluating information relevant to natural resource management, conservation and public health. The development of high level problem solving and decision-making abilities based on the interpretation of complex information. An ability to communicate complex information in written form.

Class Contact: Four hours per week comprising two hours of lecture and two hours of workshops providing hands on experience with data collection and GIS.

Required Reading: Students will be provided with recent case studies and research from the scientific literature along with material based on current research by University personnel and Associates. Excerpts from relevant software manuals will be provided.

Assessment: Laboratory reports and computer exercises (30%). CGA: P3, I3, O2, C2.Written Assignment of 2500 words based on analysis and discussion of GIS data: 40%: I3, P3, W3, A3.Examination (1.5 hours): 30%: The examination will assess the main theoretical concepts underlying the applications of GIS discussed throughout the unit. CGA: I3, A2

RCA1010 INTRODUCTORY AVIATION

Locations: Footscray Park.

Prerequisites: Nil.

Description: Aerodynamics and theory of flight, flight control systems, basic instruments. Domestic and international flight procedures, social structure of the regulatory system, domestic and international. Domestic legal rules, international treaties, domestic safety systems and safety experience. International safety experience.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: One four hour seminar per week for one semester.

Required Reading: As set by the lecturer in charge.

Assessment: One major assignment 30% and one final examination 70%.

RCA1020 BASIC AERONAUTICAL KNOWLEDGE

Locations: Footscray Park.

Prerequisites: RCA1010 (The Civil Aviation Safety Authority also expects that students will have flown five hours before attempting this subject).

Description: Basic Aeronautics, engineering and mechanics sufficient to pass the BAK test as required by the CASA.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one four hour seminar per week for one semester. A concentrated mode of delivery may be used. Students may be required to attend classes off campus. Students should be aware that they are expected to obtain five hours flying experience on their own account before attempting the examination this subject.

Required Reading: As required by the Lecturer in charge.

Assessment: One final (principally multiple choice) examination worth 100% as required by the Civil Aviation Safety Authority.

RCA2020 METEOROLOGY AND HUMAN FACTORS FOR THE CPL

Locations: Footscray Park.

Prerequisites: RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).

Description: Aircraft navigation theory, and legal theory as required for the Commercial Pilot's Licence theory subjects 'CHUF Human Factors (Aeroplane and Helicopter) for the CPL' and 'CMET Meteorology (Aeroplane and Helicopter) for the CPL' examined by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one four hour seminar per week for one semester. Students may be required to undertake multiple seminars each week, for less than one semester.

Required Reading: As required by the Lecturer in charge.

Assessment: Two Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2030 NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL

Locations: Footscray Park.

Prerequisites: RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).

Description: Aircraft navigation theory, and legal theory as required for the Commercial Pilot's Licence theory subjects 'CNAV Navigation (Aeroplane and Helicopter) for the CPL' and 'CLWA Flight rules and Air Law (Aeroplane and Helicopter) for the CPL' examined by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one four hour seminar per week for one semester. Students may be required to undertake multiple seminars each week, for less than one semester.

Required Reading: As advised by the Lecturer in Charge of the subject.

Assessment: Two Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2040 AERODYNAMICS FOR THE CPL

Locations: Footscray Park.

Prerequisites: RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).

Description: Aircraft navigation theory, and legal theory as required for the Commercial Pilot's Licence theory subjects 'CADA Aerodynamics (Aeroplane and Helicopter) for the CPL' examined by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one four hour seminar per week for one semester. Students may be required to undertake multiple seminars each week, for less than one semester.

Required Reading: As advised by the Lecturer in Charge of the subject.

Assessment: Two Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2050 AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL

Locations: Footscray Park.

Prerequisites: RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).

Description: Aircraft navigation theory, and legal theory as required for the Commercial Pilot's Licence theory subjects 'CSYA Aircraft General Knowledge for the CPL' examined by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one four hour seminar per week for one semester. Students may be required to undertake multiple seminars each week, for less than one semester.

Required Reading: As advised by the Lecturer in Charge of the subject.

Assessment: One Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA2060 OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL

Locations: Footscray Park.

Prerequisites: RCA1020 Basic Aeronautical Knowledge (the Civil Aviation Safety Authority requires students to complete the General Flying Proficiency Test before attempting this subject).

Description: Aircraft Operations theory, and flight planning as required for the Commercial Pilot's Licence theory subject 'CFPA CPL Operations Performance and Flight Planning' examined by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one four hour seminar per week for one semester. Students may be required to undertake multiple seminars each week, for less than one semester.

Required Reading: As advised by the Lecturer in Charge of the subject.

Assessment: One Multiple Choice Examination as required by the Civil Aviation Safety Authority.

RCA3010 INSTRUMENT RATING (IREX)

Locations: Footscray Park.

Description: Aircraft flight planning theory sufficient to complete the IREX examination set by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 2 x three-hour workshops per week for one semester, or equivalent.

Required Reading: Thom, T. et al, 2000, The Instrument Rating Manual, Aviation Theory Centre, Melbourne. Subject study notes as provided by the subject lecturer.

Assessment: Examination as required by the Civil Aviation Safety Authority.

RCA3030 METEOROLOGY AND HUMAN FATORS FOR THE ATPL

Locations: Footscray Park.

Prerequisites: RCA2020 - METEOROLOGY AND HUMAN FACTORS FOR THE CPL

RCA2030 - NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL

RCA2040 - AERODYNAMICS FOR THE CPL

RCA2050 - AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL

RCA2060 - OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL

Description: Meteorology and Human Factors sufficient to meet the requirements of the CASA examinations in these topics.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one three-hour seminar each week for one semester.

Required Reading: To be advised by lecturer.

Assessment: One 90 minute multiple choice examination and one 60 minute multiple choice examination.

RCA3040 FLIGHT PLANNING FOR THE ATPL

Locations: Footscray Park.

Prerequisites: RCA2020 - METEOROLOGY AND HUMAN FACTORS FOR THE CPL

RCA2030 - NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL

RCA2040 - AERODYNAMICS FOR THE CPL

RCA2050 - AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL

RCA2060 - OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL

Description: Aircraft flight planning theory sufficient to pass the Air Transport Pilot's Licence theory subject 'ATPL Flight Planning' examined by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 1 x three-hour workshops per week for one semester, or equivalent.

Required Reading: Thom, T. et al, 2000, Aeroplane Operations Performance and Planning for the Air Transport Pilot, Aviation Theory Centre, Melbourne. Subject study notes as provided by the subject lecturer.

Assessment: Examination as required by the Civil Aviation Safety Authority.

RCA3050 NAVIGATION AND AIR LAW FOR THE ATPL

Locations: Footscray Park.

Prerequisites: RCA2020 - METEOROLOGY AND HUMAN FACTORS FOR THE CPL

RCA2030 - NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL

RCA2040 - AERODYNAMICS FOR THE CPL

RCA2050 - AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL

RCA2060 - OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL

Description: Navigation and flight and air law sufficient to meet the requirements of the CASA examinations in these topics.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalent of one three-hour seminar each week for one semester.

Required Reading: To be advised by lecturer.

Assessment: Two 90 minute multiple choice examinations.

RCA3060 AERODYNAMICS AND AIRCRAFT SYSTEMS FOR THE ATPL

Locations: Footscray Park.

Prerequisites: RCA2020 - METEOROLOGY AND HUMAN FACTORS FOR THE CPL

RCA2030 - NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL

RCA2040 - AERODYNAMICS FOR THE CPL

RCA2050 - AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL

RCA2060 - OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL

Description: Aircraft aerodynamics and systems theory sufficient to pass the Air Transport Pilot's Licence theory subject 'ATPL Aerodynamics and Systems' examined by the Civil Aviation Safety Authority

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 1 x three-hour workshop per week for one semester or equivalent.

Required Reading: Thom, T. et al, 2000, Aeroplane Operations Performance and Planning for the Air Transport Pilot, Aviation Theory Centre, Melbourne. Subject study notes as provided by the subject lecturer.

Assessment: Examination as required by the Civil Aviation Safety Authority.

RCA3070 PERFORMANCE AND LOADING FOR THE ATPL

Locations: Footscray Park.

Prerequisites: RCA2020 - METEOROLOGY AND HUMAN FACTORS FOR THE CPL

RCA2030 - NAVIGATION AND FLIGHT AND AIR LAW FOR THE CPL

RCA2040 - AERODYNAMICS FOR THE CPL

RCA2050 - AIRCRAFT GENERAL KNOWLEDGE FOR THE CPL

RCA2060 - OPERATIONS PERFORMANCE AND FLIGHT PLANNING FOR THE CPL

Description: Aircraft performance theory, and loading theory sufficient to pass the Air Transport Pilot's Licence theory subject 'ATPL Performance and Loading' examined by the Civil Aviation Safety Authority.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 1 x three-hour workshop per week for one semester or equivalent.

Required Reading: Thom, T., et al, 2000, Aeroplane Operations Performance and Planning for the Air Transport Pilot, Aviation Theory Centre, Melbourne. Subject study notes as provided by the subject lecturer.

Assessment: Examination as required by the Civil Aviation Safety Authority.

RCM1114 INTRODUCTION TO COMPUTING AND THE INTERNET

Locations: Footscray Park.

Description: Algorithms for computational tasks. Overview of the Internet. Internet Connections. Web Design and Authoring. Characteristics and functions of browsers. Resources on the Internet, Surfing the Internet. Future of the Internet, Scripting Languages. The law and computer crimes. Reliability and safety of software systems. Australian Computer Society code of ethics.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate sound Internet computing skills; Design and develop Websites; Locate relevant Web-based resources; Identify and discuss social, ethical and Intellectual Property (IP) issues arising from computing in society.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and laboratory/tutorials.

Required Reading: Zeid, I. (2004). Mastering the Internet, XHTML, and JavaScript (2nd ed.). Pearson Education.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Laboratory Work, 30%. Examination, Final, 70%.

RCM1115 COMPUTER SYSTEMS AND ARCHITECTURE

Locations: Footscray Park, Other.

Description: Computer systems components and their relationships. Operating system and its functions. Overview of Computer Science. Database management. Key milestones, concepts, and historical developments of computer systems. Representation of Information in Computer Systems: Equivalence of number systems, Operations on numbers. System architecture. Instruction execution processes and data structures, Machine instructions design, Assembly level programming. Novel and emerging architectures.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Nil.

Assessment: Final examination, 70%; assignment and tests, 30%.

RCM1211 DATABASE SYSTEMS 1

Locations: Footscray Park.

Prerequisites: RCM1311 Programming 1, RCM1114 Introduction to Computing and the Internet; or equivalents.

Description: Overview of database management and database application development process. The SQL language: data definition and data manipulation. Relational model, relational algebra. Implementation and performance issues. Three-level architecture for database systems. Relational database design: normalization and entity-relationship modelling. Issues of security, multi-user environment, and application development.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Outline the benefits and functions of databases and their application; Describe and give examples of key Relational Database Model concepts; Implement a working relational database with multiple tables using a relational DBMS; Illustrate a database and its relationships with a relational schema; Describe the basics of query languages and how to manage a database using SQL; Explain how to use, and use both Entity Relationship and Extended Entity Relationship analysis to develop ER and EER diagrams.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and laboratory tutorials.

Required Reading: Elmasri, R., & Navathe, S. (2005). Fundamentals of database systems (5th ed.). Addison Wesley.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Industry and community-based assignment and tests, 30%. Examination, Final, 70%.

RCM1312 PROGRAMMING 2

Locations: Footscray Park.

Prerequisites: RCM1311 Programming 1; or equivalent.

Description: Structured program development through user defined classes. Array and string data types. File I/O. Inheritance, exceptions, graphical user interfaces.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use structured data types and subdivide programs into classes; Apply fundamental aspects of program development involving objects from multiple classes including algorithm development, top down design, testing methods; Write documentation; Use an object oriented approach to program design and implementation.

Class Contact: Forty-eight (48) hours or equivalent for one semester, comprising lectures and laboratory tutorials.

Required Reading: Nil.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Test and practical Work, 20%. Examination, Final, 80%.

RCM1613 APPLIED STATISTICS 1

Locations: Footscray Park.

Description: Data analysis and statistical techniques used in the workplace and community. Displaying and describing data. Sampling and population distributions. Control charts. Time series. Experimental design. Survey designs.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain data collection methods, types of variables, types of data Present data using graphical and numerical methods; Conduct elementary-level exploratory data analysis, to gain in particular, basic knowledge from real life data using basic statistical tools; Discuss the practice of quality control processes and charts in industries; Describe the principles of time series data modelling and forecasting; Describe the principles of experimental design and survey design; Explain correlation and regression analysis Obtain and interpret simple model fitting results using a software package.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials.

Required Reading: Victoria University, School of Computer Science and Mathematics. (2008). Lecture notes for Applied Statistics 1 Melbourne: Author.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Test, Tests, 40%. Examination, Final, 60%.

RCM1614 APPLIED STATISTICS 2

Locations: Footscray Park.

Description: Data analysis and statistical techniques used in the workplace and community. Probability distribution of discrete and continuous random variables. Inference on sample mean. Confidence intervals. t-tests. Comparing two means. Inference for population spread. Comparing two proportions. Distribution fitting and contingency tables. Regression and correlation. Using a Statistical Package.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Estimate and calculate probabilities of outcomes from a range of random variables using distributional properties; Make valid inferences from samples and explain the assumptions they have made to arrive at these inferences; Apply basic statistical techniques to formulate solutions to problems; Present solutions in a comprehensible statistical fashion.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials.

Required Reading: Triola, M. F. (2005). Elementary statistics (9th ed.). Pearson Education.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Test, Test, 40%. Examination, Final, 60%.

RCM1711 MATHEMATICAL FOUNDATIONS 1

Locations: Footscray Park.

Description: Revision of fundamental principles: basic algebra, functions and graphs. Set theory: basic principles, operations and applications. Functions and their definitions and behaviour in terms of sets. Propositional logic and Boolean algebra. Linear algebra: vectors, matrices; applications to geometry and linear equations. Use of a computer algebra system for exploration and enhancement.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Confidently work with the algebra of sets and propositions; Simplify boolean expressions and solve problems requiring boolean logic; Perform arithmetic on vectors and matrices; Apply matrices to the geometric transformation of vectors; Solve simultaneous linear equations using matrix methods.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, tutorials and computer laboratories.

Required Reading: McAndrew, A. (2008). Introductory mathematics. Notes for RCM1711. Melbourne, Victoria University.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained.Test, Mid-semester, 15%. Laboratory Work, Laboratory, 10%. Examination, Final, 75%.

RCM1712 MATHEMATICAL FOUNDATIONS 2

Locations: Footscray Park.

Description: Introduction to computer algebra software. Complex numbers: definition and basic operations, rectangular, polar and exponential forms. Combinatorics and the binomial theorem. Introduction to calculus: derivatives, rules for differentiation, applications to curve sketching, maxima and minima and solution of equations. Concepts of integration: area between curves. Integration methods: integration by substitution, integration by parts and partial fractions. Numerical integration: trapezoidal and Simpson s rule. First order differential equations: separation of variables method and application to growth/decay problems and Newton s law of cooling.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform arithmetic on complex numbers and plot them on an Argand diagram; Use the binomial theorem for expansion of algebraic forms; Explain the concepts of differentiation and integration, and the relationship between them; Differentiate standard algebraic and transcendental functions, using the product, quotient and chain rules; Perform indefinite and definite integration, using substitution, integration by parts and partial fractions; Apply simple numerical methods to equation solving and quadrature problems; and Solve simple differential equations taken from a variety of applications.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, tutorials and computer laboratories.

Required Reading: McAndrew, A. (2008). Combinatorics & alculus: Notes for RCM1712 Mathematical Foundations 2. Melbourne: Victoria University.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained.Test, Mid-semester, 15%. Laboratory Work, Laboratory, 15%. Examination, Final, 70%.

RCM1713 DISCRETE MATHEMATICS

Locations: Footscray Park, Other.

Prerequisites: RCM1711 Mathematical Foundations 1.

Description: Introduction to the computer algebra system Maple. Recursive Functions. Algorithmics- worst case and asymptotic analysis, o, O and T notation. Algorithm design - greedy algorithms. Graph theory - definitions, terminology, adjacency, incidence, paths, cycles, multigraphs, digraphs, weighted graphs, Eulerian graphs and digraphs, Hamiltonian graphs and digraphs, path algorithms, trees, graph colouring, matching.Introduction to the computer algebra system Maple. Recursive Functions. Algorithmics- worst case and asymptotic analysis, o, O and T notation. Algorithm design - greedy algorithms. Graph theory - definitions, terminology, adjacency, incidence, paths, cycles, multigraphs, digraphs, weighted graphs, Eulerian graphs and digraphs, Hamiltonian graphs and digraphs, path algorithms, trees, graph colouring, matching.

Credit Points: 12

Learning Outcomes: Students will gain confidence in analysing algorithms for speed and efficiency, using formal and informal methods, as well as an ability to solve practical and applied problems in graph(network) theory.

Class Contact: Four hours per week for one semester, comprising two hours of lectures, and two hour of laboratory/one hour tutorial.

Required Reading: Discrete Mathematics, Notes for RCM1713, Alasdair McAndrew

Assessment: Final examination, 70%; tests, 30%.

RCM2112 OPERATING SYSTEMS

Locations: Footscray Park, Other.

Prerequisites: RCM1115 - COMPUTER SYSTEMS AND ARCHITECTURE

Description: Processes. Deadlocks. Synchronization, Memory Management. File Systems. I/O Management Case Studies.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one hour lectures and two hours laboratory/tutorial.

Assessment: Final examination, 80%; assignment(s) 20%

RCM2113 MULTIMEDIA SYSTEMS DESIGN

Locations: Footscray Park.

Prerequisites: RCM1114 Introduction to Computing and the Internet, RCM1115 Computer systems and Architecture

Description: Fundamentals and history of multimedia systems. Multimedia applications. Elements of a multimedia systems: text, graphics, animation, audio, and video. Compression techniques and standards. Multimedia authoring systems. Multimedia Communications and Networking, Social, legal, and business aspects of multimedia.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising one two-hour lectures and one two-hour laboratory/tutorial.

Required Reading: To be advised by lecturer.

Assessment: Final examination, 70%; assignment and tests, 30%.

RCM2213 COMPUTER GRAPHICS

Locations: Footscray Park.

Prerequisites: RCM1312 Programming 2 or equivalent.

Description: This subject introduces the principles of computer graphics and the art in the representation of 2D and 3D pictures, and gives experience in using graphics package OpenGL. The topics coverage also includes popular graphics algorithms and techniques for generating 2D and 3D animations. In addition, some advanced topics, such as curves, surface and shading are discussed. Students will have considerable practice in 2D and 3D graphics programming with package OpenGL.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two one-hour lectures and two one-hour laboratory for one semester.

Required Reading: Angel, E., Interactive Computer Graphics - a top down approach with OpenGL, 2nd edn, Addison-Wesley. OpenGL Programming Guide, The Official Guide to Learning OpenGL, 2nd edn, ver1.1 or 1.2, Addison-Wesley.

Assessment: Laboraoty, 10%; Two assignment, 30%; Final examination, 60%.

RCM2218 DATABASE SYSTEMS 2

Locations: Footscray Park, Other.

Prerequisites: RCM1211 Database Systems 1, or equivalent.

Description: This unit will cover the following topics: Data analysis and modelling using the Enhanced Entity-Relationship model and normalisation. Constraints beyond the EER model, and advanced data modelling issues. Database transactions: concept, ACID properties, specification. Transaction processing: commit and rollback, concurrency control, locking, scheduling, and recovery. Database application development using embedded SQL. Database security.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Understand the fundamental roles of data analysis, database design and transaction specification in the development of database applications. Demonstrate good skills in data analysis and database design Demonstrate good skills in transaction analysis and transaction specification. Have the ability to implement database transactions effectively.

Class Contact: Forty eight (48) hours over one 12-week semester comprising of two (2) hours per week delivered as lectures and two (2) hours per week of tutorial/ laboratory classes.

Required Reading: Miliszewska, I, Database Systems, Lecture Material, School of Computer Science & Mathematics, Victoria University Press, 2007.

Assessment: Final examination, 80%; test, 20%.

RCM2312 SOFTWARE ENGINEERING 1

Locations: Footscray Park.

Prerequisites: RCM1311 Programming 1; RCM1312 Programming 2.

Description: This subject represents an introduction to traditional software development and object oriented analysis and design. It is designed to prepare students for final year computer projects. Topics to be covered include: software life cycle, software process, teams, requirements analysis and specification, structured and object oriented design, documentation of software systems. Testing. Reusability and Portability. Implementation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: learn the importance and the goal of software engineering; understand the basic methodologies and techniques for software engineering; understand the basics for playing a role as a software engineer in the software development process, rather than a programmer only; and make the software development process more systematic and productive by applying the material introduced by this unit.

Class Contact: Four hours per week for one semester, comprising three one-hour lectures and one one-hour laboratory/tutorial.

Required Reading: Object Oriented and Classical Software Engineering, Schach, S., 2011, 8th edn, McGraw Hill.

Assessment: Mid-semester test 10%, Final examination, 70%; assignments: 20%.

RCM2313 SOFTWARE DEVELOPMENT

Locations: Footscray Park, Other.

Prerequisites: RCM2312 Software Engineering 1, RCM1312 Programming 2

Description: The aim of this subject is to develop an appreciation of the process whereby software is developed in a production environment students will build upon and reinforce their knowledge of software engineering principles by working in a team on a real-life production project.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Visual Basic Net Programming From Problem Analysis to Program Design, E. Doke, Susan Rebstock Williams C Nov 2004, Course technology, ISBN: 0619160101

Assessment: Final examination, 20% Labs, 30%Assignments, 25% Mid-Semester Test, 25% Final Test.In order to pass, students must obtain at least 25% of labs and assignments, and 25% of tests in this subject

RCM2315 ADVANCED PROGRAMMING

Locations: Footscray Park, Other.

Prerequisites: RCM1312 Programming 2

Description: Fundamental data types; Class definition; Polymorphism; Operator overloading; Characters and strings; Input & Output; Exception handling; Data Structures and collections; Features and facilities found in this programming language.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: To be advised by lecturer.

Assessment: Final examination, 70%; assignment and tests: 30%.

RCM2316 NETWORK OPERATING SYSTEM ADMINISTRATION

Locations: Footscray Park.

Prerequisites: RCM2111 Data Communications and Networks 1.

Description: Protocols and Standards. TCP/IP protocol suite, connecting devices. Addressing. Routing. ARP. IP. ICMP. IGMP. UDP. TCP. SCTP. Multilcasting. DNS. TELNET. SMTP. SNMP.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising of two one hour lectures and one hour laboratory and one hour tutorial.

Required Reading: B. Forouzan, TCP/IP Protocol Suite, 3rd Ed., McGRaw Hill, 2006

Assessment: Final examination, 80%; laboratory work 20%.

RCM2511 IMAGE PROCESSING 1

Locations: Footscray Park, Other.

Prerequisites: RCM1114 - INTRODUCTION TO COMPUTING AND THE INTERNET

AND either: RCM1711 Mathematical Foundations 1 OR RCM1712 Mathematical Foundations 2

Description: Image processing hardware: CCD cameras, scanners, frame-grabbing cards. Aspects of image processing: image restoration; image enhancement; computer vision; object recognition. Quantization and sampling; binary and grey-scale images. Basic point operations: thresholding; histogram equalization and stretching. Thinning and boundary following. Spatial filtering: linear and non-linear filters; applications to noise reduction, deblurring, and edge enhancement. Line recognition: the Hough transform. Filtering in the frequency domain: introduction to the Fourier transform and its uses. Low and high pass filtering; removal of periodic noise. Mathematical morphology: dilation and erosion; opening and closing. Applications to object recognition, boundary detection and skeletonization. Colour images: investigation of the colour spaces RGB and HSI; processing colour images. Image compression and storage; Huffman and run-length encoding.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours of lectures, one hour of practical work, one hour tutorial per week.

Required Reading: None.

Assessment: Final examination 75%, laboratory assessment 25%;

RCM2611 LINEAR STATISTICAL MODELS

Locations: Footscray Park.

Prerequisites: RCM1614 Applied Statistics 2.

Description: Analysis of Variance and Simple Experimental Design. Two-way factorial designs without and with interaction. An introduction to Repeated Measures. Simple linear regression. Multiple Regression. Simple Diagnostics. Model Building and validation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising one two-hour lecture and one one-hour tutorial and one one-hour laboratory.

Required Reading: Moore, D.S. and McCabe, G.P. 1993, Introduction to the Practice of Statistics, 2nd edn, Freeman Press.

Assessment: Final examination, 70; assignment: 30%

RCM2612 FORECASTING

Locations: Footscray Park, Off-shore, Other.

Prerequisites: RCM1614 - APPLIED STATISTICS 2

Description: Introduction to forecasting- Overview, reason for use, procedure, basic steps. Basic forecasting tools - Plots, numerical summaries, Measuring forecast accuracy, prediction intervals. Smoothing methods - Moving averages, exponential smoothing, Holt's, Winters' and damped-tren models. Decomposition methods - Classical Decomposition and Census methods. Mixed models. Regression models. Time series analysis: autocorrelation patterns, Box-Jenkins methods for ARIMA models. Transfer FunctionsApplication to 'real' data. Uses of forecasting methods in practice. Real world issues.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory.

Required Reading: Nil.

Assessment: Project, 40%; Examination, 60%.

RCM2712 MATHEMATICS OF CONTINUOUS PROCESSES A

Locations: Footscray Park.

Prerequisites: RCM1712 - MATHEMATICAL FOUNDATIONS 2

Description: First order and second order differential equations. Laplace and Fourier transforms and application to differential equations. Approximation via Taylor and Fourier series and elementary extension to orthogonal expansions. Multivariate calculus: partial derivatives and chain rule, multiple integration including regions and coordinate transformation. Improper integrals as well as functions defined by integrals. Modelling of continuous processes using differential and functional equations.

Credit Points: 12

Learning Outcomes: Lecture and tutorial work as well as small group project work.

Class Contact: 2 x 1hr lecture and 2 x 1hr tutorial for one semester.

Required Reading: Nil.

Assessment: 15% mid-semester test (1 hour) 15% project work 70% end of semester examination (3 hours)

RCM2713 MODELLING FOR DECISION MAKING

Locations: Footscray Park, Other.

Prerequisites: RCM1712 - MATHEMATICAL FOUNDATIONS 2

Description: Overview of the modelling process: problem identification, factors and assumptions, formulation and solution, interpretation comparison of results with original problem. Setting up models, interpretation of mathematical models. Interpolation, extrapolation, spectral decomposition and fitting models to data. Applications of continuous models via differential equations and data fitting. Discrete versus continuous modelling and discrete/continuous combinations with examples of general interest in a variety of fields.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester.

Required Reading: Edwards, D. and Hamson, M., 1996, Mathematical Modelling Skills, Macmillan Press.

Assessment: Final examination, 80%; assignments, 20%.

RCM2912 PROJECT SCHEDULING

Locations: Footscray Park, Other.

Description: A selection of topics from the following. Standard Flow Shop and Job Shop Scheduling Techniques, Project Scheduling and Management-Finding a critical path, PERT calculations, Time/Cost Trade-offs in reducing total project time, Crashing and indirect costs, Time-Charting and Resource leveling, Use of MSProject, EXCEL and Leuin Scheduling Systems. Project Risk Analysis. Materials Requirement Planning, Current Trends in Scheduling and real-Time Computing Systems. Emphasis will be on real-world problems using computing applications

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours lectures and two hour laboratory/tutorial.

Required Reading: Lecture notes provided by lecturer.

Assessment: Two Assignments 30%, Final Examination 70%.

RCM2914 PROJECT AND INVENTORY ANALYSIS

Locations: Footscray Park.

Description: Project Life cycle: phases and costing of life cycles; Project Evaluation: time value of money, break-even analysis, payback, Return on Investment; Inventory: cost components, models for Economic Order Quantity, Reorder Points, Safety Stock, Quantity Discounts.

Credit Points: 12

Learning Outcomes: To be able to understand the life span of a business project from conception to disposal, what the elements of costs and benefits of a project are, and how alternative project proposals are evaluated. This subject also teaches various inventory issues, including the Economic Order Quantity models of Inventory Control.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Jones, T., 2004, Business Economics and Managerial Decision Making, John Wiley

Assessment: Class Test 1 hour 20% P2, I2, W2, A2One Group Assignment, 2 or 3-persons 20% P2, I2, O2, W2, C2, D2Final Examination 3 hours 60%P2, I2, W2, A2

RCM2915 STOCHASTIC AND COMBINATORIAL OPTIMISATION

Locations: Footscray Park, Other.

Prerequisites: RCM1613 - APPLIED STATISTICS 1

OR equivalent.

Description: Decision Analysis: Decision Making without and with Probabilities; Decision Tress, EVPI and EVSI. Multicriteria Decision Making: Scoring Model, Analytical Hierarchy Process; Spreadsheet Analysis. Selected Combinatorial Optimisation Models: Network Models - spanning tree, shortest path, and maximum flow problems; Set Covering Problem; Cutting Stock Problem; Bin Packing Problem. Queuing Theory: Basic components of a queuing model, arrival and service time distributions; operating characteristics of a queuing system; multiple server models; no waiting time and finite calling population; Economic Analysis; Spreadsheet Analysis.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester; two hours lecture and two hour tutorial/laboratory.

Required Reading: Winston, W.L., 2004, Operations Research: Applications and Algorithms, 4th edn, Duxbury.

Assessment: Participation in Tutorials, 5%; Class Test, 15%; Assignment, 10% Final examination, 70%. To obtain a grade of pass or better a student must obtain 40% or more in the final examination.

RCM2917 LOGISTICS TECHNOLOGY AND SIMULATION

Locations: Footscray Park.

Prerequisites: RCM1114 - INTRODUCTION TO COMPUTING AND THE INTERNET

OR equivalent

Description: Scope of Logistics; Logistics technologies e.g. Bar Code, RFID, EDI; Simulation modelling concepts: Application of simulation model (SIMAN, ARENA) for a logistic system.

Credit Points: 12

Learning Outcomes: After completing the subject, a student is expected to be familiar with the technologies used to identify and locate the materials, and exchanging information relevant to logistics industry. They should be able to structure a logistics problem in a form that can be simulated; Develop models and their solutions using a simulation language.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: 1) Kelton W.D., Sadowski R.P., & Sadowski D.A., 2002. Simulation with Arena 2/e McGraw Hill.

Assessment: Class Test 1 hour 15%P2, I2, W2, A2One Individual Assignment 25% P2, I2, W2, A3, D2Final Examination 3 hours 60% P2, I2, W2, A2

RCM2930 3D WEB TECHNOLOGIES

Locations: Footscray Park, Other.

Prerequisites: RCM1312 - PROGRAMMING 2

Description: VRML/Java3D programming. Structure of a VR Object; Basic structures and adjustment of predefined simple and complex scenes. Adding processing capabilities to VR models by scripting languages. Adding audio-visual effects (light, sound, image texture mapping, audio and video), higher level tools for creating 3D virtual worlds and other approaches to 3D web content; scene graphs. Creating and navigating the virtual world. Creating interactive 3D graphic models and animations by Java 3D.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week comprising of lectures and two hour of tutorial and computer laboratory.

Required Reading: Lectures notes provided by the lecturer.

Assessment: Normally Two Assignments, 30%; final examination, 70%.

RCM3001 PROJECT 1

Locations: Footscray Park, Other.

Prerequisites: RCM1114 - INTRODUCTION TO COMPUTING AND THE INTERNET

RCM1115 - COMPUTER SYSTEMS AND ARCHITECTURE

RCM1311 - PROGRAMMING 1

RCM1312 - PROGRAMMING 2

RCM1613 - APPLIED STATISTICS 1

RCM1711 - MATHEMATICAL FOUNDATIONS 1

RCM1713 - DISCRETE MATHEMATICS

RCM2312 - SOFTWARE ENGINEERING 1

Description: This subject is based and involves projects with industry sponsors selected by the University. Students work in groups under the supervision of an Academic Staff member. For computing projects students are required to submit a specification document, a final project report and demonstrate the software. For non-computing projects students are required to submit a project specification and a final project report. In addition, all groups present progress and final oral presentations to other students, staff and industry partners.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hours per week.

Required Reading: Nil.

Assessment: Based on performance in the projects oral presentations and quality of final reports.

RCM3002 PROJECT 2

Locations: Footscray Park, Other.

Prerequisites: ACE1145 or Year 12 English or competence in English, Must have completed year 2.

Description: Appropriate to the project involved, the student will be required to produce a number of documents such as test plan, design project report, user manual, e-poster and CD-ROM. The student will be continually supervised under the guidance of the subject coodinator and their project supervisors via weekly meetings at various stages of the project.The student's ability as a competent communicator in industry settings will be further developed through workshop activities. The writing of a group project report, writing professional applications, preparing for and role playing interviews and developing oral presentation skills will be included in the workshops.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 1x two hr project meetings with subject coodinator and project supervisor; 1x two hr workshop.

Required Reading: Mohan T (et al) Communicating as Professionals, Thomson, Melbourne, 2004.

Assessment: Demo Presentations, 10%; User Acceptance Test, 20%; Attendance of Meetings and Online Logbook, 5%; Documentation, User Manual, 20%; Final Presentation & e-Poster, 20%Written Employment Application, 15%; Interviews, 10%.All items of assessment must be completed in order for a final result to be obtained in this subject

RCM3021 LOGISTICS ANALYSIS AND SOLUTIONS

Locations: Werribee, Footscray Park, Sunbury, Other.

Prerequisites: BEO4123 Global Logistics and BEO3203 Supply and Value Networks.

Description: The unit of study aims to familiarise students with the process of resolving logistics related business problems through the process of conducting logistics audits and relating them to a number of problem areas. Topics include: Problem Based Learning techniques; logistics audit methodologies; problem identification; problem resolution; report preparation directed towards the analytical aspects of logistics.

Credit Points: 12

Learning Outcomes: Structure a specific problem and analyse the current industry environment in which the problem exists. Use audit report methods as a basis to provide management with options and viable solutions for a range of issues such as: Transport; Storage; Material Handling; Inventory; Procurement. Apply Problem Based Learning techniques as the learning medium.

Class Contact: Equivalent to three hours per week. Normally to be delivered as two hours of lectures and one hour of tutorials, workshops or modules or a delivery mode as approved by the Faculty of Business and Law. Unit of study equal to 12 credit points.

Required Reading: Louise A. Leenders, James A. Erskine, Michiel R. Leenders, 2001, Learning with Cases, 2nd edition, Richard Ivey School of Business, University of Western Ontario.

Assessment: Minor assignment (1000 words), 20%; Major assignment (3000 words), 30%; Case studies (500 words), 5 x 10%.

RCM3111 DATA COMMUNICATIONS & NETWORKS 2

Locations: Footscray Park, Other.

Description: Review of data communication principles, standards and signals. Networked multimedia applications. Fundamentals of multimedia communications. Temporal relationships multimedia communications. Multimedia communications over wide area networks and local area networks. Internetworking and atm protocol.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours contact per week for one semester comprising two one hour lectures and two one-hour laboratory/tutorial.

Required Reading: To be advised by lecturer.

Assessment: Final examination, 70%, assignments, 30%.

RCM3115 ARCHITECTURES FOR ENTERPRISE WIDE COMPUTING

Locations: Footscray Park, Other.

Prerequisites: RCM2218 - DATABASE SYSTEMS 2

RCM2315 - ADVANCED PROGRAMMING

Description: The client/server model. Comparison to mainframe environment; legacy system connections; mission critical services. Client and server roles. Network services; middleware and controlware; Two, three and n-tier architectures; integration layers; interfacing protocols and procedures. Client/server analysis modeling. Requirements determination; data models and object modeling; business process concepts and models. Data Base and user Interface Design. Database systems and services; integrated information architectures; linking multiple databases; GUI standards and design recommendations. Client/server development environments. Object building blocks; prototyping services; rapid application development; testing and validation. Extensions of the client/server model. Remote method invocation; CORBA; applications involving remote processing.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising of two hours of lectures and two hours of laboratory/tutorial.

Required Reading: Linthicum, D, 1997, Guide to Client/Server and Intranet Development, Wiley.

Assessment: Final examination, 70%; tests/assignments, 30%.

RCM3200 SELECTED TOPICS IN OPEN RES AND STATS

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RCM3211 DATABASE SYSTEMS 3

Locations: Footscray Park, Other.

Prerequisites: RCM2218 Database Systems 2.

Description: Data warehouse, datamart, knowledge discovery in databases, data mining algorithms, online analytic processing (OLAP), online transaction processing (OLTP), hypercubes, star schemas, Multidimensional analysis, ROLAP and MOLAP.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Nil.

Assessment: Final examination, 70%; assignment and tests, 30%.

RCM3312 INTELLIGENT SYSTEMS

Locations: Footscray Park, Other.

Prerequisites: RCM1312 Programming 2 and RCM1114 Introduction to Computing and the Internet

Description: Introduction to intelligent systems and artificial intelligence, including a study of knowledge representation and problem solving strategies of rule-based expert systems, fuzzy logic, artificial neural networks and genetic algorithms. Practical work includes JESS expert system shell.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Negnevitsky, M., 2005, Artificial Intelligence, A Guide to Intelligent Systems, 2nd edn. Addison Wesley.

Assessment: Final examination, 80%; assignment(s), 20%.

RCM3313 SOFTWARE ENGINEERING 2

Locations: Footscray Park.

Prerequisites: RCM2311 - OBJECT ORIENTED PROGRAMMING 1

RCM2312 - SOFTWARE ENGINEERING 1

Description: Topics include inspection and formal review, good programming practice, software testing, software estimation, project planning, software process improvement and capability maturity models.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: TBA

Assessment: Final examination, 80%; assignment 20%. In order to pass, students must obtain at 50% of the total marks given in this subject, including at least 40% of the examination mark and at least 40% of the internal marks.

RCM3314 OBJECT ORIENTED ANALYSIS AND DESIGN

Locations: Footscray Park, Other.

Prerequisites: RCM2311 Object Oriented Programming 1.

Description: Review of object oriented design approaches; the Unified Modeling Language (UML); introduction to Rational Rose; the Unified Method; and Agile Modeling approach. design of domain layer; design of storage layer for the use of persistent objects; user interface design considerations; applying the patterns approache to analysis and design.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising of two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Larman, C., 2005, Applying VML and Patterns Pearson Education.

Assessment: Final examination, 70%; Assignment and test, 30%.

RCM3511 IMAGE PROCESSING 2

Locations: Footscray Park.

Prerequisites: RCM2511 Image Processing, RCM1312 Programming 2

Description: Image file types. Topology and geometry; applications to boundary detection, skeletonization and image resizing. Quantization and dithering. Advanced frequency domain filtering, including inverse filtering and Wiener filtering; the Fast Fourier Transform. Shape and size analysis: greyscale morphology and shape descriptors. Lossy compression and the JPEG standard. Wavelets and their applications. Implementation of image processing algorithms.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Gonzalez, R.C. and Woods, R.E., Digital Image Processing, 2nd edn, Addison-Wesley Publishing Company.

Assessment: Final examination, 70%; assignment and tests, 30%.

RCM3611 REGRESSION ANALYSIS

Locations: Footscray Park.

Prerequisites: RCM2611 - LINEAR STATISTICAL MODELS

Description: Review of linear model theory. The signs of, and solution to, common problems with the assumptions necessary for inference in the least squares regression method. Using Generalised Linear Models to overcome a number of these problems. Logistic regression and log linear models. Non-linear regression methods. Required Reading Myers, R.H. 'Classical and Modern Regression with Applications' 2nd Ed. 1990, Duxbury.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: Final Examination 60% Assignments 40%.

RCM3617 QUALITY IMPROVEMENT AND EXPERIMENTAL DESIGN

Locations: Footscray Park.

Prerequisites: RCM1614 Applied Statistics 2.

Description: Fundamental 'quality' and 'quality management' issues. Specifications and the loss function. Process capability and statistical process control. An introduction to feedback control. Factorial experiments and fractional factorial designs. Taguchi methods.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hour mix of lectures, tutorials, practice and laboratory classes.

Required Reading: To be advised by the lecturer.

Assessment: Final examination, 80%; Mid-semester test, 20%.

RCM3711 COMPUTATIONAL METHODS

Locations: Footscray Park.

Prerequisites: RCM2712 Mathematics of Continuos Processes A.

Description: This subject is designed for students interested in applying knowledge of programming techniques to solving applied computational problems. Topics include approximation and interpolation, optimization and root finding, quadrature, spectral decomposition and methods for differential equations. A variety of practical applications will be considered, set in a high level programming environment.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two one-hour lectures and two one-hour laboratory/tutorial.

Required Reading: Nil

Assessment: Final examination, 80%; assignment and tests, 20%.

RCM3820 INTERNET COMPUTING USING XML

Locations: Footscray Park, Other.

Prerequisites: RCM1114 - INTRODUCTION TO COMPUTING AND THE INTERNET

Description: Introduction to XML: definition, benefits, etc.; XML tools; XML namespaces; Document Type Definitions; XML Schema; Extensible Stylesheet Language; XML Forms; XSL Formatting Objects; Resource Description Framework and Dublin Core.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours/week: two hours of lectures and two hours of computer laboratory.

Required Reading: Carey, P, 2004, New Perspectives on XML - Comprehensive, Course Technology.

Assessment: Two assignments, 30%; final examination, 70% (3 hours duration). In order to pass, students must obtain at least 50% of the total marks given in this subject.

RCM3950 INTERNET DATA MANAGEMENT

Locations: Footscray Park, Other.

Prerequisites: RCM2313 - SOFTWARE DEVELOPMENT

Description: Introduction to Class; Introduction to ASP.NET; Introduction to Visual Studio NET; Using Server Controls; Using ASP.NET Rich Controls; Using Visual Basic. NET Within an ASP.NET Page; Managing Data Sources; Building Data-Driven ASP. NET Applications; Building Data-Driven Web Applications; Configuring an ASP.NET Application; Troubleshooting and Deploying an ASP.NET Application.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising one two-hour lecture and two one-hour laboratory/tutorial.

Required Reading: Introduction to ASP.NET, Kathleen Kalata, © 2002 Course Technology, 0-619-06321-1.

Assessment: Laboratory, 15%; Assignments,35%; mid-Semester Test (1 hour duration), 25%; final test (1 hour duration), In order to pass, students must obtain at least 25% of Labs and Assignment, and 25% of Tests in this subject

RCM3960 INTERNET SECURITY

Locations: Footscray Park.

Prerequisites: RCM1711 Mathematical Foundations 1, and RCM1712 Mathematical Foundations 2 or RCM1713 Discrete Mathematics, or equivalents.

Description: Basic definitions and concepts; security as a continued process; human factors; hardware and software considerations. Physical security and hardware: system access; modems: dialup and ADSL. Encryption principles: private/public key cryptosystems, protocols. Cryptanalysis; attacks. Public key encryption: RSA and variants. Key exchange protocols and key rings. Private key encryption: DES and Rijndael. Authentication: password security; password entropy. Dictionary attacks. Firewalls: hardware and software. Port security. Communications: telnet and ftp; ssh and sftp. WWW security: web browsers and servers. Secure Socket Layer (SSL). Email security: PGP and GnuPG, S/MIME. Use and implementation. Hackers, viruses and malicious attacks: dealing with break-ins. Minimizing damage.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Recognise and describe basic security vulnerabilities, in terms of human, software, hardware and environmental factors; Devise processes to ensure greater security; Differentiate between different types of security attacks; Harden a computer system or network, including network components, wireless peripherals and desktop machines.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and computer laboratories.

Required Reading: McAndrew, A. (Ed.). (2008).Class notes. Melbourne: Victoria University.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained.Test, Mid-semester, 15%. Laboratory Work, Laboratory Report, 15%. Project, Industry-based, 20%. Examination, Final, 50%.

RCM3970 COMPUTER GRAPHICS FOR GAME PROGRAMMING

Locations: Footscray Park, Other.

Prerequisites: RCM1713 - DISCRETE MATHEMATICS

RCM2213 - COMPUTER GRAPHICS

Description: The graphics pipeline and graphics performance: texture mapping; description of surface and curve; advanced topics on hidden surface removal; using and manipulating scene graphs; design of interactive applications; collision detection, geometric level of detail; special effects such as shadows, billboarding and motion blur; and hardware procedural shading.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising one two-hour lecture and two one-hour tutorial and computer laboratory.

Required Reading: Lecture notes provided by lecturer.

Assessment: Normally two assignments, 30%; final examination, 70%.

RCM5404 FINANCIAL DECISION SUPPORT SYSTEMS

Locations: Footscray Park.

Description: This subject focuses on modelling the financial flows associated with investment both in commercial projects and in financial assets. Topics may include: the riskless investment: compound interest, present-value and future-value of a sequence of dated cash-flows, measures of rate-of-return; the single-period risky investment, the Markowitz mean-variance comparison of investments; reduction of risk through portfolio optimisation; the capital asset pricing model; extension to multi-period risky investments; financial instruments underlying sources of finance, bonds, shares, options, futures, currencies; Black/Scholes pricing of options; interest rate risk (duration and convexity); software-packages for financial modelling.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week comprising two hours of lectures and one one-hour tutorial.

Required Reading: Van Horne, J. et al. 1991, Financial Management and Policy in Australia, Prentice-Hall.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5601 FORECASTING

Locations: Footscray Park, Other.

Prerequisites: RCM1614 - APPLIED STATISTICS 2

OR equivalent.

Description: Introduction to forecasting- Overview, reason for use, procedure, basic steps. Basic forecasting tools - Plots, numerical summaries, Measuring forecast accuracy, prediction intervals. Smoothing methods - Moving averages, exponential smoothing, Holt's, Winters' and damped-tren models. Decomposition methods - Classical Decomposition and Census methods. Mixed models. Regression models. Time series analysis: autocorrelation patterns, Box-Jenkins methods for ARIMA models. Transfer functions application to 'real' data. Uses of forecasting methods in practice. Real world issues.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory.

Required Reading: Nil.

Assessment: Project, 40%; Examination, 60%.

RCM5602 QUALITY MANAGEMENT AND STATISTICS

Locations: Footscray Park.

Prerequisites: RCM1613 - APPLIED STATISTICS 1

RCM1614 - APPLIED STATISTICS 2

Description: Fundamental 'quality' and quality management' issues. Specifications and the loss function. Process capability and statistical process control. An introduction to feedback control. Factorial experiments and fractional designs. Taguchi methods.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hour mix of lectures, tutorials, practice and laboratory classes.

Required Reading: To be advised by lecturer.

Assessment: Final examination, 80%; Mid-semester tests, 20%.

RCM5800 OBJECT ORIENTED PROGRAMMING GD1

Locations: Footscray Park, Other.

Description: Programming language; basic object oriented concepts; programming, algorithm development and elementary data structures objects and classes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss and apply fundamental aspects of computer program development; Describe software development activities; Develop algorithms using basic programming constructs; Manipulate primitive data types and structured data types; Design program using graphical user interface; Apply object-oriented approach to program design and implementation.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and practicals.

Required Reading: To be advised by lecturer. Java Foundations: Introduction to program design and data structures Lewis J., DePasquale P., & Chase J./2008 Pearson Internal Edition Pearson Education

Assessment: Assignment, Programming Assignment (500-700 lines of code), 10%. Laboratory Work, 5-6 Programming tasks, 15%. Examination, 3 hours written Final Examination, 75%.

RCM5802 INFORMATION SYSTEMS

Locations: Footscray Park, Other.

Description: Database concepts and design methodology; hierarchical, network and relational models; relational approach and relational calculus; object-oriented approach to database design; conceptual models and query interfaces; database management and administration functions, shared access control, security, recovery and query interfaces; study and use of fourth generation languages for query, update and report generation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hours of lectures and one one-hour practical.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5803 DATA STRUCTURES AND PROGRAMMING

Locations: Footscray Park.

Prerequisites: RCM5800 Object Oriented Programming GD1

Description: Program development and testing using Software Engineering principles; object oriented programming languages; organisation and manipulation of data; the software environment; object oriented design and analysis. Abstract data types.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising one one-hour lecture and one two-hour practical.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5805 COMMUNICATION AND NETWORKS

Locations: Footscray Park, Other.

Description: Introduction - types of networks, master/slave polling networks, equality networks, circuit switches and packet switched networks, topologies, network structure, costings; layered design of networks and the ISO reference model - protocols, interfaces, communication techniques, multiplexing; public networks in Australia - Datel, DDS, Austpac, etc.; local area networks - transmission media, topologies, access control, comparison of local area network products; PC Networks - servers, workstations, network disks, directory structure, network security, access control and file locking.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hours of lectures and one one-hour laboratory work.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5807 ADVANCED INFORMATION SYSTEMS

Locations: Footscray Park, Other.

Prerequisites: RCM5802 Information Systems or equivalent.

Description: Data analysis and modelling using the Enhanced Entity-Relationship model and normalisation. Constraints beyond the EER model, and advanced data modeling issues. Database transactions: concept, ACID properties, specification. Transaction processing: commit and rollback, concurrency control, locking, scheduling, and recovery. Database application development using embedded SQL.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hour lecture and one hour laboratory per week.

Required Reading: To be advised by lecturer.

Assessment: Final examination, 80%; test, 20%.

RCM5810 SOFTWARE DEVELOPMENT

Locations: Footscray Park, Other.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

Description: Introduction to VB NET Microsoft NET Framework VB control structures: Selection and Iteration Array, Sub Procedures and Function Procedures Graphical User Interface Design and Programming Using VB.NET Supplied Class Writing Class Definitions and Object Oriented Programming in VB.NET Introduction to DBMS, SQL and ASP.NET Exception Handling

Credit Points: 12

Learning Outcomes: On the completion of the subject, students should be able to: distinguish between the design process and the implementation process appreciate the different demands for implementation of software when using different software development paradigms work in a team environment and understand the importance of personnel management appreciate the complexity of deliverable software products and develop an object-oriented three-tier real-world application.

Class Contact: Three hours per week for one semester, comprising two-hour lecture and one-hour laboratory/tutorial.

Required Reading: E. Doke, Visual Basic.NET Programming: From Problem Analysis to Program Design, Susan Rebstock Williams, Course Technology 2004, ISBN: 0619160101.

Assessment: 20% Laboratory, 30% Assignment. This is technology based assignment with a level of difficulty appropriate for 30% of the total mark in the subject. 25% Mid-Semester Test, 25% Final Test. In order to pass, students must obtain at least 25% of the combined Laboratory and Assignment mark and 25% of Test mark in this subject.

RCM5811 OPERATING SYSTEMS

Locations: Footscray Park, Other.

Prerequisites: RCM5801 - INTRODUCTION TO COMPUTER SCIENCE

OR equivalent.

Description: Processes. Deadlocks. Synchronization, Memory Management. File Systems. I/O Management Case Studies.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to understand the tasks accomplished by a computer's operating system as the interface between user and computer and also as the resource manager for the computer system. Students gain some practical experience using operating systems.

Class Contact: Three hours per week for one semester, comprising two one hour lectures and one hour laboratory/tutorial.

Required Reading: Operating Systems Concepts, Sixth Edition, by Silberschatz, Galvin, and Gagne, 2003

Assessment: 70% final examination 30% test and assignment

RCM5813 ARTIFICIAL INTELLIGENCE

Locations: Footscray Park, Other.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

Description: LISP; knowledge representation - semantic nets, problem solving, search, frames; knowledge based systems - rule-based systems; logic programming; developing an expert system.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hours of lectures and one one-hour practical.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM5814 COMPUTER GRAPHICS

Locations: Footscray Park, Other.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

OR equivalent.

Description: This subject introduces the principles of computer graphics and the art in the representation of 2D and 3D pictures, and gives experience in using graphics package OpenGL. The topics coverage also includes popular graphics algorithms and techniques for generating 2D and 3D animations. In addition, some advanced topics, such as curves, surface and shading are discussed. Students will have considerable practice in 2D and 3D graphics programming with package OpenGL.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two one-hour lectures and two one-hour laboratory for one semester.

Required Reading: Angel, E., Interactive Computer Graphics - a top down approach with OpenGL, 2nd edn, Addison-Wesley. OpenGL Programming Guide, The Official Guide to Learning OpenGL, 2nd edn, ver1.1 or 1.2, Addison-Wesley.

Assessment: Laboratory, 10%; Two assignment, 30%; Final examination, 60%

RCM5820 NETWORK OPERATING SYSTEMS ADMINISTRATION

Locations: Footscray Park.

Prerequisites: RCM5805 Communication and Networks.

Description: Overview of computer networks. Architecture of a specific network operating system, e.g. Server 2003, Network operating system components and their installation. Workstation and server configurations. Network applications. Network administration. Performance monitoring and tuning. Hands-on network installation and administration.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory/tutorial.

Required Reading: To be advised by the lecturer.

Assessment: Final examination, 50%; assignment and tests, 50%.

RCM5821 INTRODUCTION TO MULTIMEDIA SYSTEMS

Locations: Footscray Park.

Description: History and fundamentals of multimedia systems. Hypertext, CD-ROM based interactive multimedia. Components of a multimedia system: voice, graphics, animation, images, audio, and full-motion video. Standards for image compression. Multimedia operating systems. Multimedia databases. Multimedia authoring. Multimedia applications: educational systems, virtual environments, multimedia conferencing, knowledge-based multimedia systems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising one one-hour lectures and one two-hour laboratory/tutorial.

Required Reading: To be advised by the lecturer.

Assessment: Final examination, 80%; assignments, 20%.

RCM5822 NETWORK MULTIMEDIA SYSTEMS

Locations: Footscray Park.

Prerequisites: RCM5821 Introduction to Multimedia Systems.

Description: Components of networked multimedia systems. Multimedia object servers. Multimedia network topologies.Protocols and network services for multimedia. Distributed and collaborative multimedia systems. Application of ATM networks to distributed multimedia. Managing distributed objects. Networked Multimedia applications: video on demand systems, medical image database systems, networked virtual environments, multimedia conferencing.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory/tutorial.

Required Reading: Sharda, N., 1999, Multimedia Information Networking, Prentice-Hall.

Assessment: Final examination, 80%; assignments, 20%.

RCM5824 OBJECT ORIENTED PROGRAMMING GD2

Locations: Footscray Park, Other.

Prerequisites: RCM5800 Object Oriented Programming GD1

Description: This subject provides practice to object oriented programming and methodology using advanced features and the application programming interface of the Java programming language. A deeper discussion of classes and objects, encapsulation, polymorphism, inheritance, relationships among classes of objects and programming with related classes along with exception handling, multithreading, file I/O and building GUI components.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hours of lectures and one one-hour laboratory.

Required Reading: To be advised by lecturer.

Assessment: Final examination, 75%; assignment and laboratory, 25%.

RCM5825 WEB PROGRAMMING

Locations: Footscray Park, Other.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

Description: HTML (and XHTML). JavaScript. Object-oriented programming in JavaScript. Communication between HTML/JavaScript and an applet. Adapting an applet for communication with HTML/JavaScript. Cascading style sheets (CSS). Using layered pages to achieve dynamic effects (DHTML). Communications: Java applications for internet communication; creating simple browsers and servers. Server-side programming: response to a client-submitted form; CGI; PHP; XML; XSL; RMI. Linking mobile telephones to the internet via WAP/WML technology.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hour lectures and 1 hour laboratory per week.

Required Reading: Deitel, Deitel and Nieto, 2001 or later, Internet and World Wide Web: How to Program, Prentice Hall.

Assessment: Final Examination 58%, mid-semester practical test 30%, laboratory 12%

RCM5902 OPTIMISATION TECHNIQUES

Locations: Footscray Park.

Prerequisites: Consent of Lecturer

Description: Lecture Program Topics: Decision Tree and AHP; Maximal flow problems, Shortest-route problem, Minimal spanning tree problem, Estimating network flows; Queuing. Theory; Combinatorial Models: CSP, SCP, & BPP. Spreadsheet Analysis.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures/tutorials.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6021 LOGISTICS SOLUTIONS AND SYSTEMS

Locations: City Flinders, Other.

Description: The unit of study aims to familiarise students with the process of resolving logistics related business problems through the process of conducting logistics audits and relating them to a number of problem areas. Topics include: Problem Based Learning techniques; logistics audit methodologies; problem identification; problem resolution; report preparation directed towards the analytical aspects of logistics.

Credit Points: 12

Learning Outcomes: Structure a specific problem and analyse the current industry environment in which the problem exists. Use audit report methods as a basis to provide management with options and viable solutions for a range of issues such as: Transport; Storage; Material Handling; Inventory; Procurement. Apply Problem Based Learning techniques as the learning medium.

Class Contact: Equivalent to three hours per week. Normally to be delivered as two hours of lectures and one hour of tutorials, workshops or modules or a delivery mode as approved by the Faculty of Business and Law. Unit of study equal to 12 credit points.

Required Reading: David Taylor, 1997, Global Cases in Logistics and Supply Chain Management, thomson Business Press.

Assessment: Case study/Problem solutions: 5 cases x 10 = 50%; One major project assignment, 4000 word report and oral presentation: 50%.

RCM6102 THESIS (2 UNITS)

Locations: Footscray Park, Other.

Description: The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced andformulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: No formal class contact, however, there will be regular meetings with the students' supervisors.

Required Reading: To be advised by the supervisor.

Assessment: To be advised.

RCM6103 THESIS (4 UNITS)

Locations: Footscray Park.

Description: The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: No formal class contact, however, there will be regular meetings with the students' supervisors.

Required Reading: To be advised by supervisor.

Assessment: The thesis will normally be assessed by at least two examiners from an appropriate areas of expertise.RCM6105 THESIS (1 UNIT) (part-time) (for two semesters)

RCM6104 THESIS (1 UNIT)

Locations: Footscray Park, Other.

Description: The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced andformulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: No formal class contact, however, there will be regular meetings with the students' supervisors.

Required Reading: To be advised by the supervisor.

Assessment: To be advised.

RCM6105 THESIS (1 UNIT)

Locations: Footscray Park, Other.

Description: The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced andformulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: No formal class contact, however, there will be regular meetings with the students' supervisors.

Required Reading: To be advised by the supervisor.

Assessment: To be advised.

RCM6106 THESIS (2 UNITS)

Locations: Footscray Park, Other.

Prerequisites: Nil.

Description: The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: No formal class contact, however, there will be regular meetings with the students' supervisors.

Required Reading: To be advised by supervisor.

Assessment: The thesis will normally be assessed by at least two examiners from an appropriate areas of expertise.

RCM6107 THESIS (2 UNITS)

Locations: Footscray Park.

Prerequisites: RCM6106 - THESIS (2 UNITS)

Description: The aim of this subject is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, and it consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced andformulated, the investigation described in detail, results and conclusions from the study are elaborated, and an extended discussion presented.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: No formal class contact, however, there will be regular meetings with the students' supervisors.

Required Reading: To be advised by the supervisor.

Assessment: To be advised.

RCM6501 IMAGE PROCESSING ALGORITHMS

Locations: Footscray Park.

Prerequisites: Nil.

Description: An introductory subject which covers the fundamental algorithms used in image processing and pattern recognition. The topics include: point, algebraic and geometric operations; smoothing and edge detection, linear convolution, median and max/min filters, segmentation, Hough methods, morphological operations; image coding and compression. Introduction to pattern recognition algorithms. Artificial neural networks for pattern recognition, face recognition.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures/ practicals/tutorials.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes. Final examination, 70%; assignments and laboratory works, 30%.

RCM6601 RELIABILITY AND MAINTENANCE

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RCM6606 TIME SERIES ANALYSIS

Locations: Footscray Park.

Prerequisites: RCM5601 - FORECASTING

OR equivalent.

Description: Review of Basic Time Series and Forecasting Concepts. Time Series Regression. Box-Jenkins Models and their Identification. Concepts of Stationarity. Theoretical Autocorrelations and Partial Autocorrelations. Seasonal and Non-Seasonal ARIMA Models. Invertibility. Mutlivariate Transfer Functions. Cross-Correlations. Intervention models. Combining Models. Cyclical Forecasting Methods. Long-Term Forecasting. Real world applications.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week comprising two hours lecture and one hour laboratory.

Required Reading: To be advised by lecturer

Assessment: Final examination, 50%; project, 50%.

RCM6607 STATISTICAL COMPUTING

Locations: Footscray Park.

Description: Lecture Program Data manipulations using an appropriate language. What packages are available   Similarities and differences in what they can do. Writing macros or their equivalent. Producing graphical displays. (Including EDA). Statistical modelling. Creating useful output. Working with input from various sources. Using the Bootstrap. Using the Jackknife. Testing assumptions about data distributions. Practical program: laboratory sessions are designed to give students practical experience in using computers for statistical purposes.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lecture and practical.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6608 MULTIVARIATE ANALYSIS

Locations: Footscray Park, Other.

Description: This subject extends the concepts of estimation and statistical analysis to handle problems involving mandependent variables. Some of the more commonly used multivariate statistical procedures are presented in detail. The topics consist of: Covariance and Correlation: Population and sample covariance and correlation matrices; properties and tests. Linear combinations and multiple and partial correlation. Multivariate Normal Distribution: Features, properties and the key role it plays in many multivariate statistical procedures. Tests on mean vectors. Specific Procedures: Multivariate multiple regression, multivariate analysis of variance, canonical correlation, discriminant analysis, principal components, factor analysis and clustering techniques.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lecture and tutorial.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6702 INTERNET DATA REPRESENTATION 1

Locations: Footscray Park, Other.

Prerequisites: RCM6822 - INTERNET PROGRAMMING

OR equivalent unit.

Description: DRL data access and use; Metadata, such as Resource Description Framework; DRL tools; DRL definition and declaration, such as XML Schema; Parsers and validators; Presentation of DRL data; Research applications of the DRL.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hour lecture and one laboratory/tutorial per week.

Required Reading: Carey, P, 2004, New Perspectives on XML - Comprehensive, Course Technology.

Assessment: Final examination, 70%; Assignments, 30%.

RCM6710 INTERNET DATA MANAGEMENT 1

Locations: Footscray Park, Other.

Prerequisites: RCM5810 - SOFTWARE DEVELOPMENT

RCM6822 - INTERNET PROGRAMMING

Description: Introduction to Class; Introduction to ASP.NET; Introduction to Visual Studio.NET; Using Server Controls; Using ASP.NET Rich Controls; Using Visual Basic. NET Within an ASP.NET Page; Managing Data Sources; Building Data-Driven ASP. NET Applications; Building Data-Driven Web Applications; Configuring an ASP.NET Application; Troubleshooting and Deploying an ASP.NET Application.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising one two-hour lecture and one one-hour laboratory/tutorial.

Required Reading: Introduction to ASP.NET, Kathleen Kalata, © 2002 Course Technology, 0-619-06321-1.

Assessment: 15% Labs 35% Assignment 25% Mid-Semester Test 25% Final Test In order to pass, students must obtain at least 25% of Labs and Assignment, and 25% of Tests in this subject.

RCM6812 CRYPTOGRAPHY COMPUTER & NETWORK SECURITY

Locations: Footscray Park, Other.

Prerequisites: A year of tertiary mathematics

Description: Basic number theory: prime numbers, primarily testing, factorization, implementation in Java. Simple cryptosystems; methods of attack. Public key cryptosystems: RSA, Rabin, El Gamal. Uses and weaknesses. The knapsack cryptosystem and its cryptanalysis. Block ciphers, hash functions and message authentication codes. Modes of encryption. DES and Rijndael.

Credit Points: 12

Learning Outcomes: At the completion of the subject, students should: understand the theoretical algorithms which underlay modern cryptography, be able to implement these algorithms in Java, understand how a cryptosystem is used as part of a security system, recognise the strengths and limitations of cryptography, be able to apply public-key or secret-key cryptosystems to a variety of security tasks.

Class Contact: 3 hours/week: 2 lectures and 1 computer laboratory.

Required Reading: Supplied notes

Assessment: 2 mid semester tests: 10% each (1 hour duration)1programming project: 15%1final exam: 65% (3 hour duration)

RCM6813 INTERNET SECURITY

Locations: Footscray Park.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

RCM5802 - INFORMATION SYSTEMS

Description: Basic definitions and concepts; security as a continued process; human factors; hardware and software considerations. Physical security and hardware: system access; modems: dialup and ADSL.Encryption principles: private/public key cryptosystems, protocols. Cryptanalysis; attacks.Public key encryption: RSA and variants. Key exchange protocols and key rings.Private key encryption: DES and Rijndael.Authentication: password security; password entropy. Dictionary attacks. Firewalls: hardware and software. Port security.Communications: telnet and ftp; ssh and sftp.WWW security: web browsers and servers. Secure Socket Layer (SSL).Email security: PGP and GnuPG, S/MIME. Use and implementation.Hackers, viruses and malicious attacks: dealing with break-ins. Minimizing damage

Credit Points: 12

Learning Outcomes: At the completion of the subject, students should: understand the theoretical algorithms which underlay modern network security, be able to implement these algorithms in Java, understand how a cryptosystem is used as part of a security system, recognise the strengths and limitations of cryptography, recognise and use appropriate security measures for a variety of security tasks.

Class Contact: 3 hours/week: 2 lectures and 1 computer laboratory.

Required Reading: Supplied notes

Assessment: Two mid-semester tests: 15% each (1 hour duration)Final exam: 70% (3 hour duration)

RCM6814 ENTERPRISE - WIDE COMPUTING

Locations: Footscray Park.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

RCM5802 - INFORMATION SYSTEMS

RCM5805 - COMMUNICATION AND NETWORKS

RCM6822 - INTERNET PROGRAMMING

Description: Introduction to electronic commerce.Internet and World Wide Web technology.Data warehouses and data mining technology.Information security technology.Electronic payment.

Credit Points: 12

Learning Outcomes: On successful completion of this subject, student should be able to: develop electronic commerce applications with Internet and World Wide Web technology; understand how to build secure electronic commerce with information security technology and payment systems; make business trend prediction with data mining technology.

Class Contact: 3 hours/week: lectures, tutorials, seminars and computer laboratory.

Required Reading: H. Chan, R. Lee, T. Dillon, and E. Chang. E-Commerce: Fundamentals and Applications. John Wiley & Sons, 2001.

Assessment: Examination (70%): 3 hours duration, closed book written paper. Teamwork assignment: case study of electronic commerce development for group working. This technology based assignment with a level of difficulty appropriate for 30% of the total mark in the subject.

RCM6815 THEORETICAL COMPUTER SCIENCE 1

Locations: Footscray Park, Other.

Description: Theoretical computer science is the foundation of computer science and this subject introduces some of the central topics in theoretical computer science. It covers computability theory, formal languages, logic and automated deduction, computational complexity (including NP-completeness), and programming language semantics.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising two hours of lectures and one hour of laboratory.

Required Reading: Ron Sigal, Elaine J. Weyuker, Theoretical Computer Science by Martin Davis, Elsevier, 1994.

Assessment: Assignment 40% and final examination 60%.

RCM6819 USER INTERFACE DESIGN

Locations: Footscray Park, Other.

Prerequisites: RCM6822 Internet Programming

Description: Cognitive frameworks for HCI. Interaction styles. Help and error messages. Direct manipulation. Prototyping, Evaluation of the interface. Multimedia authoring. Computing Supported Co-operative Work. Usability testing. Prototyping. Rapid application development. User testing. Software metrics

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 13 x three-hour lectures/tutorials.

Required Reading: Preece, J., Roger, Y., Sharp, H., 2002, Interaction Design, Wiley.

Assessment: Assignment, 40%; final examination, 60%.

RCM6820 DISTRIBUTED SYSTEMS

Locations: Footscray Park, Other.

Description: This subject will study advanced topics in Networking with emphasis on Distributed Systems. After completing the subject the students will have gained a understanding of the following topics: OSI layers, Client-Server models and group programming, Networking programming, Distributed Systems

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week two hours lecture and one-hour laboratory/ tutorial.

Required Reading: Stevens, W. Richard Unix Network Programming, Prentice-Hall 1991. Mukesh, S. & Shivari, N.F. Advanced Concepts in Operating Systems, McGraw-Hill 1994.Recommended Reading Coulourism, G.F. & Dollimore, J. Distributed Systems: Concepts and Design, Addison-Wesley 1994. Tanenbaum, A.S. Computer Networks, Prentice-Hall 3rd Ed. 1996

Assessment: Final examination 70%. Assignment/Test 30%.

RCM6821 DECISION SUPPORT TECHNOLOGY

Locations: Other.

Description: Processes and phases of organisational decision making and modelling. Online analytic processing (OLAP) vs online transaction processing (OLTP). Decision support framework and applications. Data requirements and benefits of decision support systems. Structure, components and types of decision support systems. Data mining concepts. Data warehouse vs production systems. Warehouse data characteristics and requirements. Data fusion and data scrubbing. Data models for data warehouse and data mart. Star schemas and hypercubes. Multidimensional analysis ROLAP MOLAP and HOLAP. Data warehouse administration. Warehouse database management technology.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week two hours lecture and one-hour laboratory/ tutorial.

Required Reading:

Assessment: Final examination 70%. Assignment/Test 30%.

RCM6822 INTERNET PROGRAMMING

Locations: Footscray Park, Other.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

Description: HTML (and XHTML). JavaScript. Object-oriented programming in JavaScript. Communication between HTML/JavaScript and an applet. Adapting an applet for communication with HTML/JavaScript. Cascading style sheets (CSS). Using layered pages to achieve dynamic effects (DHTML). Communications: Java applications for internet communication; creating simple browsers and servers. Server-side programming: response to a client-submitted form; CGI; PHP; XML; XSL; RMI. Linking mobile telephones to the internet via WAP/WML technology.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hour lectures and one hour laboratory per week.

Required Reading: Deitel, Deitel and Nieto, 2001 or later, Internet and World Wide Web: How to Program, Prentice Hall. D.R. Watson's five hypertexts on Internet Programming, all available on the school's intranet at s:\samples\scm6822Launcher.html or http://melba.vu.edu.au/scm6822/

Assessment: Final Examination 58%, mid-semester practical test 30%, laboratory 12%.

RCM6823 DATABASE DESIGN, MANAGEMENT AND ADMINISTRATION

Locations: Footscray Park, Other.

Prerequisites: Good knowledge of relational databases; basic understanding of UNIX.

Description: Database Environment. Database planning, design and administration. Methodology - physical database design. Database integrity and security. Transaction management. Distributed database systems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hour lectures and one hour laboratory per week.

Required Reading: Connolly, T. and Begg, C.,2004, Database Systems: A Practical Approach to Design, Implementation and Management, 4th edn, Addison-Wesley.

Assessment: Final Examination, 70%; Assignment, 30%.

RCM6825 MULTIMEDIA SYSTEMS DESIGN AND DEVELOPMENT

Locations: Footscray Park.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

Description: The aim of this subject is to develop a clear understanding of the processes and current methodologies used in the design and development of multimedia systems. The subject introduces some new 3D web graphics technologies related to multimedia system development, including java 3D and Virtual Reality Modeling Language (VRML)

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising two one-hour lectures and one one-hour laboratory.

Required Reading: to be advised by the lecturer

Assessment: Final Examination, 50%; Project, 50%.

RCM6827 RESEARCH PERSPECTIVES IN COMPUTER SCIENCE

Locations: Footscray Park.

Description: Writing a research proposed, performing a literature review, writing a thesis, giving presentations, human research ethics, intellectual property.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading: To be advised

Assessment: A mix of written and oral presentations

RCM6830 KNOWLEDGE ENGINEERING AND E-COMMERCE TECHNOLOGY

Locations: Footscray Park, Other.

Prerequisites: Competency in a programming language.

Description: This subject introduces students to concepts of knowledge and systems engineering with particular emphasis on electronic commerce systems. A study is made of the current and past technologies that have enabled the recent growth and establishment of electronic commerce. The supporting technologies needed for the three-tiered architecture of electronic commerce sites, i.e. front end interfaces, middleware and backend servers together with their databases, are investigated in detail and form the basis of practical exercises.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two one-hour lectures and one one-hour laboratory/tutorial.

Required Reading: To be advised by lecturer.

Assessment: Final examination, 80%; assignment/tests, 20%.

RCM6841 SOFTWARE ENGINEERING 2

Locations: Footscray Park, Other.

Prerequisites: RCM6844 Software Engineering 1.

Description: This subject reviews the software engineering knowledge areas, analyse software process improvement methods and introduces new progresses of software engineering. Topics include capability maturity models, requirement management, project planning, project tracking and oversight, configuration management, quality assurance, and agent oriented software engineering.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours lecture and one hour laboratory/tutorial per week for one semester.

Required Reading: Object Oriented and Classical Software Engineering, Schach, S.R., 2007, 7th edn, McGraw Hill.

Assessment: Final examination, 70%; assignment, 30%. Students must obtain at least 40% standard in the assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

RCM6842 ADVANCED TOPICS IN SOFTWARE ENGINEERING

Locations: Footscray Park, Other.

Prerequisites: RCM6844 - SOFTWARE ENGINEERING 1

Description: Analysis, discussion and implementation of issues from research papers in an area of Software Engineering. For instance, papers on Goal-based methods in Scenario-based Design. Topics include: Analysing Requirements, Prototyping, Usability Evaluation, etc.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hour lecture and one hour laboratory per week.

Assessment: Contributions to projects, laboratories and seminars, 50%; assignments, 50%.

RCM6843 SOFTWARE ENGINEERING PROJECT

Locations: Footscray Park, Other.

Prerequisites: RCM6844 - SOFTWARE ENGINEERING 1

Description: This is a project based unit and will be organised as follows: each student will work on a project as a member of a software development team, or on a personal software project; each project will focus on an industrial and business application such as computer games, financial systems, medical information systems, etc; each project requires the application of knowledge and skills in one or more of the computing and software engineering areas including user interface development, database management systems, networking, wireless/mobile computing, web based and general application development environments; each project practices the software engineering process, generating work products of requirement document, design document, testing report, system manual, project plan and progress log.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that stidents will be able to: understand and gain experience in managing software development process have ability in systematic development of software systems gain experience in software development in at least on of industrial and business applications such like computer games, financial systems, medical information systems, etc demonstrate good ability in applying knowledge and skills in the computing and software engineering areas, including user interface development, database management systems, networking, wireless/mobile computing, web based and general application development environments.

Class Contact: Thirty six (36) hours over one 12-week semester comprising of three (3) hours project session per week.

Required Reading: Project guideline.

Assessment: Two project oral presentations, 15% each; System document (requirement, design, testing report, manual, plan and progress log), 70%*.* System document will be evaluated as a whole. No mark will be granted to each individual component.

RCM6844 SOFTWARE ENGINEERING 1

Locations: Footscray Park, Other.

Prerequisites: RCM5800 - OBJECT ORIENTED PROGRAMMING GD1

Description: This subject covers software engineering knowledge in areas of software management, software verification and validation. Review topics including software process and software life-cycle models, software process improvement, requirement, classical analysis and design, object oriented analysis and design. Detailed topics include inspection, review, software testing, software estimation, prject planning, prject personnel and organization.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours lecture and one hour laboratory/tutorial per week for one semester.

Required Reading:

Assessment: Final examination, 70%; assignment, 30%. Students must obtain at least 40% standard in the assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

RCM6845 OBJECT ORIENTED TECHNOLOGY

Locations: Footscray Park, Other.

Prerequisites: RCM5824 - OBJECT ORIENTED PROGRAMMING GD2

Description: JavaBeans Component Model - Overview, Introspection, Properties of Beans; Networking - InetAddress Class, URL Class, URLEncoder Class, URLConnection Class, Sockets, Server Sockets, Datagram Clients/Servers; Servlet overview and architecture, HttpServlet Class, HttpServletRequest Interface, HttpServletResponse Interface, Handling HTTP get and post Requests, setting up the Apache Tomcat Server, deploying a web application, session tracking; JSP Overview, scripting components, standard actions, directive, custom tag libraries; EJB Overview, session beans, EJB transactions.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours lecture and one hour laboratory/tutorial per week for one semester.

Required Reading: Deitel, H.M., Deitel, P.J., 2003, Java How to Program, 5th Ed., Prentice Hall.

Assessment: Final examination, 70%; Practical/Assignment, 30%. Students must obtain at least 40% standard in the practicals and assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

RCM6846 OBJECT ORIENTED DESIGN

Locations: Footscray Park, Other.

Prerequisites: RCM5824 Object Oriented Programming GD2 or equivalent.

Description: Unified Modeling Language (UML); Introduction to Rational Rose; Unified Method and the design of the domain layer; Concepts of persistence and transactions in an OO context; Interaction layer design considerations; Introduction to an Object Oriented development environment and OODBMS (JADE); Implementation and deployment models; Packages, subsystems and models; Design patterns and frameworks.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours lecture and one hour laboratory/tutorial per week for one semester.

Required Reading: Priestley, M. (2003). 'Practical Object-Oriented Design with UML', 2nd Edition, McGraw Hill.

Assessment: Final examination, 70%; assignment, 30%. Students must obtain at least 40% standard in the assignment and at least 40% on the final examination, and obtain an overall mark of 50%.

RCM6902 MATHEMATICAL PROGRAMMING 1

Locations: Footscray Park.

Prerequisites: Consent of lecturer.

Description: Overview of mathematical programming; review of linear constraints, convexity; the primal and dual problems; the simplex method, slack variables, optimality, post-optimality and sensitivity analysis, integer (linear) programs; commercial packages for mathematical programming, Applied LP Models.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures/tutorials.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6904 SIMULATION

Locations: Footscray Park.

Description: Problem formulation using the concepts of entities, attributes, files, events etc. Generating random numbers from discrete and continuous distributions. Practical coding experience using SLAMII including debugging and verifying that the translated model executes as intended. Systems approach, flow diagram and problem analysis for discrete event systems. Network modelling involving queuing, resources, pre-emption, priorities and machine breakdown. Design and analysis of simulation experiments. Practical coding experience using SLAMII.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures/tutorials.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6905 SEQUENCING AND SCHEDULING

Locations: Footscray Park.

Prerequisites: Nil.

Description: A selection of topics from the following. Standard Flow Shop and Job Shop Scheduling Techniques, Project Scheduling and Management-Finding a critical path, PERT calculations, Time/Cost Trade-offs in reducing total project time, Crashing and indirect costs, Time-Charting and Resource leveling, Use of MSProject, EXCEL and Leuin Scheduling Systems. Project Risk Analysis. Materials Requirement Planning, Current Trends in Scheduling and real-Time Computing Systems. Emphasis will be on real-world

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures and tutorials.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM6906 OPTIMISATION TECHNIQUES

Locations: Footscray Park.

Prerequisites: RCM1613 - APPLIED STATISTICS 1

Description: Lecture Program Topics: Decision Tree and AHP; Maximal flow problems, Shortest-route problem, Minimal spanning tree problem, Estimating network flows; Queuing. Theory; Combinatorial Models: CSP, SCP, & BPP. Spreadsheet Analysis.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures/tutorials.

Required Reading: To be advised by lecturer.

Assessment: Will be based on a combination of examination, assignments, tests and presentations according to a formula to be provided during the first week of classes.

RCM8001 RESEARCH THESIS 1 FULL TIME

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RCM8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RCM8011 RESEARCH THESIS 1 PART TIME

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RCM8012 RESEARCH THESIS 2 PART TIME

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RCS1000 MEDICAL, FORENSIC AND ANALYTICAL CHEMISTRY 1

Locations: Werribee.

Description: Overview and introduction to the principles and methodology of medical, forensic and analytical chemistry. Medical chemistry: introduction to medical therapeutics and diagnostics, organic and inorganic medical chemistry, nuclear medicine and drug design. Forensic chemistry: introduction to physical evidence, fire and explosion investigation, firearm investigation, drug analysis and the analysis of chemical evidence such as fibres. An introduction to the relevant areas of analytical chemistry include an overview of measurements in the analytical laboratory, solutions and concentrations, and an introduction to classical analytical chemistry including volumetric analysis and methods based on analytical separations.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures and one hour of tutorials/demonstrations per week.

Required Reading: Chang, R., Essential Chemistry, 3rd edition, McGraw-Hill. Saferstein, R., Criminalistics: An Introduction to Forensic Science, 8th edition, Prentice-Hall.

Assessment: Written examination, 100%.

RCS1110 CHEMISTRY FOR BIOLOGICAL SCIENCES A

Locations: St Albans.

Description: Chemistry relevant to biological sciences including the topics which follow: Matter and energy, Measurement, Atomic theory and the periodic table, Chemical and physical bonding, Chemical formulae, reactions and equations, Molecular structure and the state of matter, Solutions and aqueous chemistry.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Define basic chemical principles and practices which will underpin specialised chemical studies in subsequent years.

Class Contact: Seventy two (72) hours or equivalent for one semester comprising lectures, tutorials and practical classes.

Required Reading: Introduction to General, Organic and Biochemistry Bettelheim, F.A., Brown, W.H., Campbell, M.K. and Farrell S.O., 2007, 8th edn Harcourt College Publishers.

Assessment: Assignment, 10%; Practical work, 20%; Examination, 70%.

RCS1120 CHEMISTRY FOR BIOLOGICAL SCIENCES B

Locations: St Albans.

Prerequisites: RCS1110 Chemistry for Biological Sciences A or equivalent

Description: Chemistry topics relevant to biological sciences and which incorporate specific reference to biological systems. Topics will include the following: Basic physical chemistry including chemical equilibrium and kinetics, acids and bases, Thermochemistry, Oxidation and reduction, Inorganic and nuclear chemistry with reference to selected elements of biological chemistry, Organic chemistry and biological chemistry.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Six hours per week for one semester comprising three hours of lectures, one hour tutorial and two hour practical classes.

Required Reading: Bettelheim, F.A., Brown, W.H. and March, J., 2001, Introduction to General, Organic and Biochemistry, 6th edn, Harcourt College Publishers.

Assessment: Assignment, 10%; Practical work, 20%; Examination, 70%.

RCS1601 CHEMISTRY 1A

Locations: Footscray Park.

Description: Chemistry methods and measurements; atomic theory and the periodic table; structures and properties of ionic and covalent compounds; chemical equation, reactions and solutions; co-ordination chemistry, acids and bases.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify the elements in the periodic table and state their properties in relation to their position in the periodic table; Identify the types of bonds (ionic and covalent) and, using the concept of Lewis structure and VSEPR, draw the geometry of the molecules; Describe the mole concept and its relationship to Avagadro s number; Draw and complete stoichiometric equations; Identify the geometry of various coordination complexes and indicate the structural name of these complexes; Identify the various types of chemical reactions (precipitation reactions, acid-base reactions and redox reactions).

Class Contact: Eight-four (84) hours or equivalent for one semester comprising lectures, tutorials and laboratories.

Required Reading: Chang, R. (2000). Essential chemistry (2nd ed.). McGraw-Hill. Laboratory manuals as directed.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Laboratory Work, Laboratory Work, 30%. Tutorial Participation, Assessments, 15%. Examination, Internal, 55%.

RCS1602 CHEMISTRY 1B

Locations: Footscray Park.

Description: States of matter; physical and chemical changes (energy, rate and equilibrium); oxidation-reduction reaction (electrochemistry); the nucleus, radioactivity and nuclear medicine. Organic chemistry: saturated and unsaturated hydrocarbons; alcohol phenols, thiols and ethers; aldehydes and ketones; carboxylic acids and their derivatives; amines and amides; biological chemistry.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify the various states of matter (gaseous, liquid and solid) and to state the various properties and intermolecular interactions of these states; Cite the first law of thermodynamics including enthalpy of chemical reactions, calorimetry, standard enthalpy of formation and reaction and the concept of Hess's law; Identify the equilibrium constant for a variety of chemical reactions; Identify the various factors that influence the rate of a chemical reaction; Complete nuclear equations and state the factors affecting nuclear stability; Identify the various functional groups associated with organic molecules.

Class Contact: Eight-four (84) hours or equivalent for one semester comprising lectures, tutorials and laboratories.

Required Reading: Chang, R. (2000)., Essential cChemistry (2nd ed.). McGraw-Hill(A Core Text for General Chemistry), 2nd edn, McGraw Hill. Laboratory manuals as directed.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Other, Practical Work, 30%. Tutorial Participation, Assessments, 15%. Examination, Examination, 55%.

RCS2100 ORGANIC CHEMISTRY 2A

Locations: Werribee.

Prerequisites: RCS1602 Chemistry 1B

Description: The aims of this unit are to introduce students to fundamental aspects of synthetic organic chemistry, organic reaction mechanisms along with applications of spectroscopy to organic chemistry. The topics covered include: aromaticity, electrophilic and nucleophilic aromatic substitution reactions. The chemistry of carbanions and of carbocations. Practical exercises providing substantial 'hands-on' experience with chromatographic and spectroscopic instrumentation will complement the lecture material.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: use mechanisms to explain simple organic chemical reactions; describe the factors which control simple organic reactions; characterise aromatic compounds and describe their common reactions; provide examples of simple reactions involving carbanions and carbocations; perform common practical organic chemistry manipulations.

Class Contact: Two hours of lectures and three hours of practical classes per week for one semester.

Required Reading: Morrison, R.T., and Boyd, R.N., 1992, Organic Chemistry, 6th edn, Prentice Hall.

Assessment: End-of-semester examination, 70% (P2, I2, W2); Practical work, 20% (P2, A2, I2, W2, O2); Assignment, 10% (P2, I2).

RCS2200 ORGANIC CHEMISTRY 2B

Locations: Werribee.

Prerequisites: RCS1602 - CHEMISTRY 1B

Description: The aims of this unit are to build upon the concepts introduced in RCS2100 Organic Chemistry 2A. Topics covered will include: the chemistry of free radicals; an introduction to polymer chemistry; photochemistry and molecular orbital reactions and an introduction to the design of synthetic sequences. Practical exercises providing substantial 'hands-on' experience with chromatographic and spectroscopic instrumentation will complement the lecture material.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: define free radicals and explain their common reactions; describe and explain basic polymers, their preparation and properties; describe and evaluate photochemical and pericyclic reactions; utilise the disconnection approach to devise practical syntheses of simple organic compounds.

Class Contact: Two hours of lectures and three hours of practical classes per week for one semester.

Required Reading: Morrison, R.T., and Boyd, R.N., 1992, Organic Chemistry, 6th edn, Prentice Hall.

Assessment: End-of-semester examination, 70% (P2, I2, W2); Practical work, 20% (P2, A2, I2, W2, O2); Assignment, 10% (P2, I2).

RCS2502 MEDICAL CHEMISTRY 2

Locations: Werribee.

Description: The aim of this subject is to introduce students to aspects of Medical Chemistry. The topics covered include Nuclear Chemistry and the application of Radioisotopes in Medical Chemistry. Bioinorganic Chemistry and the role of inorganic compounds in medicine. The synthesis and analysis of proteins, the structure and physiology of carbohydrates and lipids and a brief introduction to drug/molecule interactions.

Credit Points: 12

Learning Outcomes: At the conclusion of this unit students will be able to: discuss the importance of medical inorganic chemistry and minerals in health; identify the structure carbohydrates and lipids; and explain their analysis; characterise amino acids and proteins and explain their preparation, analysis and basic structure; discuss the principles behind drug-protein interactions.

Class Contact: Two hours of lectures and three hours of practical classes per week for one semester.

Required Reading: Morrison, R.T., and Boyd, R.N., 1992, Organic Chemistry, 6th edn, Prentice Hall.

Assessment: End-of-semester examination, 80%; practical work 20%.

RCS2503 FORENSIC CHEMISTRY 2

Locations: Werribee.

Prerequisites: RCS1601 Chemistry 1A or RCS1602 Chemistry 1B or equivalent.

Description: Forensic Chemistry 2 introduces students to forensic chemical techniques as applied to the analysis of physical evidence collected from crime scenes. Topics covered include: introduction to physical evidence, arson investigation, forensic drug analysis and environmental forensics. Practical exercises provide hands-on experience in a range of forensic chemical techniques.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the nature of fire and how materials burn; Describe current practices in arson investigation including taking samples, recovery and gas chromatographic analysis of ignitable liquid residues and identification of accelerants; Describe analytical procedures to investigate environmental pollutants; Describe screening procedures for drugs in forensic samples; Develop extraction procedures for drugs and metabolites in biological samples; Perform a number of forensic analyses including Duquenois-Levine test for marijuana, fingerprinting, Plaster of Paris casts of footprints, colour tests for drugs in white powders, drug analysis using IR and UV-Vis spectrophotometry, inks by TLC, alcohol by GC and metal poisons by AA.

Class Contact: Sixty (60) hours per semester comprising lectures and practicals.

Required Reading: An Introduction to Forensic Science R. Saferstein, 2007 9th ed New Jersey, Pearson Education Crime Scene to Court: The Essentials of Forensic Science P. White, 2004 2nd ed Cambridge, Royal Society of Chemistry Practical Skills in Forensic Science A. Langford, J. Dean, R. Reed, D. Holmes, J. Weyers and A. Jones, 2005 1st ed Essex, Pearson Education

Assessment: A combination of assignments, 15%; practical work, 30%; and examination, 55%.Assignment, Written Assignment (5000 words), 15%. Laboratory Work, Complete laboratory data sheet for each experiment, 30%. Examination, Two hour theory examination, 55%.

RCS2601 ANALYTICAL CHEMISTRY 2A

Locations: Werribee.

Prerequisites: RCS1601 - CHEMISTRY 1A

RCS1602 - CHEMISTRY 1B

Description: Statistics of errors and treatment of analytical data. Sampling of complex materials. Analytical methods based on emission and absorption of radiation including UV visible and fluorescence spectroscopy. Introduction to NMR and mass spectrometry. Practical exercises will provide substantial 'hands on' experience with modern analytical instruments and will illustrate important analytical and physicochemical techniques.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours per week of lectures and three hours of laboratory classes per week for one semester.

Required Reading: Students should possess a good basic analytical chemistry text such as Skoog, D.A., West, D.M. and Holler, F.J., Fundamentals of Analytical Chemistry, Holt Rinehart and Winston. Students are advised to buy one of the following as a reference of enduring value. Bauer, H.H., Christian, C.D.E. and O'Reilly, J.E., Instrumental Analysis, Allyn and Bacon. Skoog, D.A. and Leary, J.J., Principles of Instrumental Analysis, Saunders. Willard, H.W., Merritt, H.G., Dean, J.A. and Settle, F.A., Instrumental Methods of Analysis, Wadsworth.

Assessment: Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.

RCS2602 ANALYTICAL CHEMISTRY 2B

Locations: Werribee.

Prerequisites: RCS1601 - CHEMISTRY 1A

RCS1602 - CHEMISTRY 1B

Description: Prinicples of instrumentation. Chromatographic methods including gas chromatography and liquid chromatography. Introduction to electrochemical methods. Analytical separation techniques and processes. Practical exercises will provide substantial 'hands on' experience with modern analytical instruments and will illustrate important analytical and physiocochemical techniques.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours per week of lectures and three hours of laboratory classes per week for one semester.

Required Reading: Students should possess a good basic analytical chemistry text such as Skoog, D.A., West, D.M. and Holler, F.J., Fundamentals of Analytical Chemistry, Holt Rinehart and Winston. Students are advised to buy one of the following as a reference of enduring value. Bauer, H.H., Christian, C.D.E. and O'Reilly, J.E., Instrumental Analysis, Allyn and Bacon. Skoog, D.A. and Leary, J.J., Principles of Instrumental Analysis, Saunders. Willard, H.W., Merritt, H.G., Dean, J.A. and Settle, F.A., Instrumental Methods of Analysis, Wadsworth.

Assessment: Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.

RCS3000 INDUSTRIAL EXPERIENCE 3A

Locations: Werribee.

Description: No formal content; students will be required to provide evidence of 12months full-time (or equivalent part-time) employment in a Chemical Industry acceptable to the Head of School. Students should consult with appropriate staff prior to commencing the subject to ensure their situation is acceptable to the School.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Class Contact No set contact hours.

Required Reading:

Assessment: Evidence of appropriate industrial experience in the form of a letter from the employer detailing the experience is required.

RCS3411 ENVIRONMENTAL LEGISLATION

Locations: St Albans.

Description: Philosophy of pollution control and control regulations. Environmental legislation and its implementation. Environmental law in Victoria. Environmental impact statements. Social, economic and political factors. Case studies.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours of lectures per week for one semester.

Required Reading: To be advised by lecturer.

Assessment: Fieldwork and assignments, 40%; examinations, 60%.

RCS3601 ANALYTICAL CHEMISTRY 3A

Locations: Werribee.

Prerequisites: RCS2601 - ANALYTICAL CHEMISTRY 2A

OR RCS2602 Analytical Chemistry 2B

Description: Chemical literature and use of library resources; modern trends in chemical analysis; review of analytical methodologies; an operational model for analytical chemistry; evaluation and criticism of analytical results; development of new analytical methods and trends in analytical research; project planning; selection and purchase of analytical equipment and apparatus; optimisation of analysis. Applications of advanced spectroscopy to organic analysis and structure elucidation. Analysis of carbohydrates, lipids, terpenes, steroids, heterocyclic compounds and proteins.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours of lectures per week and four hours of laboratory classes per week for one semester.

Required Reading: Students are advised to buy one of the following as a reference of enduring value: Christian, C.D.E. and O'Reilly, J.E. Instrumental Analysis, Allyn and Bacon. Skoog, D.A. and Leary, J.J., Principles of Instrumental Analysis, Saunders. Willard, H.W., Merritt, H.G., Dean, J.A. and Settle, F.A. Instrumental Methods of Analysis, Wadsworth.

Assessment: Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.

RCS3602 ANALYTICAL CHEMISTRY 3B

Locations: Werribee.

Prerequisites: RCS2601 - ANALYTICAL CHEMISTRY 2A

OR RCS2602 Analytical Chemistry 2B

Description: Principles, instrumentation, interferences and applications in chemical analysis of absorption and emission spectroscopy including vibrational, rotational, advanced UV visible and fluorescence spectroscopy, and flameless AAS. Electrochemical methods of analysis including ion-selective electrodes, and modern polarography and stripping volumetry. Flow injection analysis. Capillary electrophoresis. Specialized physical techniques of analysis including thermal methods, techniques for surface analysis and the analysis of polymer molecular weights. Practical work providing substantial 'hands on' experience will complement the lecture material.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours of lectures per week and four hours of laboratory classes per week for one semester.

Required Reading: Students are advised to buy one of the following as a reference of enduring value: Christian, C.D.E. and O'Reilly, J.E. Instrumental Analysis, Allyn and Bacon. Skoog, D.A. and Leary, J.J., Principles of Instrumental Analysis, Saunders. Willard, H.W., Merritt, H.G., Dean, J.A. and Settle, F.A. Instrumental Methods of Analysis, Wadsworth.

Assessment: Students will be assessed on the basis of an examination, 70%; and practical work, 30%. Students must pass the practical component in order to pass this subject.

RCS3603 MEDICAL CHEMISTRY 3 A

Locations: Werribee.

Prerequisites: RCS2100 - ORGANIC CHEMISTRY 2A

Description: The synthesis of new chemicals and biochemicals which mimic natural molecules. Methods used to assess the purity of synthetically generated products. Methods used for the bioassay of chemically synthesized chemical. The design of chemicals using 3D drug design.

Credit Points: 12

Learning Outcomes: At the conclusion of this unit students will be able to: apply the principles of various organic synthetic procedures to drug synthesis; categorise the different classes of protecting groups and describe their role in organic synthesis; evaluate various chiral synthetic methodologies and their application to drug synthesis; discuss the importance of X-Ray diffraction and its application to determining the structure of small molecules and proteins; describe the fundamentals of protein chemistry in relation to the isolation and purification of proteins; discuss the principles and application of combinatorial synthesis; utilise basic computer modelling as applied to drug design.

Class Contact: Two hours of lectures and four hours of practical classes per week.

Required Reading: Morrison, R.T., and Boyd, R.N., 1992, Organic Chemistry, 6th edn, Prentice Hall.

Assessment: Practical work, 40%; final examination, 60%.

RCS3604 MEDICAL CHEMISTRY 3 B

Locations: Werribee.

Prerequisites: RCS2502 Medical Chemistry 2.

Description: Students enrolled in medical chemistry 3 will become skilled in the use of the theoretical basis of advanced physico-chemical and biochemical methods for body fluid analysis for the diagnosis of human diseases. These techniques will include ELISA assays and the analysis of human tissues using techniques such as PCR to determine the DNA profile of human tissues.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours of lectures and four hours of practical classes per week.

Required Reading: A range of textbooks and journal articles will be recommended by the lecturer.

Assessment: Practical work, 40%; examinations, 60%.

RCS3605 FORENSIC METHODS 3A

Locations: Werribee.

Prerequisites: RCS2503 Forensic Chemistry 2 or equivalent.

Description: Forensic Methods 3A builds upon the concepts introduced in Forensic Chemistry 2 and provides training in sophisticated methods of analysis as currently applied to the examination of materials that have in some way been associated with crime. Topics covered include: firearm investigation, gun shot residue analysis, chemical fingerprinting and the forensic analysis of drugs, paints and pesticides. Practical exercises provide hands-on experience in a range of forensic chemical techniques.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply the principles of chemical fingerprinting including identifying oil from oil spills and using isotopic ratios to authenticate foodstuffs; Describe the practice of GSR analysis including sampling, bulk analysis, particle analysis and development of powder patterns; Develop analytical procedures for drugs in forensic samples; Describe the role of modern techniques such as GC, pyrolysis GC and energy dispersive x-ray analysis as applied to samples of forensic interest such as paint and pesticides in foodstuffs; Perform a number of forensic analyses including GSR on hands using ICPAES, quinine in urine by fluorometry, drugs in white powders by HPLC, forensic applications of LCMS and GCMS, ignitable liquids in fire debris by GC, IR microscopy of fibres, opiates in opium powder by GCMS and refractive index of glass.

Class Contact: Sixty (60) hours per semester comprising lectures and practicals.

Required Reading: An Introduction to Forensic Science R. Saferstein, 2007 9th ed New Jersey, Pearson Education Crime Scene to Court: The Essentials of Forensic Science P. White, 2004 2nd ed Cambridge, Royal Society of Chemistry Practical Skills in Forensic Science A. Langford, J. Dean, R. Reed, D. Holmes, J. Weyers and A. Jones, 2005 1st ed Essex, Pearson Education

Assessment: Practical work, 30%; and examination, 70%.Laboratory Work, Complete lab data sheet for each experiment, 30%. Examination, Three hour theory examination, 70%.

RCS3606 FORENSIC METHODS 3B

Locations: Werribee.

Prerequisites: RCS2503 Forensic Chemistry 2 or equivalent.

Description: Forensic Methods 3B provides training in sophisticated methods of analysis as currently applied to the examination of materials that have in some way been associated with crime. Various topics in this subject will be delivered by practicing forensic scientists. These include crime scene investigation, chemical trace evidence, fire and explosion investigation, fingerprints, drug analysis, clandestine laboratory scene investigation, forensic toxicology and DNA profiling. Legal studies is also included and introduces students to the legal system, courtroom practices and expert testimony. Practical exercises provide 'hands-on' experience in a range of forensic chemical techniques.

Credit Points: 12

Learning Outcomes: At the conclusion of this unit students will be able to: discuss important considerations in the examination of different types of physical evidence; describe the role of DNA profiling in forensic science; describe the nature of molecular markers and carry out laboratory procedures related to the above such as DNA amplification and separation; define the role of forensic science within the legal system; perform a number of forensic analyses including GSR on hands using FAAS, quinine in urine by fluorimetry, drugs in white powders by HPLC, ignitable liquids in fire debris by GC, IR microscopy of fibres, opiates in opium powder by GCMS, refractive index of glass, DNA isolation, amplification and separation of PCR products using electrophoresis.

Class Contact: Two hours of lectures and three hours of practical classes per week for one semester.

Required Reading: Saferstein, R., Criminalistics - An Introduction to Forensic Science, Pearson Education, New Jersey, 9th ed., 200

7. White, P., (ed), Crime Scene to Court: The Essentials of Forensic Science, Royal Society of Chemistry, Cambridge, 2nd ed., 2004.

Assessment: Practical work, 30%; and assignments/examination, 70%.

RCS3607 ADVANCED ANALYTICAL ANALYSES

Locations: Werribee.

Prerequisites: RCS3601 Analytical Chemistry 3A

Description: This subject will introduce FT-NMR and associated techniques, 13C NMR, decoupling, relaxation, nOe's and DEPT. The role and interpretation of 2D NMR experiments such as COSEY, HSBC and NOESY. The use of LC/MS and MSn in the identification and characterisation of a range of chemical classes will be discussed. Particular emphasis will be placed upon single ion monitoring and fragment monitoring. Other techniques including fluorescence spectroscopy and its role in chemical analysis will also be discussed.

Credit Points: 6

Learning Outcomes: To provide students with an understanding of the design, interpretation and application of a range of advanced analytical techniques.

Class Contact: 2 hrs of lectures per week.

Required Reading: Spectrometric Identification of Organic Compounds by Robert M. Silverstein, Francis X. Webster, Wiley; 6th edition, ISBN: 0471134570.

Assessment: Assessed by two assignments and a written examination. Each assignment is worth 20% and has a 1000 word limit and may be supplemented with an appropriate number of figures, charts and/or tables. The assignments will be spread evenly over the semester. The written examination is worth 60% and there are no specific conditions for the exam.

RCS3608 POLYMER TECHNOLOGY

Locations: Werribee.

Prerequisites: RCS2200 - ORGANIC CHEMISTRY 2B

Description: This unit will introduce students to the preparation of polymers, including radical and ionic polymerisation as applied to chain reaction and step reaction polymerisation reactions. The determination of polymer molecular weight and analysis using GPC will be presented. The physical properties of polymers and their importance to the plastics industry will also be a focus of this subject.

Credit Points: 6

Learning Outcomes: To provide students with an understanding of polymer chemistry as it relates to the plastics industry.

Class Contact: 2 hrs of lectures per week.

Required Reading: Polymer Chemistry: An Introduction, 3rd edition. By Malcolm P. Stevens. Oxford University Press: New York, Oxford. 70.00. ISBN 0-19-512444-

8.

Assessment: Assessed by one assignment and a written examination. The assignment is worth 30% and has a 1000 word limit and may be supplemented with an appropriate number of figures, charts and/or tables. The written examination is worth 70% and there are no specific conditions for the exam.

RCS4201 HONOURS COURSEWORK

Locations: Werribee.

Description: The major focus of the course component is research methodology and subjects include experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: An average of 10 hours per week.

Required Reading: To be advised by the lecturer.

Assessment: The assessment will vary and may be based on written assignments, seminar presentations and a written examination.

RCS4601 HONOURS PROJECT PART TIME

Locations: Werribee.

Description: The program will consist of a research project and a coursework component. The major focus of the course component is research methodology and subjects include experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location.Required Reading To be advised by the lecturer. Normally the coursework component will be conducted in the first two semesters and the research component in the third and fourth semester.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: An average of 10 hours per week for four semesters.

Required Reading: To be advised by the lecturer. Normally the coursework component will be conducted in the first two semesters and the research component in the third and fourth semester.

Assessment: The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written examination. The research project assessment will consist of an oral presentation and submission of a thesis.

RCS4602 HONOURS PROJECT

Locations: Werribee.

Description: This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be a scientific investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the scientific investigation described in detail; results and conclusions from the study are elaborated; and an extended discussion presented. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: An average of 30 hours per week for one semester.

Required Reading: To be advised by supervisor.

Assessment: The assessment will consist of an oral presentation and submission of a thesis.

RCS4610 HONOURS PROJECT PART TIME

Locations: Werribee.

Description: This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be a scientific investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the scientific investigation described in detail; results and conclusions from the study are elaborated; and an extended discussion presented. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: An average of 15 hours per week for one semester.

Required Reading: To be advised by supervisor.

Assessment: The assessment will consist of an oral presentation and submission of a thesis.

RCS5100 RESEARCH METHODOLOGY

Locations: Footscray Park.

Description: Experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation. Qualitative data analysis.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: one hour/week x 26 weeks3 hours per week for one semester-lectures and computer labs.

Required Reading: To be advised by lecturer.

Assessment: Continuous assessment by assignments only.

RCS5111 PRINCIPLES OF ENVIRONMENTAL SCIENCE AND MANAGEMENT

Locations: Footscray Park.

Description: Basic principles of environmental science. The physical, chemical and biological aspects of the atmosphere, hydrosphere and the geosphere. Distribution and transport of pollutants in and between the three systems. Causes and effects of environmental problems. Environmental fate of toxicants including bioconcentration and biomagnification. Application of toxicology in environmental science and management. Techniques in environmental impact assessment. Principles of resource management. Contaminated site assessment and restoration. Bioremediation. Environmental management systems. Current trends in environmental management. Social and economic aspects of environmental issues. Environmental ethics and economics.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures per week for one semester.

Required Reading: There are no standard textbooks for this subject. Reading to be advised by the lecturer.

Assessment: Assessment will be by four assignments (4 x 10% = 40%) and one end of semester exam (60%). Each assignment has a 1,000 word limit (no more than 10 pages) and may be supplemented with an appropriate number of figures, charts and/or tables. Assignments and assignment deadlines will be spread evenly across the semester. There are no special conditions for exams.

RCS5131 WATER POLLUTION MONITORING & LIQUID WASTE MANAGEMENT

Locations: Footscray Park.

Description: The specific problems associated with pollution of the ocean, coastal regions, lakes, rivers and streams, reservoirs and ground water. Water quality monitoring and the statistical design of water quality monitoring programs. Sustainable water management techniques. The Geographical Information System. The nature and sources of liquid waste. Domestic and industrial liquid wastes. Sewage and sewage management infrastructure, including the grass filtration method. Inorganic and organic waste treatment in the lagoon and septic tank systems. Treatment plant design. Microbial breakdown of organic wastes. By-products of sewage treatment, tertiary treatment of effluent. Pathogens in wastewater. Algal blooms. Legislative considerations. Case studies.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures per week for one semester.

Required Reading: There are no standard textbooks for this subject. Reading to be advised by the lecturer.

Assessment: Assessment will be by four assignments (4 x 10% = 40%) and one end of semester exam (60%). Each assignment has a 1,000 word limit (no more than 10 pages) and may be supplemented with an appropriate number of figures, charts and/or tables. Assignments and assignment deadlines will be spread evenly across the semester. There are no special conditions for exams.

RCS5132 ENVIRONMENTAL LAW AND STANDARDS 2

Locations: Footscray Park.

Description: Discharge licence, Water quality criteria, standards and objectives. Laws regarding solid waste disposal. Law enforcement. Case studies in Victoria.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures per week for one semester.

Required Reading: Bates, G.M. 1983, Environmental Law in Australia, Butterworths, Melbourne. Gilpin, A. 1980, Environmental Policy in Australia, Queensland University Press, Brisbane.

Assessment: Continuous assessment by assignments, presentations and reports.

RCS5172 SOLID WASTE MANAGEMENT

Locations: Footscray Park.

Description: Nature and sources of solid wastes; hazardous waste handling; incineration; landfills; other disposal alternatives; monitoring and control.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester.

Required Reading: To be advised by lecturer.

Assessment: Assignment and site visit reports, 40%; examination, 60%.

RCS5192 CLEANER PRODUCTION TECHNOLOGY AND WASTE MINIMISATION

Locations: Footscray Park.

Description: The concept and history of the Cleaner Production approach. 'End-of-pipe' versus Cleaner Production. Cleaner Production and regulatory authorities. The Cradle-to-Grave concept. Process design and life cycle analysis. Waste minimization and recycling. Environmental auditing, the 'eco-audit'. Worldwide attitudes and approaches to Cleaner Production. Detailed case studies and analysis.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, consisting of lectures and site visits.

Required Reading: To be advised by lecturer.

Assessment: Assignment and site visit reports, 40%; examination, 60%.

RCS8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RCS8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RCS8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RCS8012 RESEARCH THESIS 2 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

REP1001 ENGINEERING PHYSICS 1A

Locations: Footscray Park.

Description: Physical Units and Dimensions: Physical quantities, system of units and standards, dimensions, unit conversion, significant figures.Mechanics: Scalars and vectors, displacement, velocity and acceleration, motion in one and two dimensions, force, Newton's laws of motion, friction, work and energy, conservation laws. Momentum and conservation laws, impulse and collisions, rotational motion, moments of inertia, centre of mass, torque, angular momentum, staticsWave Motion & Optics: SHM, damped harmonic motion, forced oscillations and resonance, oscillatory motion, mechanical and acoustic waves, superposition and standing waves, electromagnetic waves, reflection and refraction of light, mirrors and lenses, wave optics, thin films, polarization.Fluids: Density, pressure, Pascal's law, equation of continuity, Bernouill's equation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Students will be required to use the text book (required reading) extensively.

Required Reading: Giancoli, D.C. Physics for Scientists and Engineers with Modern Physics, 3rd Edition, 2000, Prentice HallEngineering Physics !A Laboratory Manual Victoria University.

Assessment: Class tests conducted throughout the semester (5 x 4% tests), 20%; Laboratory performance (5 x 4% laboratories during the semester), 20%; End of semester examination 60%.

REP1002 ENGINEERING PHYSICS 1B

Locations: Footscray Park.

Prerequisites: REP1001 - ENGINEERING PHYSICS 1A

Description: Thermodynamics: temperature, thermal expansion, heat conduction and insulation, heat capacity, specific and latent heat, ideal gases, work and heat in the thermal process, 1st law of thermodynamics, heat engines and the 2nd law of thermodynamics, thermal radiation. Quantum Physics Planck s hypothesis, photons and the photoelectric effect, photons and the Compton effect, pair production, wave, particle duality, wave nature of matter, Bohr model of the atom, Heisenberg uncertainty principle, quantum numbers. Solid State Physics: Bonding in molecules, bonding in solids, free electron model of metals, band theory in solids, semiconductors and doping, semiconductor diodes, transistors. Nuclear Physics: Properties of the nucleus, binding energy, radioactive decay, half-life, radioactive dating, fission and fusion (3 weeks)

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit students will be able: to identify the key elements in a previously unseen problem associated with the content area of this subjectto locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical techniques to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: 60 hours per semester comprising 48 hours of lectures/tutorial and 12 hours of laboratory.

Required Reading: Giancoli, D.C. Physics for Scientists and Engineers with Modern Physics, 3rd Edition, 2000, Prentice Hall Engineering Physics 1B Laboratory Manual, Victoria University

Assessment: Class tests conducted throughout the semester, 20%; Laboratory performance (5 x 4% laboratories during the semester), 20%; End of semester examination 60%.

REP1003 ENGINEERING PHYSICS 1C

Locations: Footscray Park.

Prerequisites: REP1001 - ENGINEERING PHYSICS 1A

Description: A selection of topics taken from the following: Thermodynamics: temperature, thermal expansion, heat conduction and insulation, heat capacity, specific and latent heat, ideal gases, work and heat in the thermal process, 1st law of thermodynamics, heat engines and the 2nd law of thermodynamics, thermal radiation.Electrical Devices: Fundamentals of electric circuits, series and parallel circuits, circuit analysis, DC and AC circuits, operation, performance characteristics and selection of motors and generators

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading: Giancoli, D.C. Physics for Scientists and Engineers with Modern Physics, 3rd Edition, 2000, Prentice HallEngineeringPhysics !A Laboratory Manual Victoria University

Assessment: Class tests conducted throughout the semester (5 x 4% tests), 20%; Laboratory performance (5 x 4% laboratories during the semester), 20%; End of semester examination 60%.

REP4100 DATA ACQUISITION

Locations: Footscray Park.

Prerequisites: VEF1002 - ENABLING SCIENCES 1B

OR ENF1202 Engineering Physics 2

Description: Experimental data handling: measurements and errors. Types of errors, combining errors. Graphical analysis, statistical distributions.Sensors and transducers: Transducer types, e.g. resistive, voltage, current, capacitive, inductive. Transducer circuits such as bridges and operational amplifiers. Generalised measurement systems.Computer laboratory interfacing: Analogue to digital conversion: Data acquisition, time varying signals and the sampling theorem. Digital to analogue conversion: Generation of DC and AC voltages. Adaptive computer control: Digital input and output. General Purpose Interface Bus (GPIB); description and overview. Graphical programming: Fundamentals of a graphical programming environment for the creation of a 'virtual instrument', e.g. LabVIEW. Project: Students will be assigned projects that will involve the automation of an experiment, both in terms of the hardware and software requirements.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to have a sound grasp of experimental measurement and error handling techniques; to be able to use a variety of transducers in appropriate circuits for measurement of physical parameters; to be able to automate a simple experiment using a graphical programming environment.

Class Contact: 48 hours per semester of lecture/tutorial/laboratory sessions.

Required Reading: Kirkup, L, 1994, Experimental Methods, John Wiley & Sons, Qld; ; Bishop, R. H., 2004, Learning with LabVIEW 7 Express, Pearson Prentice Hall, Upper Saddle River, NJ

Assessment: Assignments 20% ; End of semester examination 40%; Project and laboratory reports 40%.

REP4200 DIRECTED STUDIES IN PHYSICS 2

Locations: Footscray Park.

Prerequisites: VEF1002 - ENABLING SCIENCES 1B

OR ENF1202 Engineering Physics 2

Description: A selection of topics from the following:

- Classical Mechanics;
- Thermodynamics;
- Electromagnetism;
- Optics;
- Quantum Mechanics;
- Nuclear Physics;
- Relativity;
- High Energy Physics;
- Electrical and Electronic Machines.

Advanced studies which extend the material covered in first year subjects.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours per semester of lecture/tutorial/seminar/laboratory sessions.

Required Reading: No text will be prescribed. Students will be expected to read widely around the topics in the subject.

Assessment: A series of regular group assignments and tests will be negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for a second year physics subject in a technological degree in the content areas covered by this subject whilst recognising the differing backgrounds of the students undertaking the subject - especially in mathematics.

REP4300 EINSTEIN'S THEORY OF RELATIVITY

Locations: Footscray Park.

Description: Newtonian Relativity; Frame of Reference transformations; Einstein's relativistic postulates; Time dilation and length contraction; Relativistic velocity and mass; $E=mc^2$; Introduction to General Relativity.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: 24 hours per semester of lecture/tutorial/seminar sessions.

Required Reading: No text will be prescribed. Students will be expected to read widely around the topics in the subject.

Assessment: 60 % assignments submitted throughout the semester - approximate length of no more than eight A4 pages each; 40 % classroom presentation chosen from a range of topics provided by the lecturer in charge.

RMA1001 ENGINEERING MATHEMATICS 1A

Locations: Werribee, Footscray Park.

Description: Basic algebra, including index, log laws, indicial and log equations, algebraic expansions; Functions, straight line, parabola, circle etc. Mod function. Domain, range, inverse functions; Trig. Functions and their graphs, period amplitude, degrees radians. Basic trig identities, Inverse Trig functions. Converting aCosx+-bSinx to single Sin, Cosine terms; Limits, continuity, differentiation, rules, higher derivatives, Implicit differentiation. Tangents and Normals; Parametric differentiation, derivatives of logs and exponentials. Rates of change, maximum and minimum problems. Trig and inverse trig derivatives, logarithmic differentiation; Introduction to integration. Fundamental theorem of Integral Calculus. Substitution rule. Areas, Mean values, Root mean square; Methods of integration, partial fractions, simple integration by parts; Introduction to differential equations, separation of variables, population growth, air resistance; Complex numbers; Vectors.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: D.Hughes-Hallett, A.Gleason, W.McCallum et al. Single and Multivariate calculus. John Wiley and Sons, Inc. New York, 2005.

Assessment: There will be class tests, worth 30%, and an end of semester examination worth 70%. No word length limit applies.

RMA1002 ENGINEERING MATHEMATICS 1B

Locations: Footscray Park.

Prerequisites: RMA1001 - ENGINEERING MATHEMATICS 1A

Description: Descriptive statistics, data, histograms etc. Describing data, mean, median, mode, quantiles, measures of dispersion.Introduction to probability, sample space, mutually exclusive and independent events. Intro to PDF's and intro to Normal distribution.Normal distribution, mean of n variate values, 3,2,1 sigma confidence limits. Binomial, Poisson distributions.Exponential, Hypergeometric distr. Normal approx. to Binomial and Poisson. Sample mean. Central limit theorem.Determinants, matrices, Cramer's rule, inversion.Solution of systems of algebraic equations. Row operation, Gaussian elimination, echelon form, ranks.Newton Raphson, numerical integration. Midpoint, Trapezoidal and Simpsons rules.Introduction to series and some convergence tests.Simple power series and the Maclaurin series.Partial differentiation, algebraic, trig, exp, and log functions. Rules.Partial differentiation, conditions for max/min. Simple problems.Intro to second order constant coefficient, homogeneous D.E's. Three types of solutions via the auxiliary equation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: D.Hughes-Hallett, A.Gleason, W.McCallum et al. Single and Multivariate calculus, John Wiley and Sons, Inc. New York, 2005.

Assessment: There will be class tests, worth 30% and an end of semester examination worth 70%. No word length limit applies

RMA1010 INTRODUCTORY MATHEMATICS

Locations: Footscray Park.

Description: Semester one: Algebra and Graph Sketching: Polynomials and other algebraic functions, expansion and factorisation. Factor theorem and algebraic division. Equation solving-linear quadratic and general polynomial. Simultaneous equations. Factorial and sigma notation. Binomial theorem for positive integer indices. Graph sketching-general polynomial functions, straight lines, parabolae, circles, ellipses, hyperbolae, rational functions. Indices, Logarithms and Trigonometry: Indices and logarithms. Exponential and logarithmic functions. Exponential growth and decay. Revision of basic Trigonometry. Trigonometric functions and identities. Graphs of simple trigonometric functions. Solution of simple trigonometric equations. Semester two: Introductory Calculus: Co-ordinate geometry of the straight line. Limits and continuity. Differentiation from first principles. Derivatives of algebraic, logarithmic exponential and trigonometric functions. Product quotient and chain rules. Applications of differentiation: tangents and normals, maxima and minima, rates of change, etc. Basic rules of integration: algebraic, trigonometric and exponential functions. Integration as a process of summation. Applications. Statistics and Probability: Introductory probability including independent, mutually exclusive events, conditional probability. Data analysis. Discrete and continuous probability distributions. Special discrete and continuous probability distributions, e.g. binomial, Poisson, geometric, normal distributions.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for two semesters based on two hour lectures and two hour tutorial sessions.

Required Reading: To be advised by lecturer.

Assessment: Tests and assignments, 40%; one three-hour examination at the end of each semester, 60%. A satisfactory level of assessment for each component is required for a subject pass.

RMA1110 MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1

Locations: Werribee, Other.

Description: Revision of basic algebra and logarithms. Discussion of units, accuracy, precision and significant figures in experimental work. An introduction to matrices and matrix manipulation. Functions and graphs. Solutions of polynomial equations and the general concept of an equation and its solution. Introduction to the methods and applications of differential calculus - local and global max/min. Fitting functions to points and the method of least squares.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester consisting of one, one hour lecture and three hours of practice classes.

Required Reading: Bittinger, M.L., Calculus and Its Applications, 7th Edition, Addison Wesley.

Assessment: Test 1 (week 3), 15%; Test 2 (week 10), 25%; Final Examination, 60%.

RMA1120 STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2

Locations: Werribee, Other.

Description: Representing data graphically and standard summary statistics. Elementary notions of probability and random variable (discrete and continuous). The binomial and normal variables. Point and interval estimation and testing hypotheses on proportions, means and variances.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester consisting of one, one hour lecture, one, two hour tutorial and one, one hour computer laboratory.

Required Reading: Samuels, M.L., Witmer, J.A., Statistics for the Life Sciences, 3rd Edition, Prentice Hall

Assessment: Tutorial test (15%), computer test/assignment (15%) examination (70%).

RMA2120 MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2

Locations: Werribee.

Prerequisites: RMA1110 - MATHEMATICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 1

Description: Review of trigonometric functions. Basic integration. Ordinary differential equations. Multiple integrals. Partial derivatives and the heat and wave equations. Matrices. Series expansions of functions - Taylor and Fourier series.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester consisting of 1 hr lecture, 2 hrs tutorial and 1 hr tutorial/computer lab.

Required Reading: To be advised.

Assessment: Tutorial test (15%,) Computer test (15%), Examination (70%)

RMA3071 INTRODUCTION TO COMPUTER UTILISATION

Locations: Werribee.

Description: Web design, Hypertext Mark-up Language (HTML), C Program, Microsoft Excel.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester, comprising one-hour lectures and two one-hour tutorial/lab.

Required Reading: To be advised.

Assessment: Final examination: 70%; Assignment/test: 30%.

RMA4001 ADVANCED MATHEMATICS FOR ELECTRICAL ENGINEERS

Locations: Footscray Park.

Prerequisites: VEF2002 - SYSTEMS AND MATHEMATICS 2B

Description: A range of topics are to be selected from the following areas: (1) Numerical linear algebra, (2) Constraint and unconstraint optimization problems, (3) Iterative solutions of nonlinear algebraic equations and ordinary differential equations, (4) Mean square theory of random processes.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours of lecture/tutorial per semester.

Required Reading: Advanced Mathematics for Electrical Engineers Subject Notes, Victoria University.Mathematical Methods for Scientists and Engineers. D.A.McQuarrie. University Science Books, 2003.

Assessment: Mid-semester test 40% Examination 60%.

RMS1272 BIOCHEMISTRY (OSTEOPATHY) 2

Locations: St Albans, City Flinders, Other.

Description: Further insights into the biochemical events that occur in the human body. Biochemical pathology: inborn errors of metabolism and their effects. Clinical biochemistry and diagnosis of disease. Importance of biochemical tests in the diagnosis of disease. Use of clinical cases to discuss normal and altered human biochemistry. Practical laboratory skills, interpretation of results and the application of good laboratory practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe biochemical events that occur in the human body; Explain the biochemical and pathological basis of metabolic diseases; Make cautious interpretations of test results, taking into account various factors that can affect the results; Correctly handle commonly used biochemical laboratory equipment, such as micropipettes, spectrophotometers, burettes, glassware, centrifuges; Critically analyse data obtained in experiments; Write formal laboratory reports in a conventional scientific manner; List principles of Good Laboratory Practice (GLP) and apply those principles in the laboratory at all times; Behave in a safety-conscious manner in a laboratory.

Class Contact: Three (3) hours per week or equivalent for one semester comprising tutorials and laboratory practicals. Practical sessions have a hurdle requirement of 100% attendance.

Required Reading: Baynes, J. W. (Ed.), & Dominiczak, M. H. (2004). Medical biochemistry (2nd ed.). Philadelphia: Elsevier Mosby.Campbell, M. K., & Farrell, S. O. (2003). Biochemistry (4th ed.). Pacific Grove, CA: Brooks/Cole.

Assessment: Laboratory practical performance and reports (50%); one theory and practical skills examination (25%); clinical case study workshops (25%).

RMS3010 BIOPROCESSING APPLICATIONS

Locations: Werribee.

Description: Topics include enzyme production and applications, algal biotechnology, bioremediation, bioleaching of metals from low grade ore, commercial and domestic wastewater treatment, biomass conversion and microbial fuel production. The ethical issues associated with these topics will be discussed.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 5 hours per week comprising three hours of lectures and two hours of laboratory work.

Required Reading: Mitchell, R. 1993. Environmental Microbiology, Wiley-Liss Inc.; Shuler, M.L. and Kargi, F., 2002. Bioprocess Engineering: Basic Concepts, 2nd edn, Prentice-Hall Inc.

Assessment: Assignment (1 x 2000 words), 20%; Laboratory Reports (4 x reports), 30%; Exam (1 x three hrs), 50%.

RMS3020 GENOMICS, PROTEOMICS AND BIOINFORMATICS

Locations: Werribee.

Prerequisites: RBF2520 Biochemistry 1.

Description: An overview and definitions of terms; the logic, scope and rationale of genomics and proteomics; descriptions of approaches used in genomics and proteomics; applications of bioinformatics including accessing internet resources such as GenBank and EMBL, data mining, and using programs such as BLAST and FASTA; examples of applications in a range of settings including forensics, drug design, medical research. The theory underpinning a range of analytical techniques used in nucleic acid and protein analysis will also be covered. Ethical issues concerning the ownership of and access to information in databanks will be covered.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 5 hours per week comprising three hours of lectures and two hours of laboratory work.

Required Reading: Primrose, S.B. & Twyman, R.M. (2003) Principles of Genome Analysis and Genomics. Blackwell Science Publishing; Campbell, A.M. & Heyer, L.J. (2003) Discovering Genomics, Proteomics & Bioinformatics, CSHL Press, Benjamin-Cummings. San Francisco, CA, USA; Switzer, R. L. & Garrity, L.F. (2000) Experimental Biochemistry. W.H. Freeman & Co., New York, USA.

Assessment: Assignment (1 x 3000 words), 20%; Laboratory Reports (10 x reports), 30%; Exam (1 x three hrs), 50%.

RMS3030 GENETIC ENGINEERING

Locations: St Albans, Werribee.

Prerequisites: RBF2520 Biochemistry 1; RBF2390 Molecular Genetics.

Description: The unit will include gene cloning, PCR, restriction enzymes and their uses; site-directed mutagenesis; heterologous gene expression systems; DNA profiling and forensics; Southern and Northern Blotting; gene mapping; transgenics and gene knockouts; the Human Genome Project and gene therapy; recombinant DNA-based medical diagnostics; positional cloning; plant genetic engineering; and the ethics, risks and benefits of genetic engineering.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 5 hours per week comprising three hours of lectures and two hours of laboratory work.

Required Reading: Glick, B.R. & Pasternak, J.J. (2003) Molecular Biotechnology: Principles and Applications of Recombinant DNA, 3rd Edition. American Society for Microbiology; Miesfeld, R.L.(1999) Applied Molecular Genetics. Wiley-Liss Publications.

Assessment: Assignment 20%; Laboratory Reports (4 x reports), 25%; Exam (1 x three hrs), 55%.

RMS3045 PROJECT 2 - BIOTECHNOLOGY

Locations: Werribee.

Prerequisites: RMS3040 - PROJECT 1 - BIOTECHNOLOGY

Description: This unit covers project methodology, experimental and analytical design, research plan preparation, analysis of results and thesis writing. A project will normally have been selected by the student in consultation with academic staff in the prerequisite subject, Project 1-Biotechnology.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 6 hours per week comprising laboratory work and workshops.

Required Reading: Third Year Project Study Guide, 2006, Victoria University; Students will be required to review from the current literature a selection of papers related to their chosen topic.

Assessment: 6 hours per week comprising laboratory work and workshops.

RMS3050 ADVANCED MEDICAL MICROBIOLOGY

Locations: Werribee.

Prerequisites: RBF2310 Microbiology 2 or equivalent.

Description: The unit will focus on the molecular aspects of microbial pathogenesis and highlight the principal intervention strategies used to treat infectious diseases. The emphasis will be on the relationship between a pathogen (bacteria, viruses and protozoans) and its human host. An in depth review of the life cycles of several organisms will inform discussion of the current research in the areas of pathogenesis, genetic and phenotypic variation in pathogens and the implications for treatment and control strategies. Consideration will be given to the ethical issues relating to eg vaccination protocols and antimicrobial therapy.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: Three hours per week comprising lectures and tutorials.

Required Reading: To be advised by the lecturer.

Assessment: Assignment (1 x 3000 words), 40%; Exam (1 x three hrs), 60%.

RMS3060 MICROBIAL TECHNOLOGY AND CELL CULTURE

Locations: Werribee.

Prerequisites: RBF2300 Microbiology 1 or equivalent.

Description: Topics include batch, fed-batch and continuous culture, bioreactors and their various modes of operation, plant cell culture and animal cell culture. Topical issues related to the ethics associated with the source and use of various cell lines eg. stem cells, will be discussed.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: three hours per week, comprising lectures and practical work in alternating weeks.

Required Reading: Sharp, J. Crowley, B.R. and Kwok, K.H. 1995. Plant Cell Culture, TAFE Productions; Jenkins, N. 1999. Animal Cell Culture; Methods and Protocols, Humana Press Inc.

Assessment: Laboratory Reports (3 x reports), 40%; Exam (1 x two hrs), 60%.

RMS3113 COMPARATIVE IMMUNOBIOLOGY

Locations: Werribee.

Prerequisites: RBF2300 - MICROBIOLOGY 1

RBF2330 - CELL BIOLOGY

Description: This unit of study examines strategies of disease resistance and internal defence in prokaryotes and eukaryotes and their importance in the field of biotechnology. The specific aims of this unit of study are: to develop an understanding of the nature of immunity and resistance; to develop an understanding of the mechanisms underlying internal defence in organisms; to develop an understanding of the evolution of defence mechanisms in prokaryotes and eukaryotes. Topics covered include: the molecular and cellular components of the vertebrate immune system; innate and adaptive responses to pathogens; the evolution of metazoan immunity; the restriction modification system and other defence mechanisms of prokaryotes; hypersensitive response and systemic acquired resistance in plants; immunology-related advances in biotechnology.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: describe the adaptive and innate immune response to pathogens in vertebrates; compare and contrast strategies of defence against pathogens in prokaryotes and eukaryotes; recall key evolutionary events leading to the development of the immune response; perform several immunology-based laboratory techniques including the ELISA assay, Western Blot and Immunodiffusion assay; apply this knowledge in areas of biotechnology.

Class Contact: 72 hours per semester, comprising lectures, laboratory classes and tutorials.

Required Reading: Janeway, CA, Travers, P, Walport, M, Shlomchik, MJ. (2004) Immunobiology: the immune system in health and disease. Blackwell. Workbook of scientific papers and articles

Assessment: Examination, Written examination (50%) Students are required to pass a written examination of 3 hours duration. Main core graduate attributes: P3, W3, A3, 50%. Practicum, Practical classes (30%) Students will attend 8 practical classes and submit laboratory reports. Practical classes will require students to work co-ope, 30%. Assignment, Assignment (20%) Students will submit a written assignment on a topic related to the unit of study. Students will be required to locate, evaluate and, 20%.

RMS5100 ENVIRONMENTAL IMPACT ASSESSMENT FOR ECOLOGISTS

Locations: Werribee.

Description: This unit introduces environmental impact assessment and its importance in ecologically sustainable development. Its specific aim is to develop the knowledge and skills required to design and undertake an EIA. The unit begins with an overview of the principles and practices of EIA, especially those involving ecological studies, and a survey of the relevant Commonwealth and state legislation. Topics covered include the elements of the EIA process; communication with stakeholders; protocols for baseline studies; impact predictions under differing scenarios; impact mitigation; the importance of continued monitoring; and an introduction to the emerging field of strategic environmental assessment (SEA).

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: identify key issues in environmental impact assessment locate and interpret relevant legislation use databases to gather relevant ecological information develop a plan for conducting the ecological component of an EIA on a nominated area locate, appraise and synthesise relevant literature prepare a report in an appropriate style communicate with a range of stakeholders.

Class Contact: 36 hours for one semester comprising 24 hours of lectures and 12 hours of workshops.

Required Reading: Harvey, N. (1998) Environmental Impact Assessment Procedures, Practice and Prospects in Australia. Oxford University Press. School of Molecular Sciences. (2007) Conservation Legislation in Australia. Victoria University.

Assessment: Written assignment 1 (30%) 2,000 2,500 words. Written assignment 2 (30%) 2,000 2,500 words. Written report (40%) 3,500 4,000 words. Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS5101 ENVIRONMENTAL MANAGEMENT AS A PROFESSION

Locations: Werribee.

Description: This unit introduces students to the professional practice of environmental management. Its specific aim is to develop an understanding of the role of the environmental manager in industry and the wider community. It covers ethics and responsibilities; types of employment for environmental managers; outsourcing and specialization; managing uncertainty and risks; interpreting consultancy briefs; tendering for consultancy opportunities; and preparing reports for varying audiences.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: demonstrate familiarity with the range of employment opportunities for environmental managers prepare a brief for an EIA prepare a tender document prepare a report for a target audience

Class Contact: 36 hours for one semester comprising 27 hours of lectures and 9 hours of workshops.

Required Reading: School of Molecular Sciences. (2008) RMS5101 Class Notes. Victoria University.

Assessment: Written assignment (25%) 2,000 2,500 words. Written assignment (25%) 2,000 2,500 words. Written report (50%) 4,500 5,000 words. Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS5140 BIOPROCESSING TECHNOLOGY PRINCIPLES

Locations: Werribee.

Description: Principles of biochemical engineering, material and energy balance, fermentation technologies, bioreactor design and applications, harvesting and purification of bioproducts, filtration systems and commercial-scale applications of biological-based systems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week of lectures/tutorials.

Required Reading: Shuler, M.L. & Kargi, F., 2002, Bioprocess Engineering: Basic Concepts, 2nd edn, Prentice-Hall.

Assessment: One assignments (3000 words, 30%); examination (3h, 70%).

RMS5145 BIOPROCESSING TECHNOLOGY APPLICATIONS

Locations: Werribee.

Description: Laboratory-scale experiments will be conducted that train students in the areas of downstream processing, plant and algal products, heat-exchange, fermentation, fluid flow, enzyme engineering, biomass conversion and sustainable energy systems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: three hours/week of laboratory practicals.

Required Reading: Shuler, M.L. and Kargi, F., 2002, Bioprocess Engineering: Basic Concepts, 2nd edn, Prentice - Hall Inc.

Assessment: Laboratory reports (100%).

RMS5200 ENVIRONMENTAL MANAGEMENT IN A CHANGING WORLD

Locations: Werribee.

Description: This unit explores the potential impacts of climate change, including drought and sea level change, and of increasing population density in vulnerable areas. It specific aim is to develop the knowledge and skills required to manage the environment in the face of large scale changes. It covers natural and anthropogenic climate change; methods of assessing, monitoring and interpreting climate data; Australian and international agreements; changes in human geography; impacts on natural ecosystems; impacts on human populations; mitigation politics; and informed decision-making processes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: identify the potential impacts of climate change on different locations recognise the major causes of anthropogenic climate change interpret basic climate data use computer programs to explore human geography identify the potential impacts of changing populations

Class Contact: 36 hours for one semester comprising 18 hours of lectures and 18 hours of workshops.

Required Reading: Intergovernmental Panel on Climate Change (2007). Report. Available from http://www.climatechangeinaustralia.gov.au/resources.php Steffen, W. et al. (2004) Global change and the Earth System. Springer-Verlag.

Assessment: Case studies (30%) Written exam (70%) Students must attain a minimum mark of 50% in each assessable component to pass this unit of study.

RMS6140 CELL CULTURE AND FERMENTATION TECHNOLOGY

Locations: Werribee.

Description: This unit will provide students with knowledge in the cultivation of microogranisms and higher eukaryotic cells at the small-scale laboratory and commercial scales. This includes plant culture, microbial fermentations and animal cell culture techniques. Topics will include batch, fed-batch and continuous cultures and bioreactors. The technology of stem cells will also be introduced and ethical issues regarding these will be discussed.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: three hours/week comprising lectures and practical work each alternate week.

Required Reading: Bryce, C.F.A., 1999, Fermentation Microbiology and Biotechnology, T&F STM.

Assessment: Three practical reports (40%); final examination (3h, 60%).

RMS6141 ANIMAL AND PLANT BIOTECHNOLOGY

Locations: Werribee.

Prerequisites: Molecular Genetics Theory.

Description: This unit will provide an in-depth understanding of how animal productivity and efficiency have been improved using technology such as embryo transfer, embryo splitting, in vitro fertilisation and cloning; principles of genetic engineering as applied to a wide range of plant species including wheat, canola oil and soy beans; use of transgenic technology to produce novel proteins and other biomolecules for the pharmaceutical industry.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Class contact will be three hours per week for one semester.

Required Reading: Houdebine, L.M., 2003, Animal Transgenesis and Cloning, John Wiley & Sons.Slater, A., Scott, N.W. & Fowler, M.P., 2003, Plant Biotechnology: The Genetic Manipulation of Plants, Oxford University Press.

Assessment: One assignment (3000 words, 30%); one test (20%) and final examination (3h, 50%).

RMS6145 PROTEIN PRODUCTION, PURIFICATION & ANALYSIS

Locations: Werribee.

Description: Topics covered in the subject will include protein production in mammalian, bacterial, yeast and insect cell expression systems, protein purification and characterization using methods such as SDS-PAGE, purification using affinity and ion-exchange chromatography, protein crystallization, determination of protein structure, principles of X-ray crystallography and NMR in determining the structure of biological molecules including proteins.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours a week lectures, tutorials or practicals.

Required Reading: Switzer, R. L. & Garrity, L.F., 2000, Experimental Biochemistry, W.H. Freeman & Co., New York, USA.Wilson, K. & Walker, J. M., 2000, Principles and Techniques of Practical Biochemistry, Cambridge University Press, New York, USA.

Assessment: Practical reports (20%); one assignment (3000 words, 30%); final examination (3h, 50%).

RMS6200 PROJECT (BIOTECHNOLOGY)

Locations: Werribee, Industry.

Prerequisites: Successful completion of first year of the SMBT degree or equivalent with an average grade of Distinction (H2A) or higher, including Research Methodology (RCS5100) or equivalent. The offering of this project unit option is subject to availability of suitable projects and supervisors, as well as quality of academic performance of the student in the course to date

Description: Students will propose and conduct an independent, practical, hands-on biotechnology project either industry-based or internally offered. Students undertaking this option will be expected to apply the knowledge and skills gained from the coursework component of SMBT degree to the project. The project will be a scientific investigation of an approved topic, consisting of a comprehensive literature review, project proposal, conduct of laboratory or computer-based research, critical analysis and interpretation of results, clear and concise communication of these and discussion followed by a conclusion. The student will be expected to comply with all regulations concerning Occupational Health and Safety (OH&S) and Good Laboratory Practice (GLP).

Credit Points: 36

Learning Outcomes: Upon completion of this unit, it is expected that students will be able to: Find, select, read and critically analyse published literature on a particular topic Competently formulate a sound experimental proposal Independently plan and carry out investigative laboratory experiments Objectively and critically analyse, discuss and report results obtained.

Class Contact: This unit will replace four electives in the existing Masters course. There are no contact hours in this unit as it is a entirely project-based. A total of 432 hours input will be expected for the unit, consisting of literature searches, proposal writing, laboratory research work and report-writing for the unit. This unit is worth 48 credit points (25%) of the course.

Required Reading: Carey, S.S. (2003) A Beginners Guide to Scientific Method, 3rd Edition, Wadsworth Publishing; Ruxton, G.D. & Colegrave, N. (2006) Experimental Design for the Life Sciences, 2nd Edition, Oxford University Press.

Assessment: A report on all aspects of the project including literature review, aims of the proposal, experimental methods, results, critical evaluation of results and discussion, the length of which shall be in the range of 15,000 to 25,000 words (75%); appraisal and assessment from the supervisor of the oral & written communication and problem-solving skills of the student as well as the general conduct and performance in the project e.g. application, punctuality, compliance with OH&S regulations and adherence to GLP principles.

RMS6220 RESEARCH PROJECT (BIOTECHNOLOGY)2

Locations: Werribee.

Prerequisites: RCS5100 - RESEARCH METHODOLOGY

Description: Research Project 2 (Biotechnology) will run concurrently with Research Project 1 (Biotechnology) and will allow students with an interest in research to spend more time in consolidating their research skills. Students will develop hands-on laboratory skills and will be required to research the literature, undertake independent research, critically analyse the results and present these in a formal project report for the topic selected in Research Project 1 (Biotechnology). Students will be expected to comply with all regulations concerning Occupational Health and Safety and Good Laboratory Practice.

Credit Points: 0

Learning Outcomes: On successful completion of this unit, students are expected to be able to: competently plan experiments with sound experimental design; independently carry out investigative laboratory experiments; critically and thoroughly analyse experimental results and discuss them in context with the published literature; write a clear and comprehensive report based on experimental findings.

Class Contact: The equivalent of 72 hours for one semester comprising lectures, workshops and practical work.

Required Reading: Texts and peer-reviewed literature related to the chosen topic.

Assessment: Report, Written, 100%.

RMS6300 PROJECT (BIOTECHNOLOGY) 2

Locations: Werribee.

Prerequisites: RMS5100 - ENVIRONMENTAL IMPACT ASSESSMENT FOR ECOLOGISTS

RMS6200 - PROJECT (BIOTECHNOLOGY)

Successful completion of the first year of the SMBT degree or equivalent, with an average grade of H2A (Distinction) or above. The offering of this unit is subject to availability of suitable projects and supervisors, as well as quality of academic performance of the student in the course to date.

Description: Students will either continue the project carried out in RMS6200 Project (Biotechnology) 1 or propose and conduct a new independent, practical, hands-on biotechnology project either industry-based or internally offered. Students undertaking this option will be expected to apply the knowledge and skills gained from the coursework component of SMBT degree as well as from Project (Biotechnology) 1.

Students will be expected to carry out this project independently and in a highly professional manner, with soundly planned experiments, objective and critical analyses of results obtained and a comprehensive discussion on the findings. They will be expected to comply with all regulations concerning Occupational Health and Safety (OH&S) and adhere to Good Laboratory Practice(GLP).

Credit Points: 48

Learning Outcomes: Upon completion of this unit, it is expected that students will be able to Competently plan experiments with sound experimental design Independently carry out investigative laboratory experiments Critically and thoroughly analyse experimental results and discuss them in context of published literature in the area Write a clear and comprehensive report based on experimental findings.

Class Contact: This is a 100% project unit with no class contact. However, 432 hours of project work including literature searches, planning, laboratory research and writing will be expected.

Required Reading: Ruxton, G.D. & Colegrave, N. (2006) Experimental Design for the Life Sciences, 2nd Edition, Oxford University Press.

Assessment: A comprehensive, professional-style report including literature review, aims, experimental design, materials & methods, results, discussion and conclusion, the length of which shall be in the range of 20 - 40,000 words (75%); appraisal and assessment from the supervisor about the performance of the student in the project e.g. independence of thought, planning and conduct of project, oral & written communication and problem-solving skills of the student as well as the general conduct and performance in the project e.g. application, punctuality, compliance with OH&S regulations and adherence to GLP principles.

RPH1111 ASTRONOMY

Locations: Footscray Park.

Description: History of astronomy, telescopes, our sun, solar system, comets, meteors, the night sky, stellar evolution and spectra, variable stars, distances of celestial objects, galaxies, some predictions of Einstein's theory of relativity, the possibility of intelligent life elsewhere in the universe and high power astronomy (pulsars, black holes and quasars).

Credit Points: 12

Learning Outcomes: Knowledge of Astronomy: To gain a good overview of our current knowledge of the universe, including its formation and the subsequent evolution of stars and galaxies.Practical Astronomy: To be able to use an amateur telescope to view well known stellar objects.

Class Contact: 48 hours per semester comprising 36 hours of lectures/tutorial and 12 hours of laboratory.

Required Reading: Arny, T. T. 2000, "Explorations: an introduction to astronomy", 2nd ed. 2000 update, McGraw

Assessment: Practical sessions 20%Assignments 80%

RPH4411 PHYSICS 4 (HONOURS)

Locations: Footscray Park.

Prerequisites: Eligibility for entry to the Bachelor of Science (Honours) in Physics program.

Description: This unit consists of advanced coursework and a research thesis. Coursework: Compulsory core units of quantum mechanics, statistical mechanics and research methods, Plus elective units from the following areas: optical waveguides and sensors, relativity, surface physics, ion beam techniques, optics of materials, laser physics, lasers and optoelectronics, fibre optics, solid state physics, diffraction from crystals, nuclear physics. Other electives may be approved, including those offered at other universities. All electives must be approved by the Course Co-ordinator. Research Thesis: A research project will be undertaken in one of the Physics research areas, under the supervision of a member of academic staff. Subject to approval, research may be undertaken at a laboratory outside the University.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: Average of 20 hours per week for two semesters.

Required Reading: Messiah, A. 1961, Quantum Mechanics Vols 1 and 2, North Holland, Amsterdam. Kittel, C., Thermal Physics, John Wiley and Sons.

Assessment: is based on coursework, 50%; research thesis, 50%. The research project will consist of oral presentation and a thesis of approximately 5,000-10,000 words.

RPH4412 PHYSICS 4 (HONOURS)

Locations: Footscray Park.

Description: Coursework: Compulsory core units of quantum mechanics, statistical mechanics and research methods, Plus elective units from the following areas: optical waveguides and sensors, relativity, surface physics, ion beam techniques, optics of materials, laser physics, lasers and optoelectronics, fibre optics, solid state physics, diffraction from crystals, nuclear physics. Other electives may be approved, including those offered at other universities. The Course Co-ordinator must approve all electives.Research Thesis: A research project will be undertaken in one of the Physics research areas, under the supervision of a member of academic staff. Subject to approval, research may be undertaken at a laboratory outside the University.

Credit Points: 48

Learning Outcomes: Advanced coursework: To gain a deeper understanding of quantum mechanics and statistical mechanics, and in addition undertake further studies in areas of physics related to the thesis.Research thesis: To gain experience in the conduct of a research project.

Class Contact: Average of 20 hours per week for one semester.

Required Reading: Messiah, A. 1961, Quantum Mechanics Vols 1 and 2, North Holland, Amsterdam. Kittel, C., Thermal Physics, John Wiley and Sons.

Assessment: The grade for RPH4411 shall be either "S" or "U". An "S" grade will be awarded for satisfactory progression in both the coursework and research thesis components, for which the overall result for 2 semesters will be provided under RPH4412.

RPH8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RPH8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RPH8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RPH8012 RESEARCH THESIS 2 PART TIME

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

RSS3000 INDUSTRY PROJECT

Locations: St Albans, Werribee.

Prerequisites: Successful completion of Years 1 and 2 of SBSS BSc (Specialisation).

Description: Industry Project is designed to engage students in workplace learning via student projects conducted in association with industry or projects related to current industry practice. Industry Project provides students with opportunities to apply previous learning to a project designed to link practice and theory. Projects are designed to deepen students' knowledge of their professional practice in realistic contexts, to further develop their employability and generic skills and provide a significant contribution to graduate work and career readiness. Projects can involve work conducted at Victoria University or within industry or community or both. Projects can include reports, practical work, fieldwork, industry placements. This unit is completed with advice from an approved supervisor. Assessment is according to the project and is by negotiated agreement amongst the relevant and approved industry partners and may be external where appropriate.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: locate, manage and use scientific information efficiently and effectively; solve scientific problems effectively in a range of settings including industry and community; exhibit high levels of numeracy skills in a range of scientific settings; communicate effectively in spoken and written forms on a range of scientific and mathematical topics to professional and community groups; apply an evidence-based research approach to a chosen area of science; respond with social and cultural awareness within local and global environments; work autonomously and collaboratively as a professional in both industry and community settings; autonomously manage own learning to achieve career and learning goals.

Class Contact: Projects will involve work conducted at Victoria University or within industry, the community or both. Projects can range from reports or practical work to fieldwork or industry placements. Contact hours are dependant on the type of project undertaken and will be arranged by negotiation with the student s approved RSS3000 Industry Project unit supervisor(s).

Required Reading: Reading materials will be negotiated in consultation with the supervisor(s) and will be appropriate to the topic under investigation. Where appropriate students will be advised to consult with the Learning in the Workplace and Community Policy and the Learning in the Workplace and Community: Operational Guidelines.

Assessment: Assessment depends upon the project and components within the project. All assessment items will be decided prior to commencement of semester and in conjunction with the student's approved supervisor(s). Where applicable, assessment and its negotiation may involve the relevant industry or community partners. All students will be assessed according to: project and project components (80%), and at least one formal oral presentation (20%).Project, Assessable components determined following negotiation with the approved supervisor(s), 80%. Presentation, At least one formal oral presentation on the project., 20%.

SED1101 COMMUNITY BASED GENERAL SCIENCE 1

Locations: Footscray Park.

Description: This unit provides students with a working knowledge of scientific concepts in biology, earth sciences, physics and chemistry and opportunities to communicate knowledge of those concepts to socially and culturally diverse audiences via projects. Topics will be selected from science and associated areas, including earth materials (plate tectonics, elements of the earth), the atmosphere (moisture, clouds, precipitation), projectile motion, trigonometry, and fireworks. Students will be involved in the consultation, design, production, implementation, dissemination and evaluation of their own projects in order to experience the complexities of different socially and culturally diverse communities and improve communication skills within those groups.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- work effectively in settings of social and cultural diversity;
- explain, report on, build their knowledge upon and convey the major concepts outlined in each of the subject areas to both peer-based and socially and culturally diverse audiences;
- apply the skills and knowledge acquired in this unit so as to best communicate science to socially and culturally diverse audiences;
- critically examine how to best pass on science-based material to socially and culturally diverse audiences without sacrificing science content;
- apply knowledge, skills and values which will allow them to reflect on the best ways to communicate effectively general science, to socially and culturally diverse audiences whilst themselves maintaining a more advanced understanding of the subject area;
- develop projects and evaluate their impact and ability to pass on scientific content and inquiry to socially and culturally diverse audiences;
- further develop fundamental laboratory skills that are associated with projects aimed and set within socially and culturally diverse settings;
- further develop skills in collecting and appropriately recording data;
- further develop learning strategies for the successful understanding, application and communicating of science-based content to socially and culturally diverse audiences;
- further develop skills in scientific method and utilising them to best serve projects designed to serve culturally diverse audiences;
- recognise the need for, locate and critically analyse scientific data gathered by the student and reported in literature in project areas that share similar aims; further extend competency in literacy and numeracy;
- recognise the need for, and locate and critically analyse ways of, conveying scientific content to a socially and culturally diverse audience;
- critically assess the quality of past studies and experiences within the scope of the level of study;
- recognise that an interplay between science content and the communication of science is dependant on a number of factors that include cultural and that these factors be noted, understood, absorbed and utilised to their best effect in the learning, communicating and educational process of the student;
- utilise knowledge gained from individuals within a defined setting, practical component, theory and past studies to better understand science concepts and to solve problems associated with them and the communication of science content;
- recognise possible limitations and working around them when deciding how to implement the communication of science and projects within settings that are socially and culturally diverse;
- recognise that a range of written scientific formats aimed at various audiences are an essential requirement of a communicator of science;
- best establish a process of learning how to learn and educational empowerment;
- produce portfolios incorporating assignments and laboratory reports in a range of formats, all of which tie into settings that are both socially and culturally diverse;
- communicate orally with peers and various other audiences through presentations, discussions and debates;
- come to a realisation that the understanding of differing social and cultural settings and those who inhabit them and means of affecting them is a strength, empowering one s education, providing unique preparation for future educational and vocational outcomes.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and placements.

Required Reading: Athanasiou, N. (Comp.). (2009). Readings for SED1101.

Melbourne, Australia: Victoria University. Krauskopt, K., & Beiser, A. (2007). The physical universe (12th ed.). McGraw-Hill Science/Engineering/Math.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Project, Portfolios and presentations, 50%. Examination, One written examination, 50%.

SED1202 COMMUNITY BASED GENERAL SCIENCE 2

Locations: Footscray Park.

Description: This unit develops student s abilities to work effectively both autonomously and collaboratively as a means to further develop knowledge, skills, literacy competency and attitudes in the understanding, interpretation, communication and promotion of science within the community. The unit provides students with a background in general science (taking in aspects of physics, chemistry, biology and earth sciences), and requires that students produce and implement community-based projects that integrate this science background. Science areas include chemiluminescence, polymers, electricity, magnetism, gases in the atmosphere, fermentation and combustion science. Students will develop a science troupe to produce and perform general and subject science demonstrations or shows and resource materials for the primary and secondary education sectors.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Individually and collaboratively, explain, report on, build upon knowledge and convey the major concepts outlined in each of the subject areas to both a peer-based and multifaceted community audiences; Utilise the strengths of collaborative and autonomous approaches in the development, implementation and evaluation of community-based science projects; Explore how collaborative and autonomous strengths can aid further collaborative and autonomous efforts; Develop processes that prevent future possible lapses in the collaborative process and utilise this understanding to enhance future autonomous and collaborative ventures; Develop processes that avoid problems previously associated with autonomous approaches in the development, implementation and evaluation of science-based community projects and ventures and to utilise this understanding in enhancing future autonomous and collaborative projects; Further extend competency in literacy and numeracy; Recognise the social and culturally diverse natures of collaborative science-based community projects and utilise the experiences gained in future collaborative and autonomous projects and undertakings. Critically examine how to best impart science-based material to a variety of audiences without necessarily sacrificing science content; Apply knowledge, skills and values that will allow students to reflect on the best ways to communicate science to a variety of audiences and simultaneously maintain and build upon the student s more advanced understanding of the subject matter; Further enhance laboratory skills and work effectively in collaborative laboratory work; Further enhance skills in collecting and appropriately recording data; Further develop learning strategies for the successful understanding, application and communicating of science-based content within collaborative and autonomous frameworks; Further enhance skills in preparing succinct laboratory reports in correct scientific styles and formats; Recognise the need for, and locate and critically analyse scientific data; Recognise the need for, and locate and critically analyse ways of conveying scientific content to an audience and to be able to critically assess the quality of past studies and experiences in the areas of science studied; Facilitate constructive interplay between science content and the communication of science as a means of more effectively dispersing science content and inspiring and affecting the students understanding of the science areas undertaken; Recognise that the various written scientific formats, such as reviews, case studies, original reports, reflective writing and writing for community-based audiences, are of variable scientific merit; Produce portfolios incorporating assignments and laboratory reports in a range of formats that are collaboratively and autonomously produced; Verbally communicate science with peers and community groups and individuals through presentations, discussions and debates.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and placements.

Required Reading: Athanasiou, N. (Comp.). (2009). Readings for SED120

2. Melbourne, Australia: Victoria University. Krauskopt, K., & Beiser, A. (2007). The physical universe (12th ed.). McGraw-Hill Science/Engineering/Math.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Project, portfolios and presentations, 50%. Examination, One written examination, 50%.

SED2103 COMMUNITY BASED GENERAL SCIENCE 3

Locations: Footscray Park.

Prerequisites: SED1101 - COMMUNITY BASED GENERAL SCIENCE 1

SED1202 - COMMUNITY BASED GENERAL SCIENCE 2

or equivalents.

Description: This unit develops the student s problem solving skills and literacy competency as applied to science content and science-based community initiatives and projects. Students will be provided with a background in science concepts (in aspects of physics, chemistry, biology and earth sciences), upon which students will produce resources, including multimedia, and implement community-based projects and professional development workshops for primary and secondary school educators. Topics in this unit will include bio-fuels, colligative properties, sound, hydroponics, cell cultures, anthocyanin pigments and applications of chromatography.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Decide upon a planned detailed response and an implementation of the response(s) in solving problems associated with science-based community projects; Decide upon response procedures and an implementation of responses in areas beyond the scope of the project where autonomous, collaborative, varying social and culturally diverse situations may apply; Alter and re-coordinate response procedures if required; Establish codes of conduct that are amenable to adoption by others to expedite the problem solving process; Mentor in the process of science-based problem solving; Establish and be well versed in the link between research and the problem-solving process and to make this link accessible and knowledgeable to others; Identify the limitations in the problem-solving process and work around them; Tie together parties in a collaborative response and allow for independent work to best meet the requirements of the problem and its solving; Develop a means of predicting and preventing future possible lapses in the problem-solving process; Critically examine how to best communicate science based material inbuilt into problem-based scenarios to a variety of audiences without diminishing science content; Apply knowledge, skills and values that allow reflection on the best ways to communicate problem solving science to a variety of audiences and simultaneously maintain and build upon a more advanced understanding of the subject matter; Utilise and communicate unit content in the science problem-based project and evaluate its success; Further enhance laboratory skills and its application to problem solving; Further enhance skills in collecting and appropriately recording data; Further develop learning strategies for the successful understanding, application and communicating of problem-based science; Further enhance skills when preparing a succinct laboratory report in scientific method format and detailing the problem solving process; Recognise the need for, locate and critically analyse scientific data; Recognise the need for, locate and critically analyse ways of conveying scientific content to an audience; Critically assess the quality of past studies and experiences in specified areas of science; Facilitate constructive interplay between science content and the communication of science as a means of more effectively dispersing science content and inspiring with science content and affecting the student s understanding of the science areas undertaken; Demonstrate further literacy and numeracy skills; Identify a range of written scientific formats, such as reviews, case studies, original reports, reflective writing and writing for a community-based audience and recognise that the writings may be of variable scientific merit; Produce portfolios incorporating assignments and laboratory reports in a range of formats that are collaboratively and autonomously produced and outline key areas in the problem solving approach; Communicate orally with peers and community groups and individuals through presentations, discussions and debates in the context of science content.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and problem-based projects.

Required Reading:

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Project, Portfolios and presentations, 50%. Examination, One written examination, 50%.

SED2204 COMMUNITY BASED GENERAL SCIENCE 4

Locations: Footscray Park.

Prerequisites: SED1101 - COMMUNITY BASED GENERAL SCIENCE 1

SED1202 - COMMUNITY BASED GENERAL SCIENCE 2

or equivalents.

Description: This unit further develops literacy levels and abilities to locate, evaluate, and use scientific and science based information and research effectively in an effort to develop, run and evaluate a science-based community oriented project/program/initiative that benefits educationally both the student and the community. The unit focuses on providing students with a background in science concepts in physics, chemistry, biology and earth sciences, and in particular in saponification and detergents, alginates and chitins, holography, Archimedes s Principles, photography and other science based areas. Students are then required to produce and implement community-based projects that integrate the science background. Students will be required to develop and deliver a continuing science-based project within a secondary level setting in a science-based competition or a science-based club within an organisation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Locate, evaluate, manage and utilise information pertinent to the planning, construction, running and evaluating of a science-based community-based project(s) or initiatives; Use information that provides for enquiry by the project s audience and participants; Establish ways and means that effectively insure that unit content is utilised in a way that will benefit the student, the audience and the project(s)/initiatives; Develop editing processes that take into account the needs of the audience; Develop, maintain and re-create ways of communicating science-based ideas to an audience that has vastly differing science backgrounds; Develop portfolios that simultaneously incorporate aspects of science communication, ensuring that information contained within, including reflective pieces, are significant resources to aid future projects for themselves and others; Predict the limitations and work around them when establishing project partnerships; Communicate science ideas and content visually and orally within a limited timeframe and critically examine the stated goals and impact of the communication; Work collaboratively with other professionals in establishing, running and evaluating the science based community project; Develop a values system that serves the community well in accessing science based knowledge; Further build upon a more advanced understanding of subject material; Continue to enhance laboratory skills. Continue to enhance skills in collecting and appropriately recording data; Continue to develop learning strategies; Continue to enhance skills in researching and preparing succinct laboratory reports in scientific method format; Continue to enhance an understanding in science concepts; Further competency in literacy and numeracy; Mentor the critical analysis of scientific data; Recognise the need for, locate and critically analyse ways of conveying scientific content to an audience and to be able to critically assess the quality of past studies and experiences in specific science areas; Facilitate constructive interplay between science content and the communication of science as a means of more effectively dispersing science and inspiring it into the community; Identify a range of written scientific formats, such as reviews, case studies, original reports, reflective writing and writing for a community-based audience and recognise that the writings may be of variable scientific merit; Be engaging in the approach to science content and with the community in the transference of the material.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and problem-based projects.

Required Reading: Athanasiou, N. (Comp.). (2009). Readings for SED2204. Melbourne, Australia: Victoria University.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Project, Portfolios and presentations, 50%. Examination, One written examination, 50%.

SED3105 COMMUNITY BASED GENERAL SCIENCE 5

Locations: Footscray Park.

Prerequisites: SED2103 Community Based General Science 3 or SED2204 Community Based General Science 4; or equivalents.

Description: This unit continues the development of the student s science content and develops in students, the professional communications role through the use of science-based projects within the community. Students learn to effectively communicate as a science scholar and citizen by improving their background in science concepts in physics, chemistry, biology and earth sciences, in particular in principles of archaeology, waterway analysis, fuel cells, solar energy, wine production and analysis, phytoremediation/salinity and nitrogen fixation. Students will be required to develop and deliver a continuing science-based project within a primary or secondary level setting, where their role will be as a visiting scientist-in-training.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Complete science based community projects that professionally communicate ideas, results and future directions, whilst simultaneously preserving the role of a citizen; Undertake and supply a detailed proposal, investigation and evaluation of the project, highlighting areas where further investigations and reasons for this so that both the community and professional bodies can harness the information provided; Establish protocols of management and communication that will aid their further education and their professional life, simultaneously affecting the community; Utilise past literacy practices to improve the process of locating, evaluating, managing and utilise information pertinent in the planning, construction, running and evaluating of a science based community based project(s) or initiative(s); Undertake considerable research with the aims of utilising information that will provide for enquiry in the project s audience and participants; Establish ways and means that effectively ensure that unit content is utilised in a way that will benefit the student, the audience and the project(s)/initiative and will best serve to emphasise the importance of the role of a citizen; Further enhance the communicative process; Develop portfolios that simultaneously incorporate aspects of science communication, ensuring that information contained within, including reflective pieces, are significant resources to aid future projects for themselves and others; Identify the limitations and seek ways and means of working around these limitations, so as to strengthen their resolve and their capacity as professionals and as citizens; Communicate science ideas, management strategies, and identify possible problems and resolutions to these problems via communication with other professional bodies; Work collaboratively with other professionals in establishing, running and evaluating science-based community projects; Discuss a values system that serves the community well in accessing science-based knowledge; Further competency in literacy and numeracy; Further build upon more advanced understanding of subject material and content; Continue to enhance laboratory skills; Continue to enhance skills in collecting and appropriately recording data; Continue to develop learning strategies and pass these one to other members of the community to further cement the notion of citizenship; Continue to enhance skills in researching and preparing succinct laboratory reports in scientific method format; Enhance skills in researching and preparing reports that are of a professional level maintaining the high level of scientific publication standard; Facilitate constructive interplay between science content and the communication of science as a means of more effectively dispersing science content and inspiring with science content and affecting the student s understanding of the science areas undertaken; Identify a range of written scientific formats, such as reviews, case studies, original reports, reflective writing and writing for a community-based audience and recognise that the writings may be of variable scientific merit; Extend the role of the citizen through science and science education.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and problem-based projects.

Required Reading: Athanasiou, N. (Comp.). (2009). Readings for SED310

5. Melbourne, Australia: Victoria University

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Project, Portfolios and presentations, 50%. Examination, One written eximation, 50%.

SED3206 COMMUNITY BASED GENERAL SCIENCE 6

Locations: Footscray Park.

Prerequisites: At least two Community Based General Science units; or equivalents.

Description: This unit maintains and extends core attributes previously introduced and developed in the units Community Based General Science 1-5 and culminates in a significant science-based community project developed over the semester. The unit provides students with a background in science concepts (taking in aspects of physics, chemistry, biology and earth sciences), so that students can develop, implement and evaluate community-based projects that integrate this background. Students will be required to establish, promote, expand and maintain a science fair at a junior secondary level, and mentor and assist students in the design and production of group or individual science projects to be showcased at an end-of-year science fair. Students will continue to promote science to the wider community.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify their role as scientists and science communicators within the community; Establish protocols and communication traits that foster and facilitate effective and professional transfer of science information in various forms and formats and through contacts, the articulation of science concepts, research skills, writing skills for specific audiences, intuitive learning practices and problem solving skills; Discuss the importance of their role in the community and identify their professional role and commitment to the community as a citizen and communicator of facts, ideas and ideals generally but not exclusively from the discipline of science; Project-manage community science-based educational initiatives.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials, workshops, practical classes and problem-based projects.

Required Reading: Athanasiou, N. (Comp.). (2009). Readings for SED320

6. Melbourne, Australia: Victoria University.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Project, Community-based science project: portfolio and presentation (peer assessment: 50% external assessment: 50%), 100%.

VAA2002 ELECTRICAL POWER SYSTEMS 1

Locations: Footscray Park.

Prerequisites: ENF1202 - ENGINEERING PHYSICS 2

Description: This subject is taught in two distinct parts by separate academic and sessional academic staff. Part A - Electrical Circuits. Provides students with a sound knowledge of elementary electrical circuits and introduces students to various circuit analysis methods. Operating principles and performance characteristics of motors and generators will be introduced in addition to three-phase circuits and their analysis. An overview of electrical transformers will be given. Part B - Power Distribution. Overview of power generation and distribution in Australia. The role of a specialist electrical services system design engineer. Regulations, standards and codes of practice. High, medium and low voltage distribution practices. An introduction to the range of transformers used in power distribution systems. System 'fault' capacity and calculation. Cable properties and cable selection based on current, temperature, voltage drop and fault levels. An introduction to switchboard design and construction.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply the Node-Voltage and Mesh-Current methods to the solution of linear DC circuit analysis; Apply the Principle of Superposition to circuit analysis, and be aware of those circuits where it is not applicable; Locate the Thevenin and Norton equivalents of complex circuits; Describe the concepts of frequency, impedance and admittance and to be able to analyse linear AC circuits; Describe three phase electric circuits and analyse balanced three phase systems; Describe a single-phase transformer, its equivalent circuit model, as well as transformer performance calculations; Describe the operating principles of motors and generators, understand their equivalent circuit models, and calculate the operating and performance characteristics (power, torque, efficiency, power factor, and etc.) of these machines using their equivalent circuit models; Describe the role of a specialist building electrical services system design engineer; Identify regulations, standards and codes of practice used in the building industry for electrical installations; Calculate building electrical system fault levels; Select electrical power cables based on based on current, temperature, voltage drop and fault levels.

Class Contact: Sixty (60) hours for one semester comprising of lectures, tutorials, and laboratory work.

Required Reading: Foundations of Electric Circuits J. R. Cogdell, 1999 Prentice Hall Foundations of Electric Power J. R. Cogdell, 1999 Prentice Hall AS 3000, AS 30088, and AS 3439.1 Australian standards

Assessment: Other, Assignments, laboratory class reports, one test, a project and final examination., 100%. Electrical Circuits (Part A)

Assignments: 4 Homework Submissions - 10%

Laboratory Reports: 2 Laboratory reports - 10%

Test: Mid-semester - 12%

Power Distribution (Part B)

Assignments: 2 Homework submissions - 8%

Project: 2000 word equivalence project - 10%

Examination: Final subject examination - 50%

VAA2031 ARCHITECTURAL HISTORY & DESIGN

Locations: Footscray Park.

Description: Architects are recognised as the primary Design Professionals in the Building Industry. This subject acquaints students with insight into the Architectural process by discovering the historical evolution of buildings technically and aesthetically and how they relate to the culture and time in which they were built. A selection of design skills are explored to promote conceptual thinking and visual communication. Group workshops are used to promote research and problem solving techniques as well as basic three dimensional visualisation through model making.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to have gained:

1. An appreciation of the historical evolution of Architecture and Building;
2. Skills in visual communication through freehand drawing techniques;
3. An appreciation of basic architectural design skills, both technical and conceptual;
4. An awareness of designing in consideration of environmental conditions;
5. An awareness of the Architectural design process and have developed an understanding and a vocabulary to relate to and communicate with other professionals.

Class Contact: Sixty (60) hours for one semester comprising of a mix of group activities, lectures, site work and workshops.

Required Reading: Nil.

Assessment: Individual portfolios and reports which provide evidence demonstrating that the learning outcomes for the subject have been achieved. The assessment material will include three major section as listed below that demonstrate an appreciation of Architecture in History, skills in abstract thinking and visual communication and skills in three dimensional 'spatial' problem solving and model making.Report, History of Architecture, 30%. Portfolio, Architecture Design Theory, 30%. Portfolio, Architectural Workshop, 40%.

VAA2082 BUILDING CONSTRUCTION AND CONTROL 1

Locations: Footscray Park.

Prerequisites: VAC2011 - ENGINEERING MATERIALS & CONSTRUCTION

VAA2031 - ARCHITECTURAL HISTORY & DESIGN

Description: This unit of study aims to give students an understanding of the various forms of building construction and building technology, and an understanding of the standards relevant to the control of buildings in general, in Australia. The focus of this subject will be domestic housing and small commercial/industrial buildings and as such will be taught in two sequential sections, the first for domestic housing and the second for small commercial/industrial buildings.Domestic housing Common forms of construction. Foundation conditions and earthworks. Floor systems. Damp-proofing. Wall and roof cladding. Balconies and stairways. Construction techniques and sequence of work. Thermal insulation. Lighting and ventilation. Drainage. Linings and internal finishes. Establishment of building sites. Builders' plant and equipment. Site safety. Building schematic documentation and detailing. Building regulatory systems and building codes. (Small) commercial/industrial buildings Structural frames. Load-bearing and non-load-bearing walls. Pre-caste construction. Alternative building structural systems. Building thermal, electrical, lighting and hydraulic services requirements. Emergency evacuation exits. Building maintenance. Establishment of building sites. Builders' plant and equipment. Site safety. Building schematic documentation and detailing. Building regulatory systems and building codes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Appreciate the fundamentals of conventional and innovative forms of construction for both domestic housing and (small) commercial industrial buildings; Communicate with other professionals in the building process using appropriate building terminology; Assess the involvement of various building trades, professions and authorities; Interpret and apply evolving building standards and statutory requirements; Identify the causes of common building problems, and devise effective treatments;

6. Formulate building schemes and details appropriate to the type of construction, and organize the planning of construction works for both domestic housing and (small) commercial industrial buildings.

Class Contact: Sixty (60) hours for one semester comprising briefings, workshops, individual work, site visits, team meetings and team work.

Required Reading: Building your own home: a comprehensive guide for owner-builders, Wilkie, G, 2003, Completely revised edition, New Holland Publishers (Australia) Pty Ltd, Sydney. Building construction illustrated, Ching, FDK, 2008, Fourth edition, John Wiley & Sons, Inc, Hoboken, New Jersey. Code of Australia (BCA) 2010 Volume One, Australian Building Codes Board (ABCB), 2010, ABCB Publications, Canberra. Building Code of Australia (BCA) 2010 Volume Two, Australian Building Codes Board (ABCB), 2010, ABCB Publications, Canberra.

Assessment: Assignment, individual tutorial exercise work and team take-home assignment work, 50%. Portfolio, individual portfolio, 50%. The portfolio is to feature work done in tutorials and at home, including graphical and written designs and specifications detailing creative building solutions appropriate to various property development scenarios, a reflective journal, and self and peer assessment.

VAA3001 ELECTRICAL POWER SYSTEMS 2

Locations: Footscray Park.

Prerequisites: VAA2002 - ELECTRICAL POWER SYSTEMS 1

Description: Circuit protection devices, power distribution system protection, configuration of low voltage distribution systems. Transformers and their specification. High voltage switchgear. Earthing of buildings. Power factor correction. Electrically hazardous areas. Lightening protection of buildings. Common electric motor types. Electric motor starting. Motor protection. Motor control circuits. Vertical transportation - an introduction. Methods of achieving reliability in building electrical power supply. Standby power generation systems. Uninterruptible power supplies (UPS). Sizing central battery systems. Battery systems for UPS's. Harmonics within power distribution systems. Electronic security systems. Exit and emergency lighting systems. Energy management in electrical power systems. Operational planning and maintenance of building power systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Evaluate the electrical power supply needs of residential, commercial and light industrial buildings.
2. Select and determine the size of all electrical power cables, their circuit protection and distribution control devices for a range of proposed residential, commercial and light industrial buildings.
3. Understand the process of electrical power supply to buildings and the interaction(s) applicable with power supply authorities to ensure a safe and secure supply to buildings.
4. Evaluate the range of solutions for the supply of emergency electrical power to buildings and be able to select appropriate system(s) for buildings and interface systems with the supply authority provided power to a building.
5. Determine the electrical power needs of building vertical and horizontal transportation systems, and be able to provide power as needed by these systems.
6. Appraise a range of potential problems and maintenance requirements (and their solutions) that could be experienced by a modern building electrical power distribution system.
7. Be familiar with the general architecture of modern building electrical power distribution systems.
8. Have developed a deeper insight and ability to solve problems, undertake building electrical power distribution analyses and write technical reports.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and site visits.

Required Reading: Foundations of Electric Circuits J.R.Cogdell, 2003 Prentice Hall Foundations of Electric Power J.R.Cogdell, 2003 Prentice Hall AS3000, AS30088 and AS3439 Australian Standards

Assessment: Examination, Final Exam, 65%. Assignment, Individual Project, 30%. Tutorial Participation, Based on class performance, 5%.

VAA3031 ENVIRONMENTALLY SUSTAINABLE DESIGN 1

Locations: Footscray Park.

Prerequisites: VAN2041 - THERMOFLUIDS

Description: This unit of study aims to give students a basic understanding, problem solving skills and design skills in the areas of sustainable design of buildings. Major topics covered include: climate change, basic principles of ecological buildings; buildings of tomorrow: examples and ideas, including natural ventilation in buildings, thermal storage, faç ade design for daylighting and solar energy transmission, air quality improvement; active measures of renewable energy usage, use of rainwater and organic matter.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students are expected to be able to: Attain an overview of theories relating to climate change and ozone layer depletion; Develop an understanding of the current issues in relation to energy, water, waste, materials and IEQ, especially in the context of the built environment; Appraise government policies at federal, state and local levels; Explain the role of government bodies and other organisations in promoting sustainable development; Recognize interactions between buildings and their surroundings; Explain the principles governing building design to achieve adequate levels of IEQ; Predict consequences of alternative design approaches that designers can take to achieve desired outcomes in relation to IEQ; Identify the common tools designers use to evaluate alternative approaches and their capabilities; Demonstrate an ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks; Demonstrate good communication skills, based on technical reports and oral presentations.

Class Contact: Sixty (60) hours for one semester comprising of small group work, team meetings, lectures, workshops, seminars, practical work and site visits.

Required Reading: Class notes as distributed. The Technology of Ecological Building Daniels, K., 1997 Birkhauser

Assessment: For each assessment component, 50% of available marks must be achieved in order to pass the subject.Assignment, Two different assignments, 40%. Portfolio, Inclusive of ongoing work/oral presentations, 30%. Examination, Final, 30%.

VAA3032 ENVIRONMENTALLY SUSTAINABLE DESIGN 2

Locations: Footscray Park.

Prerequisites: VAA3071 HVAC Systems 1, VAA3031 Environmentally Sustainable Design 1.

Description: This unit of study aims to give students a basic understanding, problem solving and design skills in the areas of building heat transfer and ventilation. It covers the following topics: Heat and its transmission through building structures. Convective-conductive heat flow. The U-value. Condensation in the façade cavity. Surface temperatures and thermal comfort. Glazing systems. Single and double skin facades. Wind pressures. Natural ventilation. Thermal modelling using computer packages. Steady-state one-dimensional conduction in building-elements. Discretised form of the continuous form of the governing equation and its solution. Convergence of solutions. Steady-state conduction in composite materials - analytical and numerical solutions. Estimation of heat flows into building enclosures. Numerical determination of transient heat transfer in two-dimensional systems. Studies of heat transfer by convection in fluids.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Show an understanding of the fundamental principles of heat transfer in buildings.
2. Demonstrate the ability to locate and effectively interpret information/data relevant to these areas.
3. Identify, formulate and solve related problems, and carry out associated mathematical analyses.
4. Evaluate solutions against technical, environmental, economic and social criteria.
5. Demonstrate good communication skills, based on technical reports and oral presentations.

Class Contact: Sixty (60) hours for one semester comprising of small group and individual work, team meetings, lectures, workshops, seminars and reading assignments. In addition, students are expected to devote at least the same amount of time for private and/or group study.

Required Reading: Heating and Cooling in Buildings Kreider, J.F., Curtiss, P.S. and Rabl, A., 2002 McGraw Hill

Assessment: Report, Report on thermal conductivity of building elements such as walls, roofs, floors and how they are used in buildings, 4%. Report, Report on solar geometry as a prelude to calculating temperatures on the surfaces of buildings, 4%. Report, Report on calculating the effect of solar loads on building surfaces and the effects of glazing, 4%. Report, Report on calculating heating and cooling loads on a daily cycle at any geographical location at any time of day, 4%. Report, Final report that integrates all of the aspects of the design of a low energy beach house, 24%. Presentation, Production of poster and oral presentation, 30%.

VAA3042 HYDRAULIC SERVICES SYSTEMS

Locations: Footscray Park.

Prerequisites: VAC2042 - HYDRAULICS

Description: This unit of study aims to give students a basic understanding, problem solving and design skills in the areas of building water supply, sanitary plumbing and stormwater management. It covers the following topics. Types and components of building water supply systems. Assessment of demands and flows. Design criteria, head losses in pipes and fittings. Analysis and design of hot and cold pipework systems. Pumps-pump and pipeline selection. Pressure systems. Selection and arrangement of mains pressure commercial hot water units to supply to hot water fixture outlets. Theory and design of roof drainage, storm water systems and sewer drainage systems including materials, fixtures and fittings, and the general requirements for fully vented and modified, single stack and modified sewage plumbing systems, all for building sites, residential and multi storied commercial buildings. Introduction to wastewater treatment processes and building water harvesting/recycling systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of key issues and design principles involved in hydraulic services systems in buildings;
2. Locate and effectively use information/data relevant to these areas;
3. Identify, formulate and solve related problems, and to carry out associated design work;
4. Evaluate solutions against technical, environmental, economic and social criteria;
5. Work effectively as a member and/or leader of a team;
6. Demonstrate good communication skills, based on technical reports and/or oral presentations.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Building Hydraulic Services Class Notes, Sem 2. Ng, A. et al (20**) Victoria University National Plumbing and Drainage Code Parts 0-4 Australian Standards 3500 (2003) Australian Standards (VU; 20** indicates current year edition)

Assessment: Examination, Final, 60%. Assignment, Semester, 40%.

VAA3071 HVAC SYSTEMS 1

Locations: Footscray Park.

Prerequisites: VAN2041 - THERMOFLUIDS

VAC2042 - HYDRAULICS

Description: Module1: Refrigeration What is air conditioning The concept of enthalpy. Reverse Carnot cycle. Vapour compression and absorption cycles. Refrigeration systems and components. COP. Refrigerants. Air conditioning and the environment. Module 2: Psychrometry Thermodynamic properties of air and water. Psychrometry and psychrometric processes. Psychrometric chart and its uses. Thermal comfort. Module 3: Load estimation Basic mechanisms of heat transfer. Heat transfer through composite walls. Heating load estimation. Solar heat gains. Room and system heat gains/losses. Cooling load estimation. Program Camel. Energy conservation in buildings.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply principles of thermodynamics to explain how refrigeration and air conditioning systems work;
2. Explain basic psychrometric processes and show how they apply in various types of air conditioning systems;
3. Categorise the components of cooling and heating loads in buildings, and carry out cooling and heating load estimation;
4. Explain the impact of air conditioning systems on the environment and suggest ways of minimising it.

Class Contact: Sixty (60) hours for one semester comprising of lectures and tutorials.

Required Reading: Design of Building Air Conditioning Systems, Part 1: Psychrometry Paks, M. , 1997 AS&TP Air Conditioning Engineering Jones, WP, 2001 Butterworth Heinemann Air Conditioning: Load Estimation AIRAH, 1997 AIRAH User Guide for the Computer Program Camel Murray, M. , Hamilton, T. and Kingston, T. , 2002 ACADS-BSG Notes provided by the lecturer Class notes on WebCTBlackboard

Assessment: For each assessment component, 50% of available marks must be achieved in order to pass the subject. Assignment, Two assignments, 65%. Examination, End-of-semester, 35%.

VAA3072 HVAC SYSTEMS 2

Locations: Footscray Park.

Prerequisites: VAA3071 - HVAC SYSTEMS 1

Description: Module 4: Air and water systems in buildings. Flow of fluids in pipes and ducts. Open and closed water systems in buildings. Design of condenser, chilled and hot water systems. Demand-based water systems. Domestic cold and hot water system design. Measurement of flow and pressure in building water and air systems. Pressure distribution and cavitation. Fan and pump selection. Design of ducted systems. Fan laws and applications. Types of air conditioning systems. Constant and variable volume systems. Module 5: System components and selection. Air handling plant. Thermal plant. Methods of heat rejection. Packaged and built-up air handling units. System design for full-load and part-load operation. Energy efficiency in equipment selection and operation. Duct and pipe configurations to accommodate controls requirements. Multiple unit installations. Smoke management systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain the principles and operation of air and water systems in buildings;
2. Compare alternative configurations applicable to duct and pump design in order to minimise pressure losses;
3. Carry out an estimate of duct and pipe pressure losses applicable to building HVAC systems, and select an appropriate fan or pump;
4. Assess options available to HVAC designers in selecting main types of plant;
5. Explain an impact of design decisions on equipment performance under full-load and part-load operation, and on system energy efficiency.

Class Contact: Sixty (60) hours for one semester comprising of lectures and tutorials.

Required Reading: An Introduction to the Design of Building Air Conditioning Systems Paks, M. , 1995 AS&TP Australian Standards AS1668 Pt. 1, 2 and 3

Standards Australia, 1998-2002 Handbook of Air Conditioning and Refrigeration
Wang, SK. , 2001 2nd ed. McGraw Hill

Assessment: For each assessment component, 50% of available marks must be achieved in order to pass the subject. Assignment, Two assignments, 65%. Examination, End-of-semester, 35%.

VAA3081 BUILDING CONSTRUCTION AND LEGISLATION 1

Locations: Footscray Park.

Prerequisites: VAA2031 Architectural History and Design

Description: This unit of study aims to give students an understanding of various forms of construction and applicable standards relevant to building generally: Common forms of construction. Foundation conditions and earthworks. Formwork. Floors in single-storey and low-rise buildings. Structural frames. Load-bearing and non-load-bearing walls. Tilt-up construction. Wall and roof cladding. Balconies and stairways. Lighting and ventilation. Exits. Lining and internal finishes. Services requirements. Damp-proofing. Thermal insulation. Drainage. Alternative structural systems. Builders' plant and equipment. Use of explosives in construction. Recycling, rehabilitation and renovation of buildings. Building maintenance. Concept of intelligent buildings. Establishment of building sites. Site safety. Workmanship. Building regulatory systems and building codes. Building schematic documentation and detailing. Specifications and standards. Construction techniques and sequence of work.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students will have demonstrated: an understanding of the fundamentals of conventional and innovative forms of construction. familiarity with building terminology. an appreciation of the involvement of various building trades, professions, and authorities. knowledge in relation to building standards and statutory requirements. an understanding of the causes and treatment of common building problems. skills in the formulation of building schemes and details and the planning of construction work.

Class Contact: This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Required Reading: Australian Building Codes Board (ABCB) (2005), Building Code of Australia (BCA) 2005 Volume Two, CanPrint Communications Pty Ltd; Class Notes

Assessment: Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including graphical and written designs and specifications detailing creative building solutions appropriate to various property development applications, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAA3181 BUILDING CONSTRUCTION AND CONTROL 2

Locations: Footscray Park.

Prerequisites: VAA2082 - BUILDING CONSTRUCTION AND CONTROL 1

Description: This unit aims to give students an understanding of the specialist forms of construction and complex statutory controls that are relevant to: Multi-unit residential development and high-rise commercial buildings. Medium-density residential development. Common structural forms employed eg. column and beam construction, reinforced flat slabs, post-tensioned floors and their formwork systems. Spandrel walls and curtain walls. Heavy and light weight building faç ade systems. Structural/services cores. Spread footings, beam and pile footings. Basements and their water-proofing. Ground support systems. Protection of adjoining property during excavation and construction. Selection of building cranes and hoists for construction. Construction temporary scaffolding. Construction sequence applicable to high-rise buildings. Temporary site services and amenities. Occupational health and safety codes of practice for construction. Fire protection during construction. Schematic documentation and detailing specific to high-rise building. Design and construction standards and statutory requirements. Specification writing and contracts applicable to these types of building works. Examples of best professional practice in Building Construction and Control of multi-unit residential development and high-rise commercial buildings.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Appreciate the fundamentals of conventional and innovative forms of construction for multi-unit residential and high-rise commercial buildings. ; Appreciate the nature of building construction in heavily-developed urban environments; Appraise the common structural features and services installations specific to tall buildings; Assess the involvement of principal consultants and contractors; Develop further and apply their knowledge of urban development and building regulatory procedures, codes and standards; Assume a leadership role in space and amenity planning; 7. Identify major plant and equipment, techniques and practices typically employed in high-rise construction work.

Class Contact: Sixty (60) hours for one semester comprising briefings, workshops, individual work, site visits, team meetings and team work.

Required Reading: Guidelines for higher density residential development, State of Victoria Department of Sustainability and Environment, 2004, Victorian Government Department of Sustainability and Environment, East Melbourne. Building structures illustrated: patterns, systems, and design, Ching, FDK, Onoye, BS, Zuberbuhler, D, 2009, John Wiley & Sons, Inc, Hoboken, New Jersey. Building Code of Australia (BCA) 2010 Volume One, Australian Building Codes Board (ABCB), 2010, ABCB Publications, Canberra. Building Code of Australia (BCA) 2010 Volume Two, Australian Building Codes Board (ABCB), 2010, ABCB Publications, Canberra.

Assessment: Assignment, individual tutorial work and team take-home assignment work, 50%. Portfolio, Individual Portfolio, 50%. The portfolio is to feature work done in the tutorials and at home, including graphical and written designs and specifications detailing creative solutions appropriate to building types and/or property development scenarios, a reflective journal, and a self and peer assessment.

VAA4001 ARCHITECTURAL LIGHTING AND COMMUNICATIONS SYSTEMS

Locations: Footscray Park.

Prerequisites: VAA3001 - ELECTRICAL POWER SYSTEMS 2

Description: This subject consists of two distinct themes, the first is Architectural Lighting of buildings, the second is Building Communications systems. They are taught in parallel by different academic (and sessional academic) staff. Part A Light, and the visible portion of the electro-magnetic spectrum. Visual performance characteristics of the human eye. Photometric concepts and units of measurement. Direct and indirect surface illuminance calculations. Electric lamp technology, including incandescence, gaseous/vapour discharges. Principles of colourimetry. The CIE classification system/colour rendering indices. User 'quality' assessment of illuminated spaces including control of glare. Daylight as an alternative to electric light. CIE and other models of sky luminance as a means to simple daylight estimation. Surveys of existing building illumination systems and practical (actual) illumination of buildings using a range commercial luminaires and lamps. Part B Theory of voice and data telecommunications systems. Communication mediums. Signal properties. Transmission and reception system characteristics. Protocols and systems architecture. Building telecommunication system architecture. Emergency warning and inter-communications systems. Security, closed circuit television, fire alarm communications. Elevator communication systems. Integration of all systems in a building. System testing and maintenance. Specifications/tender interpretation for communications system acquisition.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Evaluate the artificial lighting needs of residential, commercial and industrial buildings in accordance with Australian standards, current best practice and the minimization of electrical energy usage;
2. Select and determine the size of luminaries, lamps, their control devices for a range of residential, commercial and industrial buildings. Predict illumination levels at relevant positions from installed lighting systems, using manual and computer calculation methods;
3. Recommend suitable maintenance programs for artificial lighting systems to achieve required illumination levels throughout the life of the lamps employed in the system;
4. Estimate the contribution that natural daylight can provide to the interior illumination of buildings, through the architecture of the building fabric and faç ade;
5. Appreciate the range of commercial solutions and equipment for building data and voice communications systems, and be able to distinguish the applicability of alternate systems for a given building;
6. Select appropriate forms of specification (for tendering) for the installation of building data and voice communications systems;
7. Develop a deeper insight and ability to solve problems and write technical reports.

Class Contact: Part A Thirty six (36) hours for one semester comprising lectures, tutorials and practical classes. Part B Twenty four (24) hours for one semester comprising lectures and tutorial classes. .

Required Reading: Code for Interior Lighting AS 1680 (2002) Australian Standard Lighting for Energy Efficient Luminous Environments Helms R. and Belcher M. Clay. (2005) AS 3080; AS 4428; AS60849; AS2201 Australian Standards Building Code of Australia BCA (2008)

Assessment: Other, Examinations, assignments, portfolio and class work, 100%. Part A

Examination: Stage test - Lighting principles - 18%

Assignment 1: Domestic lighting survey - 6%

Assignment 2: Computer simulation - 6%

Portfolio: Practical lighting (Industry) - 30%

Part B

Examination: Final exam - 20%

Assignment 1: Individual project - 10%

Assignment 2: Individual project - 6%

Class involvement: Class interaction - 4%

VAA4032 ENVIRONMENTALLY SUSTAINABLE DESIGN 3

Locations: Footscray Park.

Prerequisites: VAA3032 - ENVIRONMENTALLY SUSTAINABLE DESIGN 2

VAA4001 - ARCHITECTURAL LIGHTING AND COMMUNICATIONS SYSTEMS

VAA3071 - HVAC SYSTEMS 1

VAA3072 - HVAC SYSTEMS 2

Description: Introduction to building performance analysis tools (software as used by architects and engineers in compliance with energy efficiency provisions of the Building Code of Australia). Computer simulation modelling of buildings including thermal and solar performance, natural ventilation, natural and artificial lighting and computational fluid dynamics (CFD). Analysis of alternative design scenarios to optimise the thermal and lighting performance of buildings.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Model and simulate complex integrated building designs in the area of thermal performance, natural ventilation, air conditioning, solar penetration, thermal comfort, and natural/artificial lighting;
2. Analyse alternative building design scenarios to achieve optimised building thermal and lighting performance.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of a mix of small group work, lectures, workshops and site visits.

Required Reading: uction to Architectural Science: the Szokolay, S.V. (2008) 2nd Edition Architectural Press, Oxford, UK

Assessment: Portfolio, Portfolio, 100%. An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio will include two major parts: a skills audit and an assignment set which focuses on an existing building (nominally the student's residence). The assignment set includes benchmarking, simulation and exploration of a series of possible renovations. The skills audit is conducted in a series of standardized tasks comprising a short course in Building Thermal Performance Assessment (Residential) that can result in a Statement of Attainment if performance is at least 80% on each in-class skills audit.

VAA4042 BUILDING FIRE SAFETY SYSTEMS

Locations: Footscray Park.

Prerequisites: VAA3042 - HYDRAULIC SERVICES SYSTEMS

VAA3181

Description: This unit aims to give students an introduction to building fire safety engineering (FSE). Includes, fire safety and protection provisions in building regulations and building codes. deemed-to-satisfy design, design to standards, and performance based design. Stakeholders in the FSE design process. Fire design briefs, design, certification, fires safety system commissioning, and maintenance. Performance methods of design including equivalence, absolute evaluation of performance requirements, use of qualitative and quantitative methods, scientific (phenomenological) and risk approaches. Fire initiation and development, smoke control, fire spread, detection, warning, suppression, evacuation, and fire brigade intervention. Pre-flashover fire growth. Smoke spread. Post-flashover fire modelling. Occupant response in fires. Active sprinkler protection systems and ancillary equipment. Classes of hazard, design criteria and code requirements. System requirements for Ordinary Hazard (OH) systems. Full hydraulic calculation method for design of OH systems. Assumed area of operation. Design density of discharge. Design of fire hydrant and fire hose reel systems. Residential and domestic sprinkler systems. Portable fire extinguishers. Fire risk statistics, event and fault trees, and overall fire risk management.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Appreciate the fundamentals of fire safety engineering in building design;
2. Participate in the fire safety design process using correct fire safety terminology;
3. Assess the involvement of fire safety authorities and the need for specialist fire safety consultants and contractors;
4. Interpret and apply existing fire safety standards and related statutory requirements in an evolving area of the building industry. Appraise the applicability of research and fire safety standards from overseas, to Australian conditions;
5. Specify fire safety features and installations appropriate to various sizes/uses of a range of residential, light industrial and commercial buildings;
6. Formulate fire safety schemes and details, and organize the planning of system installation and maintenance.

Class Contact: Sixty (60) hours for one semester comprising briefings, workshops, individual work, site visits, team meetings and team work.

Required Reading: Fire Engineering Design Guide Buchanan, AH, 2001 ntre for Advanced Engineering, University of Canterbury Building Code of Australia (BCA) 2010 Australian Building Codes Board (ABCB), 2010 Volume One Australian Building Codes Board (ABCB), Canberra

Assessment: Other, individual tutorial work and team take-home assignment work, 50%. Portfolio, Portfolio, 50%. The portfolio is to feature work done in tutorials and at home, including a graphical and written record of fire safety system design(s), specifications detailing creative solutions appropriate to the given building design brief, a reflective journal, and a self and peer assessment.

VAA4051 BUILDING QUANTITIES AND COSTS

Locations: Footscray Park.

Prerequisites: VAN3052 Engineering Management.

Description: The project development process, the parties and the trades involved in the process. Bill of Quantities. Quantity surveyor's role. Introduction to schedule of rates of the bill of quantities and components, measurements of quantities. Estimating principal trades, contractors' cost estimates and standard method of measurement. Computer applications for estimating process. The feasibility of construction projects. Life cycle costing (LCC) analysis, theory of LCC optimization, practical application of LCC to engineering projects. Project cash flows, budgeting and cost control. Cost control during project development and construction phase. Value engineering. Building maintenance and associated costs.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: two hrs of lectures and 1hr of tutorial and computer lab session per week.

Required Reading: Lecture Notes; Marsden, Paul K. (1998) Basic Building Measurement, 2nd Edition, New South Wales University Press, Sydney, Australia; Kirk & Dell'Isolla (1999) Life Cycle Costing for Design Professionals, 2nd Edition

Assessment: Assignment 1: based on weeks 1-5 (calculations, sketches, computer applications, max word limit of 1000), 15%; Assignment 2: based on weeks 6-11 (calculations, sketches, computer applications, max word limit of 1000), 15%; Class Tutorial Exercises Based on Weeks 1-11 (calculations, sketches, computer applications, max word limit of 500),10%; three-hour examination, 60%.

VAA4071 HVAC SYSTEMS 3

Locations: Footscray Park.

Prerequisites: VAA3072 HVAC Systems 2.

Description: Module 6: Operation of controls in building services systems. Fundamentals of controls theory. Sensors and their responses. Operation of dampers and control valves. Control strategies applicable to air conditioning systems and equipment. Direct digital controls. Energy management in air conditioning. Module 7: Fundamentals of sound. Noise criteria and assessment. Sound in rooms. Sound insulation. Noise sources in buildings: fans and fan systems. Noise control in ducts.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: three hrs of lectures per week.

Required Reading: Bies, D. and Hansen, C., 2003, Engineering Noise Control: Theory and Practice, 3rd ed., E & FN Spon, London; Coffin, MJ., 1998, Direct Digital Control for Building HVAC Systems, 2nd ed., Kluwer Academic Publishers; Notes provided by the lecturers; Class notes.

Assessment: Assignment 1: (Group assignment; up to 3000 words), 30%; Assignment 2: (Group assignment; up to 3000 words + calculations + diagrams, 35%; three-hour examination, 35%.

VAA4082 BUILDING CONSTRUCTION AND LEGISLATION 2

Locations: Footscray Park.

Description: Column-and-beam construction. Fire-resistance of structural members. Structural/services cores, suspended slabs and associated formwork systems. Construction sequence applicable to high-rise buildings. Spandrel walls and curtain walls. Atriums. Fire-isolated stairways. Basements and damp-proofing. Ground support systems. Protection of adjoining property. Exterior finishes. Partitioning. Artificial lighting and mechanical ventilation. Emergency lighting and exit signs. Sanitary facilities. Access and facilities for people with disabilities. Lifts and escalators. Essential services for fire safety. Temporary site services and amenities. Occupational health and safety codes of practice. Use of cranes and hoists. Scaffolding. Temporary overhead protection. Fire protection during construction. Demolition work. Schematic documentation and detailing specific to high-rise building. Design and construction standards and statutory requirements. Medium-density residential development.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: developed an understanding of the nature of building construction in heavily-developed urban environments; become familiar with structural features and services installations specific to tall buildings; gained an appreciation of the involvement of principal consultants and contractors; enhanced their knowledge of urban development and building regulatory procedures, codes and standards; become more skilled in space and amenity planning; and gained an appreciation of major plant and equipment, techniques and practices typically employed in high-rise construction work.

Class Contact: This unit will be delivered in PBL mode, and will comprise 36 hours (3 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 6 credit points.

Required Reading: Australian Building Codes Board (ABCB) (2005), Building Code of Australia (BCA) 2005 Volume One, CanPrint Communications Pty Ltd; Burnell, R., VAA4082 Class Notes

Assessment: Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including technical calculations, site visit reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes

VAA4091 STRUCTURAL DYNAMICS 1

Locations: Footscray Park.

Prerequisites: RMA 1002 Engineering Mathematics 1B & REP 1003 Engineering Physics 1C.

Description: Introduction to structural vibrations. Degree of freedom of a system - vibrations of undamped and damped systems, harmonically excited vibration of systems, response systems to harmonically forced excitation, general forcing functions. Eigenvalue for a system, determination of natural frequencies and mode shapes, structural vibration simulation using computer software.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: two hrs of lectures and one hrs of tutorials per week.

Required Reading: Rao S.S. (1995), Mechanical Vibrations, Third Ed., Addison-Wesley Publishing Company; Inman D.J. (2001) Engineering Vibration, Second Ed., Prentice Hall; Class Notes.

Assessment: Computer based assignment (3000 words equiv.), 25%; Mid-semester test (1 hr), 15%; Tutorial presentation (15 mins), 5%; three-hour examination, 60%.

VAA4092 BUILDING SYSTEMS DESIGN AND CONSTRUCTION

Locations: Footscray Park.

Prerequisites: VAA3072 HVAC Systems 2 or VAC3092 Structural Design

Description: This unit aims to provide students with an overview of key concepts involved in the integration of building services with building structure, during the design and construction stages. Students are exposed, through a range of lectures and site visits, to constructability/buildability and co-ordination aspects of building services, as well as to compliance with building codes and regulations. Issues involving integrated building design to minimise construction costs and achieve sustainable construction methods are also introduced.

Credit Points: 6

Learning Outcomes: On successful completion of this unit,it is expected that students will be able to: be able to understand problems and procedures involved in co-ordination of individual building services. be able to understand principles of successful integration of all building services during the design and construction stages. be able to conceptualise solutions to construction technology tasks and problems, logistical planning and assembly. have enhanced their report writing and oral presentation skills.

Class Contact: This unit will be delivered in PBL mode, and will comprise 36 hours (3 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 6 credit points.

Required Reading: Paks, M. et al, VAA4092 Class Notes.

Assessment: Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including technical calculations, site visit reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes

VAA4121 STRUCTURAL DYNAMICS

Locations: Footscray Park.

Prerequisites: VAC2092 - INTRODUCTION TO STRUCTURAL ENGINEERING DESIGN

VAC3021 - STRUCTURAL ANALYSIS

ENF1201 - ENGINEERING MATHEMATICS 2

ENF1202 - ENGINEERING PHYSICS 2

Description: This unit of study aims to provide an insight into the analysis and design of structures subject to dynamic loads. The following topics would be covered: Degrees of freedom, undamped and damped systems, response of systems to harmonic excitations, general forcing functions. Eigen value for a system, natural frequencies and mode shapes. Introduction to earthquake resistant design, response spectra, seismic behaviour of structures, basis of seismic design codes. Introduction to blast and impact forces. Response of multi degree of freedom systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Analyse the response behaviour of systems subjected to harmonic excitations and general forcing functions;
2. Calculate natural frequencies of systems and draw or develop mode shapes;
3. Develop response spectra of single degree of freedom systems;
4. Use earthquake codes of practice;
5. Use commercially available software in the analysis and/or design of structures subjected to dynamics loads;
6. Interpret data collected from the instrumentation of structures under natural vibration and or forced excitation.

Class Contact: Sixty (60) hours for one semester comprising a mixture of lectures, tutorials, workshops, site visits (including inquiry based laboratory sessions) and group activities.

Required Reading: Class Notes and additional resources on WebCT

Assessment: Examination, Closed book examination, 40%. Portfolio, Inclusive of 2 or 3 projects, 60%. The portfolio provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio may include reports based on laboratory activities, site visits, software applications and/or other assigned tasks.

VAA4171 HVAC SYSTEMS 3

Locations: Footscray Park.

Prerequisites: VAA3072 - HVAC SYSTEMS 2

Description: Module 6: Operation of controls in building services systems. Fundamentals of controls theory. Sensors and their responses. Operation of dampers and control valves. Control strategies applicable to air conditioning systems and equipment. Direct digital controls. Energy management in air conditioning. Module 7: Fundamentals of sound. Noise criteria and assessment. Sound in rooms. Sound insulation. Noise sources in buildings: fans and fan systems. Noise control in ducts.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe processes and key issues relating to the control of heating, ventilation and air-conditioning (HVAC) systems;
2. Solve a range of acoustics problems in the built environment and to apply the science of acoustics in HVAC systems design;
3. Apply skills in the following generic areas: application of basic science and engineering principles in HVAC systems, control or noise problem identification, formulation and solution;
4. Demonstrate a systems approach to diagnosing control and acoustic problems within complex HVAC systems

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and site visits.

Required Reading: Notes provided by the lecturers; Class notes. Introduction to Architectural Science: The basis of sustainable design. Szokolay., 2004, Elsevier Publishing, Oxford. Engineering Noise Control: Theory and Practice, Bies, D. and Hansen, C., 2003, 3rd ed., E & FN Spon, London Direct Digital Control for Building HVAC Systems, Coffin, MJ., 1998, 2nd ed., Kluwer Academic Publishers;

Assessment: Assignment, Control Systems, 35%. Assignment, Acoustics, 35%. Examination, Final, 30%.

VAA4182 BUILDING SYSTEMS DESIGN & COSTING

Locations: Footscray Park.

Prerequisites: VAN3052 - ENGINEERING MANAGEMENT

VAC3192 - STRUCTURAL ENGINEERING DESIGN 1

Description: Module 1: Building Systems Design This module aims to provide students having background in building services or in structural design with an overview of the main issues involved in the integration of these elements, during the design and construction stages. It intends to develop in the student a systematic, analytical and critical approach to the constructability issues and explains how buildability can be implemented within the procurement process. Students are exposed, through a range of lectures and site visits, to buildability and coordination aspects of building services, as well as to compliance with building codes and regulations. It further aims to develop students ability to think laterally in order to select the most suitable option during the design stage resulting in services and structural system integration, aiming to minimise construction costs and impact on the environment. Module Two: Costs The project development process, the parties and the trades bill of quantities; quantity surveyor's role; schedule of rates; measurements of quantities; estimating principal trades, contractors' cost estimates; computer applications for estimating process; construction projects feasability; life cycle costing (LCC) analysis, theory of LCC optimization, LCC application in engineering projects; project cash flows, budgeting and cost contro; cost control in development and construction phases; value engineerin; building maintenance.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Identify problems and procedures involved in co-ordination of individual building services;

2. Assess principles of successful integration of all building services into building structure during the design and construction stages;

3. Conceptualise solutions to problems involving construction technology tasks, logistical planning and assembly;

4. Describe the methodology applied in the measurement and estimating of building works, including computer applications;

5. Describe the roles of bills of quantities and the pricing of unit rates in the tendering process;

6. Discuss the role of cost control frameworks in the design and construction phases of capital works;

7. Explain the principles and methodology for life cycle economic evaluation and management of building-related assets;

8. Apply appropriate software for estimating and life cycle cost modelling;

9. Develop advanced report-writing and oral presentation skills.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of a mix of lectures, small group work and workshops.

Required Reading: Basic Building Measurement Marsden, Paul K. (1998) 2nd Edition New South Wales University Press, Sydney, Australia Life Cycle Costing for Design Professionals Kirk & Dell'Isolla (1999) 2nd Edition Notes and handouts provided by the lecturers.

Assessment: For each assessment component, 50% of available marks must be achieved in order to pass the subject.Assignment, Integrated building design, 35%. Assignment, Estimating and life cycle cost analysis, 30%. Presentation, Oral presentation, 5%. Examination, End-of-semester examination, 30%.

VAC2011 ENGINEERING MATERIALS & CONSTRUCTION

Locations: Footscray Park.

Description: This subject covers the behaviour properties, performance and limitations of the most widely used construction materials and also gives an introduction to construction equipment and techniques used: Concrete: constituents (cements, sand, crushed rock and their production), mix design, properties of fresh and hardened concrete (strength, serviceability, creep, shrinkage, durability), and laboratory testing standards for strength, workability, elastic modulus, concrete plant arrangements, concrete transport, placing, reinforcement, curing, pumping, spraying, cement grouting. Steel: types and applications, material standards (including strength and elastic modulus), fabrication, paints/coatings and corrosion protection, delivery and erection.Timber: strength and serviceability properties, effects of microstructure and moisture content (hardwoods, softwoods, grain, gum, chemical constituents, etc), decay/weathering and protection, typical applications, fire resistance.Other materials: overview of properties and applications of masonry, aluminium, glass, polymers and composites.Introduction to construction equipment/techniques including use of excavators, dredges, shoring, pumping and dewatering plant, piledrivers, scaffolding and falsework, winches, cranes, cableways and haulage units.Construction sites: site establishment and facilities required, and related OH&S issues.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify the types, properties and applicability of materials most commonly used in civil and building engineering construction work (i.e. concrete, steel and timber). Demonstrate an appropriate knowledge of other construction and building materials masonry, aluminium, glass, polymers and composites. Identify the types and applications of plant and equipment, and construction techniques which could typically be used in a variety of civil and building engineering construction processes. Demonstrate an ability to make a reasonable choice of materials, plant, equipment and construction techniques for one or more specific projects. Formulate and solve specific problems, and work both autonomously and as a member of a team.

Class Contact: Sixty (60) hours for one semester comprising a mixture of lectures, workshops (including inquiry based laboratory sessions) and group activities.

Required Reading: Class Notes and additional resources on WebCT.

Assessment: Portfolio, Portfolio, 100%. The Portfolio provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio may include skills audits, laboratory reports, site visit/project reports, reflective journals, workbooks, self and peer assessment.

VAC2022 BUILDING MATERIALS AND CONSTRUCTION

Locations: Footscray Park.

Description: Sand and crushed rock: excavation, drilling, blasting, conveyance, crushing, screening, washing, storage, use. Concrete: constituents, mix design, laboratory tests and standards for strength, workability, etc (cylinders, slump), properties of fresh and hardened concrete (strength, serviceability, creep, shrinkage, durability), concrete plant arrangements, concrete transport, placing, reinforcement, curing, pumping, spraying, cement grouting. Formwork for concrete. Steel: types and applications, material standards, fabrication, paints/coatings and corrosion protection, delivery and erection. Timber: strength and serviceability properties, effects of microstructure and moisture content (hardwoods, softwoods, grain, gum, chemical constituents, etc), decay/weathering and protection, typical applications, fire resistance. Other materials: overview of properties and applications of masonry, aluminium, glass and selected plastics. Introduction to construction equipment/ techniques including use of excavators, dredges, shoring, pumping and dewatering plant, piledrivers, scaffolding and falsework, winches, cranes, cableways and haulage units. Construction sites: site establishment and facilities required, introduction to OH&S issues. Many of the topics above will be related to case studies on projects such as buildings, bridges, roads, tunnels and dams.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject, students will be able to demonstrate a broad understanding of the types, properties and applicability of materials most commonly used in civil and building engineering construction work. a broad knowledge of the type, properties and applications of plant and equipment which could typically be used in a variety of civil and building engineering construction processes. a broad knowledge of construction techniques which could be used in a variety of projects. an ability to make a reasonable choice of materials, plant, equipment and construction techniques for one or more specific projects. an ability, within the context of the subject areas above, to find and use relevant information, to formulate and solve specific problems, to work both autonomously and as a member of a team.

Class Contact: 5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars, laboratory sessions and site visits. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: None Required

Assessment: An individual portfolio which providesevidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, laboratory reports, site visit/project reports, reflective journals, workbooks, self and peer assessment.

VAC2032 CIVIL PROJECT

Locations: Footscray Park.

Prerequisites: VAC2011 - ENGINEERING MATERIALS & CONSTRUCTION

VAC2171

Description: This unit aims (i) to develop students ability to apply skills learned in other year 1 and 2 units to (one or more of) the investigation, planning, design, construction and costing of facilities which might be of benefit to groups within the community, and (ii) to further develop a range of more generic skills including teamwork and communication. Students will work in small teams on projects generally derived from local councils, community groups, schools, companies or government agencies. Projects might typically relate to water conservation, parkland/school/playground development, OH&S issues, small scale construction works and the like, and develop further skills/knowledge in such areas as surveying, mapping and drawing, hydraulics, materials and basic construction, and roadwork elements. Output will typically consist of one or more reports including problem analysis, calculations, engineering drawings and recommendations, and an oral presentation on the project.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Investigate, plan, design and/or construct elements of a relatively simple but real civil engineering project;
2. Identify, formulate and solve specific design problems associated with the project;
3. Locate and effectively use information/data relevant to the project;
4. Reasonably consider technical, environmental, economic and social issues relevant to the project;
5. Work effectively as a member and/or leader of a team;
6. Demonstrate good communication skills, based on technical reports, team discussions and an oral presentation.

Class Contact: Sixty (60) hours for one semester comprising sessions made up of design workshop/seminars and student team investigation, design and/or construction work.

Required Reading: A User's Guide to Engineering, Jensen, J.N. (2006), Pearson Prentice Hall

Assessment: Portfolio, Portfolio, 100%. The portfolio documents evidence that the learning outcomes have been achieved. The portfolio will normally include skills audit results and design reports including technical calculations, but may also include a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAC2042 HYDRAULICS

Locations: Footscray Park.

Prerequisites: VAN2041 - THERMOFLUIDS

Description: Fluid resistance and boundary layers; Development of pipe friction equations and their use. Fluid flow through pipelines; inter-reservoir- pipeline flow, branching pipelines, parallel pipelines; Dimensional analysis, Rayleigh's method and Buckingham pi method, hydraulic models and similarity; Pumps - positive displacement and rotodynamic systems. Pump performance equations, affinity laws and specific speed. Pump selection for particular duties; Flow in open channels - fundamentals (continuity, energy and momentum equations), discharge equations, specific energy and critical depth relationships, flow transitions and weirs and flumes. Gradually varied flow and water surface profiles. Introduction to unsteady flow condition.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Identify concepts of hydraulics, complemented with practical laboratory based experiments (on pipe flow and open channel flow);
2. Apply continuity, momentum and energy equations to inter-reservoir pipe flow;
3. Use dimensional analysis to develop relationships and also for hydraulic model similitude studies;
4. Identify types of pumps, affinity laws and pump selection for particular duty;
5. Apply concepts of open channel flow to practical engineering related problems.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: Understanding Hydraulics Hamill, L. (2001) 2nd edition MacMillan Press Class notes uploaded on WebCT

Assessment: Assignment, Based on self selected site visit in week 9 (Report, photographs, sketches, max word limit of 1500), 10%. Test, Three (3) tests throughout semester, 30%. Examination, End-of-semester examination, 60%.

VAC2071 SURVEYING

Locations: Footscray Park.

Description: Surveying Reference and Basic Computations, Mapping, Vertical Measurement and Note Keeping, Angular Measurement and Note Keeping, Circular Curves, Contours and Contouring, Area Computations for Polygons, Rectangular co-ordinates, Computations for Earth Works, Digital Terrain Models, Geographic Positioning Systems, Victorian Land Title System.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading: Class notes.

Assessment: Field work/tutorials 1: Basic Survey Computations (Max. 500 words), 5%; Field work/tutorials 2: Mapping (Max. 500 words), 5%; Field work/tutorials 3: Transferring a level to determine RL of a point (Max. 500 words), 5%; Field work/tutorials 4: Level traverse to determine RL of many points (Max. 500 words), 5%; Field work/tutorials 5: Determining angles in horizontal plane (Max. 500 words),5%; Field work/tutorials 6: Circular curve set out (Max. 500 words), 5%; Field work/tutorials 7: Grid leveling and contouring (Max. 500 words), 5%; Field work/tutorials 8: Area and perimeter computations using co-ordinates (Max. 500 words), 5%; two hour examination, 60%; Students are required to pass both Field Work and Examination to receive a pass in the subject.

VAC2072 HIGHWAY ENGINEERING

Locations: Footscray Park.

Description: Earthworks including equipment, determination of quantities and costs; preparation and use of mass haul diagrams. Route location factors, route selection, horizontal alignment including circular curves and transition curves and superelevation, determination of sight distance; vertical alignment including grades and vertical curves. Pavement design methods for both flexible and rigid pavements, determination of number of equivalent standard axles, use of California Bearing Ratio. Road construction equipment capabilities. Introduction to road drainage methods, surface and subsurface drainage. Road maintenance issues and programs.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply appropriate geometric standards to the design of rural roads;
2. Demonstrate understanding of methods to determine efficient earthworks operations;
3. Demonstrate understanding of the process for designing road pavements;
4. Identify, formulate and solve related problems, and carry out associated design work;
5. Use a system approach to design, and evaluate solutions against technical, environmental, economic and social criteria;
6. Work effectively as a member and/or leader of a team;
7. Demonstrate good communication skills, based on technical reports and team discussion and/or oral presentations.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and one field trip.

Required Reading: Rural Road Design Austroads (1993), 7th edn; Austroads VAC2072 Highway Engineering Notes, sem 2, 20** Evans, G. (20**), Victoria University (VU; 20** indicates current year addition)

Assessment: Assignment, Assignment 1: site investigations, 10%. Assignment, Assignment 2: geometric standards and super elevation (calculations & drawings), 10%. Assignment, Assignment 3: pavement design (calculation & drawings), 10%. Examination, Final, 70%.

VAC2092 INTRODUCTION TO STRUCTURAL ENGINEERING DESIGN

Locations: Footscray Park.

Prerequisites: VAC2121 - SOLID MECHANICS

Description: This unit of study aims to provide a basic introduction into the design principles of structural elements. The following topics would be covered: Steel: Load calculation, dead and live loads, design loads rationale, calculation of specific loads. Design of simple structural members in tension, compression, bending and shear. Design of bolted and welded connections in simple shear or tension.Timber: Design of timber beams, columns. Nailed and bolted connections in simple shear.Other materials: Review of fundamental concepts based on Solid Mechanics.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Design steel elements in tension, compression, bending and shear; Design steel connections consistent with the above outcome; Design timber beams and columns and appropriate connection details; Demonstrate a basic understanding of design fundamentals; 5. Formulate and solve specific problems, and work both autonomously and as a member of a team;

Class Contact: Sixty (60) hours for one semester comprising a mixture of lectures, tutorials, workshops, site visits (including inquiry based laboratory sessions) and group activities.

Required Reading: Class Notes and additional resources on WebCT

Assessment: Portfolio, Portfolio, 100%. The portfolio provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio may include skills audits, laboratory activities, project reports, reflective journals, self and peer assessment.

VAC2121 SOLID MECHANICS

Locations: Footscray Park.

Prerequisites: ENF1202 - ENGINEERING PHYSICS 2

Description: Engineers are required to design or analyse a variety of elements, components or structures that are often exposed to a variety of loading conditions. Therefore an abstract understanding of statics, equilibrium and the mechanics of materials used is required. In particular, the abstract concepts of the equivalent states of equilibrium and the compatability of external and internal deformation must be understood. It is widely recognised that Statics and Solid Mechanics is a fundamental subject area in engineering.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Evaluate tates of statical equilibrium for objects subjected to forces and couples in three dimensions;
2. Evaluate external freebody force/couple diagrams for objects;
3. Evaluate internal forces in simple pin-jointed trusses, beams and frames including axial force, bending moment and shearing force diagrams;
4. Evaluate normal and shearing stress in objects subjected to force systems;
5. Evaluate elastic properties of Engineering materials and the stiffness and strength properties of cross-sections;
6. Evaluate deflection of simple beams.
7. Evaluate failure modes of simple compression members.
8. Evaluate external and internal forces in simple two dimensional rigid frames;
9. Solve problems, undertake basic Engineering analysis and design and write technical reports.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorial/ practice classes. Includes a mix of individual and small group work.

Required Reading: "Statics and Mechanics of materials", SI Units, R.C. Hibbeler (2004). Pearson International. "Mechanics of materials", SI Units, R.C. Hibbeler (2005). Pearson International

Assessment: Examination, Semester Stage Test, 30%. Examination, Final, 40%. Assignment, Project 1, 10%. Assignment, Project 2, 15%. Other, Individual Class Participation, 5%.

VAC2171 ENGINEERING SURVEYING

Locations: Footscray Park.

Description: This unit of study covers the application of a range of surveying instruments and the techniques to be adopted. The following topics would be covered: Surveying reference and basic computations, Mapping, Vertical measurement and note keeping, Angular measurement and note keeping, Circular curves, Contours and Contouring, Area computations for polygons, Rectangular co-ordinates, Computations for earth works, Digital terrain models, Geographic positioning systems and Victorian land title system.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use a range of surveying instruments; Observe measurements in the field and keep records; Set out circular curves; Produce contour maps of different terrains; Operate with rectangular co-ordinates and compute areas of polygonal shapes; 6. Formulate and solve specific problems and work both autonomously and as a member of a team.

Class Contact: Sixty (60) hours for one semester comprising a mixture of lectures, tutorials, field work and group activities.

Required Reading: Class Notes and additional resources on WebCT.

Assessment: Portfolio, Porfolio, 100%. An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio may include skills audits, project reports, field reports, practical works, self and peer assessment.

VAC3021 STRUCTURAL ANALYSIS

Locations: Footscray Park.

Prerequisites: VAC2121 Solid Mechanics

Description: Engineers are required to design or analyse a variety of structures that are often exposed to a variety of loading conditions. Therefore an understanding of key analysis methods for statically determinate and indeterminate trusses, beams and frames should be mastered. These include, the method of virtual work for determination of deflections and rotations, the 'stiffness' method of analysis (including the equations of slope deflection and numerical approximation by moment distribution) for beams and rigid frames, the matrix representation of the stiffness method for solution by digital computation and the flexibility method of analysis for statically indeterminate trusses, beams and rigid frames. Experience in approximate analysis of structures and in structural 'modelling' and analysis using commercial linear finite element analysis computer program(s). An introduction to stability analyses of rigid frames and frame buckling.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Evaluate structural deflections and rotations for a range of structures (modelled as connected linear elements), which behave in a linear and elastic manner;
2. Evaluate internal axial forces, shearing forces and bending moments for a range of determinate and indeterminate structures (modelled as connected linear elements), which behave in a linear and elastic manner;
3. Create and analyse structure models using a commercial computer program, where structures are modelled as connected linear elements which behave in a linear and elastic manner;
4. Create and analyse structure models using a commercial computer program, where structures are modelled as connected linear elements within which, at ultimate load, compression members may buckle;
5. Compare solutions obtained by analysing structures using commercial computer programs to those obtained by classical (manual) methods of analysis, and to understand the limitations of both approaches to structural analysis.
6. Appraise a range of approximate solutions for common structures;
7. Solve problems, undertake standard structural Engineering analyses and write technical reports.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Structural Analysis Hibbler R.C., 2005 6th edition Pearson International

Assessment: Examination, Mid-semester test, 30%. Examination, Final Exam, 35%. Assignment, Portfolio of computer analyses, 20%. Assignment, Structural model project, 15%.

VAC3031 CIVIL ENGINEERING DESIGN 1

Locations: Footscray Park.

Prerequisites: VAC2072 - HIGHWAY ENGINEERING

VAC2042 - HYDRAULICS

Description: This unit of study aims to give students design skills in several areas of civil engineering, and to further develop a range of more generic skills including teamwork and communication. Students will work in small design teams to carry out (typically) four designs drawn mainly from the areas of water and road engineering. Each design will involve analysis, calculations and preparation of engineering drawings. Two designs will have associated with them an individual writing task of about 800 words on aspects relating to the design. Students must also prepare and deliver one oral presentation on one of the designs or associated written tasks performed during the semester.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students are expected to be able to:

1. Respond to a range of simple civil engineering design problems;
2. Perform preliminary designs in a number of civil engineering disciplines;
3. Evaluate design solutions against a range of technical and other criteria;
4. Demonstrate problem identification/formulation/solution, effective communication, an ability to work as a member and/or leader of a small team, the ability to use a system approach to design, and a capacity to undertake life-long learning.

Class Contact: Sixty (60) hours for one semester comprising sessions made up of design workshop/seminars and student team design work.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Portfolio, The portfolio will normally include skills audit results and design reports including technical calculations, 100%. The portfolio may also include a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAC3041 HYDROLOGY AND WATER RESOURCES

Locations: Footscray Park.

Prerequisites: VAC2042 - HYDRAULICS

Description: This unit of study aims to give students basic understanding of several key hydrologic and hydraulic concepts and their application in the management of water resources. It covers the following topics. Hydrologic cycle. Measurement of precipitation. Streamgauging. Hydrologic statistics. Rainfall frequency analysis. Design rainfalls. IFD curves. Statistical rational formula. Flood frequency analysis. Unit hydrographs. Urban drainage system analysis and design (system layout; hydrology and hydraulics). Urban stormwater drainage computer software. Reservoir routing. River routing. Runoff routing. RORB computer software. Culvert hydraulics and design. Retarding basin design. Floodplain management. Structural/non-structural measures for flood damage mitigation. Introduction to water supply systems. Reservoir design by critical period methods and simulation. REALM computer software. Streamflow analysis. Introduction to stochastic streamflow data generation. River basin planning. Engineering economic analysis for water resources projects, Drought analysis and management. Water sharing principles. Environmental flows.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students are expected to be able to:

1. Apply basic principles of hydraulics and hydrology in a range of water-related projects;

2. Indicate the importance of social objectives, environmental issues and sustainability concepts in various catchment management and water engineering design projects;
3. Evaluate solutions against technical, environmental, economic and social criteria;
4. Work effectively as a member and/or leader of a team, and to time manage multiple tasks;
5. Apply good communication skills, based on technical reports and oral presentations.

Class Contact: Sixty (60) hours for one semester comprising small group work, team meetings, lectures, workshops, seminars, practical work and site visits.

Required Reading: Water Resources Engineering Linsley, R.K. et al. (1992) Fourth Ed. McGraw Hill Understanding Hydraulics Hamill, L. (2001) Second Ed. MacMillan Press Class Notes.

Assessment: Portfolio, The portfolio may include skills audit results, assignment/project reports including technical calculations, 100%. The portfolio may also include site visits and/or laboratory reports, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAC3042 HYDRAULIC ENGINEERING

Locations: Footscray Park.

Prerequisites: VAC2042 - HYDRAULICS

Description: This unit of study aims to give students a basic understanding, problem solving and design skills in the areas of water supply and irrigation engineering. It covers the following topics: Urban Water Supply Schemes: Demand assessment and management, supply sources, dam types/spillways/outlet works/construction and safety issues, groundwater development works, water quality requirements and various types of treatment to satisfy these, service storage, pumping stations, reticulation system arrangements/layout and manual/computer analysis, pipeline design and construction.Irrigation: Purpose and principles of irrigation, irrigation water quality, channel design and structures, flood, furrow, sprinkler and trickle irrigation layout and design principles

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate understanding of key issues and design principles involved in urban water supply/treatment systems and irrigation works;
2. Locate and effectively use information/data relevant to these areas;
3. Identify, formulate and solve related problems, and carry out associated design work;
4. Evaluate solutions against technical, environmental, economic and social criteria.
5. Work effectively as a member and/or leader of a team;
6. Demonstrate good communication skills, based on technical reports and team discussion and/or oral presentations.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and one field trip.

Required Reading: VAC3042 Hydraulic Engineering - Course Notes and Tutorial Problems, Sem 2, 20** Lechte, P. (20**), (VU; 20** indicates current year edition)

Assessment: Class test, 10%; two team assignments, 25%; one field trip report, 5%; end-of-semester exam, 60%.Test, Class Test, 10%. Assignment, Two team assignments, 25%. Report, Field trip report, 5%. Examination, Final, 60%.

VAC3061 GEOMECHANICS

Locations: Footscray Park.

Prerequisites: VAC2121

Description: Importance of geology in engineering. Earth history, rock formation and basic structural geology. Geological maps and their interpretation. Erosion/transportation/deposition processes and soil formation. Geology and soils of Melbourne and related case studies. Classification, description and engineering properties of soil and rock, soil phase relationships, clay behaviour. In-ground stress due to gravity loads, principle of effective stress. Permeability, seepage of water through soil, flow nets and applications. Shear strength, friction angle and cohesion in various soil types under differing moisture conditions, Mohr-Coulomb strength criterion. Slope failure mechanisms and related stability analyses, stability charts and methods of slope stabilisation. Earthworks and compaction of soils and crushed rock including methods, specification and field evaluation. Geotechnical site investigation including desk studies, boring/sampling/testing methods, soil/rock profile logging and reporting.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate understanding of processes and key issues related to the areas of geology, soil and rock classifcation systems and water behaviour, water seepage through soils, soil shear strength, slope stability, compaction and geotechnical site investigations;
2. Locate and effectively use information/data relevant to these areas;
3. Solve a range of numerical problems and carry out design tasks related to these areas;
4. Work effectively as a member and/or leader of a team;
5. Demonstrate good communication skills, based on technical reports and team discussion.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Elements of Soil Mechanics Smith, I, (2006) 8th edn Blackwell Science VAC3061 Geomechanics - Supplementary Notes and Tutorial Sheets, Sem 1, 20** Lechte, P. (20**) Victoria University (VU; 20** indicates current year edition)

Assessment: Test, Class test, 10%. Assignment, Field Investigation team assignment, 15%. Report, Practical, 5%. Assignment, Geotechnical problem-based team assignment, 10%. Examination, End-of-semester exam, 60%.

VAC3062 GEOTECHNICAL ENGINEERING

Locations: Footscray Park.

Prerequisites: VAC3061 - GEOMECHANICS

Description: Introduction to foundation design. Bearing capacity of shallow pad and strip foundations on fine and coarse-grained soils. In-ground stress distribution due to applied loads. Foundations on reactive soils. Pile foundations including types and loading conditions. Load capacity of single driven and bored piles, and of pile groups. Immediate settlement. Consolidation theory and consolidation settlement of foundations on fine-grained soils. Settlement rates and allowable settlement. Lateral stresses in the ground. Active and passive stress states. Analysis and design of gravity, cantilever, propped and anchored retaining walls. Intro to structural design of foundations and construction issues including ground stabilisation and dewatering. Types and uses of geosynthetic materials. Identification and remediation of contaminated soils.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate understanding of key issues related to analysis and design of both shallow and deep foundations and earth retaining structures, foundation construction, geosynthetic materials, and contaminated soil identification/ remediation;
2. Locate and effectively use information/data relevant to these areas;
3. Identify and/or solve a range of related problems and carry out associated design tasks;
4. Work effectively as a member and/or leader of a team;
5. Demonstrate good communication skills, based on technical reports and team discussion.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Elements of Soil Mechanics, Smith, I. (2006) 8th edn, Blackwell Science VAC3062 Geotechnical Engineering - Supplementary Notes and Tutorial Problems, Sem 2, 20** Lechte, P. (20**), Victoria University (VU; 20** indicates current year edition)

Assessment: Test, Class test, 10%. Assignment, Field investigation team assignement, 15%. Assignment, Two geotechnical problem-based team assignments, 15%. Examination, Final, 60%.

VAC3092 STRUCTURAL DESIGN

Locations: Footscray Park.

Prerequisites: VAN2032 - ENGINEERING DESIGN

Description: This unit of study aims to give students a basic understanding, problem solving and design skills in the areas of structural design using timber, steel and reinforced concrete. It covers the following topics: Dead and live loads. Timber beams and columns. Nailed and bolted connections in timber members in simple shear. Steel beams, steel girders with high shear forces, steel columns, bolted and welded connections in steel members. Reinforced concrete design for simple and continuous beams. Beam bending, deflection and shear. Single and double reinforcement in beams. Reinforced concrete column design.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students will have demonstrated: an understanding of key issues and design principles involved in basic structural design using timber, steel and reinforced concrete an ability to locate and effectively use information/data relevant to this area. an ability to identify, formulate and solve related problems, and to carry out associated design work. an ability to evaluate solutions against technical, environmental, economic and social criteria. an ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks. good communication skills, based on technical reports and oral presentations.

Class Contact: This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, design workshops, seminars, practical work and site visits. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Required Reading: Gorenc, B. Tinyou, R. and Syam, A. (1996), Steel Designers Handbook, 7th edition, UNSW Press; AS4100 Steel Structure Code (2002), Standards Association of Australia; Warner, R.F., Rangan, B.V., Hall, A.S. and Faulkes, K.A. (1998) Concrete Structures Longman; AS3600. Concrete Structures Code (2002), Standards Association of Australia; AS1720.1 - 1997, 'Australian Standard - Timber Structures - Part 1: Design Methods,' Standards Australia; Class Notes.

Assessment: Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, design assignment/project reports including technical calculations, site visits, a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAC3192 STRUCTURAL ENGINEERING DESIGN 1

Locations: Footscray Park.

Prerequisites: VAC2092 - INTRODUCTION TO STRUCTURAL ENGINEERING DESIGN

Description: This unit of study aims to give students a fundamental understanding in the design of reinforced concrete structural elements. The following topics are covered: Design of (single and double) reinforced concrete simple and continuous beams in bending, shear and torsion. Serviceability design of beams including deflection and crack control. Design of one-way and two-way slabs using method of coefficients, simplified strip and equivalent frame methods, and yield line analysis. Reinforced concrete column and wall design. Introduction to pre-stressed concrete.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Analyse and design reinforced concrete beams in both strength and serviceability states (for bending, shear, torsion, deflection and crack control);
- Analyse and design reinforced concrete one-way and two-way slabs (including flat plates);
- Analyse and design members in combined compression and bending (i.e. columns and walls);
- Use relevant Australian codes of practice in the design of concrete structures;
- Formulate and solve specific concrete design problems, and work both autonomously and as a member of a team.

Class Contact: Sixty (60) hours for one semester comprising a mixture of lectures, workshops and design group activities.

Required Reading: Class Notes and additional resources on WebCT

Assessment: Portfolio, Portfolio, 100%. The portfolio provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio may include skills audits, laboratory/project reports, reflective journals, workbooks, self and peer assessment.

VAC4021 STRUCTURAL ENGINEERING ANALYSIS AND DESIGN 1

Locations: Footscray Park.

Prerequisites: VAC3092 Structural Design

Description: Analysis: Plastic Analysis/Design of Steel Frames - Stress-strain curve for steel, moment-curvature relationship, plastic modulus of section. Mechanisms for failure of beams and frames, yield and equilibrium conditions. Load factor. Upper and lower bound theorems. Combined bending and axial loads.Buckling of elastic structures - Introduction, Euler load, buckling modes, long and short columns, effective length, slenderness ratio; theoretical and practical columns, secant formula; tangent modulus and secant modulus methods. Practical techniques for solving buckling problems. Australian standards relavant for design of columns. Buckling of plates.Design: Wind loads. Design of a steel portal frame building: cladding, secondary 'cold formed' members, framing systems for low-rise buildings, roof and wall bracing, computer analysis,rafters, columns, connections, knee and splice connections, and 'plastic' design of steel frames. Reinforced concrete elements: continuous beams, slender columns, slabs: method of coefficients, yield line analysis and design, strip method, equivalent frame.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: three hrs of lectures and two hrs of tutorials per week.

Required Reading: Hibbler R.C., 2005, Structural Analysis. (6th edition). Pearson International; Gorenc, B. Tinyou, R. and Syam, A., (1996), Steel Designers Handbook 6th edition, UNSW Press; AS4100 Steel Structure Code (2002), Standards Association of Australia; Warner, R.F., Rangan, B.V., Hall, A.S. and Faulkes, K.A. (1998), Concrete Structures Longman; AS3600. Concrete Structures Code (2002), Standards Association of Australia; 'WebCT' VU Website for this subject and class notes.

Assessment: Analysis Part: Stage test: Based on weeks 1-6, 25%; Assignment 1: Structural model design/making/testing/reporting (Calculations, sketches, max equivalent word limit of 1000), 20%; Assignment 2: Computer structural analysis (Calculations, sketches, max equivalent word limit of 1000), 15%; one hour examination, 40%Design Part: three-hour mid-semester supervised assignment. This assessment will be largely open-book, 40%; The assignment will be done under supervision to control plagiarism (Calculations, sketches, max word limit of 1500)2 hour examination, 60%; Subject final result derived from weightings = 60% to Design part and 40% to Analysis part.

VAC4022 STRUCTURAL ENGINEERING ANALYSIS AND DESIGN 2

Locations: Footscray Park.

Prerequisites: VAC4021 Structural Engineering Analysis & Design 1.

Description: Design topics: introduction to prestressed concrete, deflections of prestressed concrete beams, loss of prestress, flexural strength, strength at transfer, design for shear, anchorage zones, continuous prestressed concrete beams, prestressed concrete slabs, strut-and-tie modelling of structural concrete, reinforced concrete footings. Analysis topics: basic concepts of finite element analysis, rod finite element, beam finite element, triangular finite element, analysis of 2D and 3D structures using the commercial finite element analysis system Strand7.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Analyse and design prestressed concrete beams for strength and serviceability; 2.Analyse and design prestressed concrete slabs for strength and serviceability;
3. Analyse and design non-flexural concrete members using the strut-and-tie model approach;
4. Analyse and design reinforced concrete footings;
5. Identify the basic concepts of finite element analysis;
6. Analyse 2D and 3D structures using a commercial finite element analysis package.

Class Contact: three hrs of lectures and two hrs of tutorials per week.

Required Reading: Cook, R.D., Malkus, D.S., Plesha, M.E. and Witt, R.J. (2001), Concepts and Applications of Finite Element Analysis, 4th edition, John Wiley & Sons, New York. Warner, R. F., Rangan, B. V., Hall, A. S. and Faulkes, K. A. (1998). Concrete structures, Longman, Melbourne. Standards Australia. (2003). Australian standards for civil engineering students: AS HB2.2 structural engineering, Standards Australia.

Assessment: Assignment, Assignment 1, 20%. Assignment, Assignment 2, 20%. Examination, Final Exam (3 hours), 60%.

VAC4032 CIVIL ENGINEERING DESIGN 2

Locations: Footscray Park.

Prerequisites: VAC3031 - CIVIL ENGINEERING DESIGN 1

VAC3042 - HYDRAULIC ENGINEERING

VAC3062 - GEOTECHNICAL ENGINEERING

VAC4081 - ENVIRONMENTAL ENGINEERING 1

Description: This unit aims to broaden students' design skills in several areas of civil engineering and to further develop a range of more generic skills including teamwork and communication. Students will work in small design teams to carry out (typically) four designs drawn mainly from the areas of water, environmental, geotechnical, and transportation engineering. Designs will typically involve analysis, calculations and preparation of engineering drawings. Two designs will have associated with them an individual writing task of about 800 words on aspects relating to the design. Students must also prepare and deliver one oral presentation on one of the designs or associated written tasks performed during the semester.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of how to approach a civil engineering design problem or project;
2. Identify/formulate/solve design problems, and complete associated design work in a number of civil engineering disciplines;
3. Locate and effectively use information/data relevant to these areas;
4. Use a system approach to design, and evaluate solutions against technical, environmental, economic and social criteria. work effectively as a member and/or leader of a team;
5. Demonstrate good communication skills, based on technical reports, team discussions and oral presentations.

Class Contact: Sixty (60) hours for one semester comprising design workshops/seminars and student team design work.

Required Reading: Class Notes and texts as required for each of the prerequisite units relating to the specific designs being undertaken.

Assessment: Portfolio, Portfolio, 100%. The portfolio will normally include skills audit results and design reports including technical calculations, but may also include a reflective journal, workbook(s), and self and peer assessment. Further details on portfolio components will be issued to students during the first week of classes.

VAC4071 TRANSPORTATION ENGINEERING

Locations: Footscray Park.

Description: Demand for transport and the significance of transport and freight movement to the economy; road safety issues; transport planning techniques including trip generation, trip distribution, mode split and trip assignment models. Traffic engineering aspects - flow theory; road capacity; headways; gaps; speed analysis. Intersection analysis; use of SIDRA program to aid design and analysis of signalised intersections; traffic survey methods and analysis; local area traffic management studies; travel demand management.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: two hrs of lectures and one hr of tutorials per week.

Required Reading: Austroads (1988) Traffic Engineering Practice Vols. 1-12; Class Notes.

Assessment: Assignment 1: Site Investigations Report (2000 words), 15%; Assignment 2: Trip generation and trip distribution (Calculations & analysis equivalent to approx. 6 pages), 15%; three-hour examination, 70%.

VAC4072 ENVIRONMENTAL PLANNING AND DESIGN

Locations: Footscray Park.

Description: This subject covers areas of sustainable rural and urban land development including biophysical and socio-economic data collection and inventories, environmental sensitivity mapping and land capability analysis, green city/urban forest concepts, planning permit issues and processes including meeting procedure, open space concepts and energy and water conservation, residential subdivisions and appropriate street designs.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: two hrs of lectures and one hr of tutorials per week.

Required Reading: Victoria, Dept. of Infrastructure, 2001, Victoria Planning Provisions (incorporating Rescode.); Class Notes.

Assessment: Assignment 1: Land development suitability report 1500 words Plus sketches, 16%; Assignment 2: Planning meeting report - 1200 words, 10%; Assignment 3: Subdivision and street design - calculations and engineering drawing equivalent to approx.12 pages, 24%; 1.5 hour examination, 50%.

VAC4081 ENVIRONMENTAL ENGINEERING 1

Locations: Footscray Park.

Prerequisites: VAC2042 - HYDRAULICS

Description: Wastewater characteristics and estimation of wastewater flows. Types, design, maintenance and rehabilitation of collection systems. Wastewater treatment plant types and applications, unit processes involved and design of components. Land treatment methods and wastewater reuse. On-site wastewater treatment. Water pollution and quality changes in rivers, estuaries and lakes, including erosion and siltation problems. Point and non-point source water pollution and control. Urban runoff quality and its management. Water quality modelling and overview of available models. Causes of land degradation and methods of control/rehabilitation. Principles and design of surface and subsurface land drainage systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate understanding of processes and key issues relating to wastewater management, water quality and pollution control, and land degradation/ rehabilitation;
2. Locate and effectively use information/data relevant to these areas;
3. Identify, formulate and solve related problems, and carry out associated design work;
4. Evaluate solutions against technical, environmental, economic and social criteria;
5. Work effectively as a member and/or leader of a team;
6. Demonstrate good communication skills, based on technical reports and team discussion and/or oral presentations.

Class Contact: 60 hours comprising lectures, tutorials and one field trip (In addition, students are expected to devote at least the same amount of time for private and/ or group study.).

Required Reading: VAC4081 Environmental Engineering 1 - Notes and Problem Sheets, Sem 2, 20** Lechte, P. (20**) Victoria University (VU; 20** indicates current year edition)

Assessment: Test, Class test, 10%. Assignment, Two team assignments, 25%. Report, Field trip report, 5%. Examination, End-of-semester exam, 60%.

VAC4082 ENVIRONMENTAL ENGINEERING 2

Locations: Footscray Park.

Description: Overview of a range of environmental problems, and introduction to Basic Ecology. Solid Waste Management: sources, types/quantity of wastes, hierarchy of management options, collection methods and transfer stations, disposal by landfill and other methods. Air Pollution: types, causes and effects, clean up and control. Noise Pollution: sources and effects, solutions to noise problems. Environmental Management including auditing, risk and environmental impact assessment, community consultation programs, and sustainable development issues. Coastal Engineering: coastal forms, wave generation and height prediction, wave phenomena, sediment transport and impact, beach erosion/rehabilitation, marinas and fixed or floating breakwaters, coastal management.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Discuss processes and key issues relating to ecology, energy and general environmental management issues, solid waste management, air and noise pollution and control arrangements, environmental impact assessment, and coastal engineering;
2. Solve a range of environmental problems and carry out design tasks in arbitrarily assigned local situations;
3. Apply basic science and engineering principles, identify problems and apply formulations and solutions, show effective communication skills and an ability to use a system approach to design, including an understanding of the more integrated nature of engineering responsibilities, and a capacity to undertake life-long learning.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Class notes.

Assessment: Assignment, Participation in a series of in-class debates on issues of environmental impact, with submission of written position paper, 10%. Assignment, Report on solid waste or air pollution management in an assigned community., 10%. Assignment, Coastal Engineering site visit report, 10%. Test, Covering materials from weeks 1-3, 10%. Examination, End-of-semester examination, 60%.

VAC4091 STRUCTURAL ENGINEERING DESIGN 1

Locations: Footscray Park.

Prerequisites: VAC3092 Structural Design.

Description: Wind loads. Design of a steel portal frame building: cladding, secondary 'cold formed' members, framing systems for low-rise buildings, roof and wall bracing, computer analysis, rafters, columns, connections, knee and splice connections, and 'plastic' design of steel frames. Reinforced concrete elements: continuous beams, slender columns, slabs: method of coefficients, yield line analysis and design, strip method, equivalent frame.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: two hrs of lectures and one hr of tutorials per week.

Required Reading: Gorenc, B. Tinyou, R. and Syam, A. (1996) Steel Designers Handbook 6th edition, UNSW Press; AS4100 Steel Structure Code (2002), Standards Association of Australia; Warner, R.F., Rangan, B.V., Hall, A.S. and Faulkes, K.A. (1998) Concrete Structures Longman; AS3600. Concrete Structures Code (2002), Standards Association of Australia; Class Notes.

Assessment: three-hour mid-semester supervised assignment (This assessment will be largely open-book), 40%; two hour examination,60%.

VAC4092 STRUCTURAL ENGINEERING DESIGN 2

Locations: Footscray Park.

Prerequisites: VAC4091Structural Engineering Design 1.

Description: Introduction to prestressed concrete, deflections of prestressed concrete beams, loss of prestress, flexural strength, strength at transfer, design for shear, anchorage zones, continuous prestressed concrete beams, prestressed concrete slabs, strut-and-tie modelling of structural concrete, reinforced concrete footings.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Analyse and design prestressed concrete beams for strength and serviceability;
2. Analyse and design prestressed concrete slabs for strength and serviceability;
3. Analyse and design non-flexural concrete members using the strut-and-tie model approach;
4. Analyse and design reinforced concrete footings.

Class Contact: two hrs of lectures and one hr of tutorials per week.

Required Reading: Standards Australia. (2003). Australian standards for civil engineering students: AS HB2.2 structural engineering, Standards Australia. Warner, R. F., Rangan, B. V., Hall, A. S. and Faulkes, K. A. (1998). Concrete structures, Longman, Melbourne.

Assessment: Assignment, Assignment 1, 40%. Examination, Final Exam (2 hours), 60%.

VAC4172 URBAN DEVELOPMENT AND TRANSPORTATION

Locations: Footscray Park.

Description: This subject covers areas of sustainable urban land development and transportation systems including biophysical and socio-economic data collection and inventories, land capability analysis, planning processes and issues including population density, city infill vs peripheral development, infrastructure and servicing requirements, open space/green city/urban forest concepts, energy and water conservation issues, residential subdivisions and appropriate street designs. It also focuses on demand for transport and the significance of transport and freight movement to the economy; road safety issues; transport planning techniques including trip generation, trip distribution, mode split and trip assignment models; traffic engineering aspects including flow theory, road capacity, headways,gaps, and speed analysis; intersection analysis and use of SIDRA program to aid design and analysis of signalised intersections; traffic survey methods and analysis; local area traffic management studies; travel demand management.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate understanding of key issues and principles relevant to the design of sustainable urban areas and related transportation systems;
2. Locate and effectively use information/data relevant to such design work;
3. Identify, formulate and solve related problems, and carry out associated design work;
4. Evaluate solutions against technical, environmental, economic and social criteria;
5. Work effectively as a member and/or leader of a team
6. Demonstrate good communication skills, based on technical reports and team discussion and/or oral presentations.

Class Contact: To be advised.

Required Reading: VAC4172 Urban Development and Transportation Notes, sem 2, 20** Evans, G. (20**), Victoria University (VU; 20** indicates current year addition)

Assessment: Assignment, 1 x Field-based and 1x Design/modelling, 40%. Examination, Final, 60%.

VAC4191 STRUCTURAL ENGINEERING DESIGN 2

Locations: Footscray Park.

Prerequisites: VAC3192 - STRUCTURAL ENGINEERING DESIGN 1

Description: Wind loads, local buckling of thin steel plates, cladding, purlins and girts in steel portal frame buildings, steel members under combined actions, steel connections, roof and wall bracing systems, computer analysis, steel-concrete composite slabs, composite beams, composite columns, plastic analysis of steel beams and frames.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Estimate wind loads; Analyse and design steel members under combined actions and steel connections; Perform structural analyses on frames and trusses using computer software; Analyse and design steel-concrete composite slabs, beams and columns;

5. Analyse steel beams and simple frames using the plastic method.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and tutorials.

Required Reading: Steel designers handbook Gorenc, B. E., Tinyou, R. and Syam, A. (2006). 7th edn, University of NSW Press, Kensington, NSW. Australian standards for civil engineering students: AS HB2.2 structural engineering, Standards Australia. (2003). Standards Australia.

Assessment: Assignment, Assignment 1, 20%. Assignment, Assignment 2, 20%. Examination, Final, 60%.

VAC4192 STRUCTURAL ENGINEERING DESIGN 3

Locations: Footscray Park.

Prerequisites: VAC4191 - STRUCTURAL ENGINEERING DESIGN 2

Description: Design topics: introduction to prestressed concrete, deflections of prestressed concrete beams, loss of prestress, flexural strength, strength at transfer, design for shear, anchorage zones, continuous prestressed concrete beams, prestressed concrete slabs, strut-and-tie modelling of structural concrete, reinforced concrete footings. Analysis topics: basic concepts of finite element analysis, rod finite element, beam finite element, triangular finite element, analysis of 2D and 3D structures using the commercial finite element analysis system Strand7.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Analyse and design prestressed concrete beams for strength and serviceability; Analyse and design prestressed concrete slabs for strength and serviceability; Analyse and design non-flexural concrete members using the strut-and-tie model approach; Analyse and design reinforced concrete footings; Identify the basic concepts of finite element analysis; Analyse 2D and 3D structures using a commercial finite element analysis package.

Class Contact: Seventy-two (72) hours for one semester comprising lectures and tutorials.

Required Reading: Concrete structures, Warner, R. F., Rangan, B. V., Hall, A. S. and Faulkes, K. A. (1998). Longman, Melbourne. Concepts and applications of finite element analysis, Cook, R.D., Malkus, D. S., Plesha, M. E. and Witt, R. J. (2001), 4th edition, John Wiley & Sons, New York. Australian standards for civil engineering students: AS HB2.2 structural engineering, Standards Australia. (2003). Standards Australia.

Assessment: Assignment, Assignment 1, 20%. Assignment, Assignment 2, 20%. Examination, Final, 60%.

VAM2011 COMPUTATIONS AND ENGINEERING ANALYSIS

Locations: Footscray Park.

Prerequisites: RMA1002 Engineering Mathematics 1A, and VAN1011 Experimentation and Computing.

Description: Solving engineering problems numerically. Computer programming. Keywords in a computer language. Variables and data types. Operators and flow control. Structured programming. Functions in programming. Visualisation of data. Advanced graphics - mesh and surface plots. Handles and properties of graphic objects. Integration of programs into software. Event driven programs. Creating a Graphical User's Interface (GUI). Analysis of engineering systems. Examples of first and second order systems in engineering. Initial and boundary value problems. Numerical simulation of the time response of engineering systems by solving ordinary differential equations. Frequency domain. Transformation from the time to the frequency domain by Fourier transform. Characteristics of a system: impulse response and frequency response functions.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours in one semester comprising lectures/tutorials/computer laboratory.

Required Reading: Palm W.J. (2001) Introduction to Matlab 6 for Engineers, McGraw-Hill; Magrab E.B et al (2005) An Engineer's Guide to MATLAB® 2nd edition, Pearson Prentice Hall (ISBN 0-13-145499-4); Class notes and on-line material

Assessment: Computing test 1: two hours based on weeks 1--5, 30%. Computing test 2: two hours based on weeks 7-11, 30%; Theory test - two hours, 30%; On-going lab assignments (Word limit of 1000), 10%

VAM2042 THERMODYNAMICS AND FLUID MECHANICS 1

Locations: Footscray Park.

Prerequisites: VAN2041 Thermofluids.

Description: Second law of thermodynamics and entropy. Gas mixtures. Refrigeration cycles. Gas-vapour mixture and air-conditioning. Dimensional analysis, dimensionless numbers and introduction to modelling principles. Measurements in fluid mechanics. Introduction to conservation laws in differential forms.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: three hrs of lectures and two hrs of tutorial/laboratory sessions per week.

Required Reading: Comprehensive class, laboratory and activity notes. On-Line material; Cengel, Y. A. and Boles, M. A. 2002 Thermodynamics- An Engineering Approach, 4th Edition, McGraw; White, F., 2002 Fluid Mechanics, 5th edn, McGraw Hill.

Assessment: Class Test: based on weeks 1- 6 (calculations, sketches, max word limit of 1000 words), 10%; Class Test: based on weeks 6- 12 (calculations, sketches, max word limit of 1000 words), 10%; Assessment 3: Lab on Venture tube (calculations, sketches, max word limit of 1000 words), 10%; Assessment 4: Lab on refrigeration unit (calculations, sketches, max word limit of 1000 words), 10%; Final Exam: 3hrs, 60%.

VAM2062 MATERIALS AND MANUFACTURE

Locations: Footscray Park.

Prerequisites: VAN2061 Engineering Materials.

Description: Diffusion in solids and the application of mathematical diffusion models to surface treatments of alloys. Thermo- mechanical strengthening treatments of metal alloys. Structure and properties of ferrous, aluminium, magnesium, zinc, nickel, copper and titanium alloys, and their applications in engineering design. Structure, properties and heat treatment of ceramics and glasses.Introduction and structure to polymers, elasomers, foams and polymer composites. Casting processes metals and polymers. Introduction to plasticity theory and its application to solid forming processes. Introduction to surface physics and its application to powder metallurgy and joining processes.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject, students will be able to demonstrate: an understanding of processes and key issues related to engineering science in manufacturing and environment. an ability to solve a range of numerical engineering problems found in engineering practice and engineering design. an ability, within the context of the subject areas above, to find and use relevant information, to formulate and solve specific problems, to work both autonomously and as a member of a team, and to effectively communicate ideas, issues, investigations and results by a variety of methods.

Class Contact: 5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars and laboratory sessions. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: Rojter, J. (2005), Fundamentals of Materials Technology, Victoria University. Class NotesRojter, J. (2005), Structure and Mechanical Properties of Solids1, Victoria University. Class NotesRojter, J. (2005), Manufacturing Materials: Part 1, Victoria University. Class NotesCallister, W.D. Jr (2004), Materials Science and Engineering- An Introduction, John Wiley and Sons Inc Higgins, R.A. (2005), Engineering Metallurgy, Edward ArnoldKalpakjian, S. (2002), Manufacturing Engineering and Technology, Addison- Wesley

Assessment: An individual portfolio which providesevidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, laboratory reports, site visit/project reports, reflective journals, workbooks, self and peer assessment.

VAM2111 INTRODUCTION TO ENGINEERING MATERIALS

Locations: Footscray Park.

Prerequisites: ENF1201 - ENGINEERING MATHEMATICS 2

ENF1202 - ENGINEERING PHYSICS 2

Description: Introduction to mechanical behaviour of solids under static and dynamic conditions. Atomic structure and bonding and its effect on mechanical and physical properties of solids. Introduction to microstructures of polymers, metals and ceramics. Fundamentals of cement and concrete microstructure- property relationships; classification of cementitous materials for engineering design. Deformation mechanisms in crystalline solid. Mechanism of strengthening of metals; phases in alloys. Introduction to phase diagrams and their application to ferrous alloys. Phase transformations through time-temperature- transformations and their applications to heat treatment of plain carbon steels and cast irons. Structure-property relationship in alloy and stainless steels.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Display an understanding of microstructure- property relationship of solid materials;
2. Show an appreciation of limitations of basic materials in engineering design;
3. Display cognitive skills in decision-making process for areas of optimum engineering design;
4. Cognisance of the role materials play in maintaining a sustainable environment.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of a mix of lectures, small group work, workshops and laboratory exercises.

Required Reading: Introduction to Engineering Materials, Lecture notes Rojter, J., 2010 Victoria University Materials Science and Engineering- An Introduction Callister, D.W. Jr., 2009 John Wiley & Sons

Assessment: Examination, Skills audit of tacit knowledge, 45%. Report, Problem-Project group assignment, 35%. Report, Laboratory - enquiry based, 12%. Presentation, Oral presentation and reflective journals, 8%.

VAM2112 THERMODYNAMICS 1

Locations: Footscray Park.

Prerequisites: VAN2041 - THERMOFLUIDS

Description: Second law of thermodynamics, heat engines, thermal efficiency, heat pumps, coefficient of performance, reversible and irreversible processes, Carnot cycle, Carnot principles, Thermodynamics temperature scale, quality of energy, Carnot heat engine, Carnot refrigeration and heat pump. Entropy, increase of entropy principle, entropy of pure substance, isentropic processes, the T-s relations, the entropy change of ideal gases, reversible steady-flow work, isentropic efficiencies of steady-flow devices, entropy balance. Availability analysis, reversible work and irreversibility, second law efficiency, availability transfer by heat, work and mass, availability balance: closed and open systems. Refrigeration cycles, refrigerators and heat pumps, the ideal vapour-compression refrigeration cycle, actual vapour-compression refrigeration cycle, and multistage compression refrigeration systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify the various concepts related to the Second Law of Thermodynamics and their engineering applications; Define the entropy and its application in determining the quality of energy; Explain the availability and its applications in determining possible regeneration and energy recovery in engineering devices; Determine the irreversibility of engineering processes; Define the refrigeration process and calculate the coefficient of performance of ideal and actual vapour-compression refrigeration systems.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorial/ laboratory sessions.

Required Reading: Comprehensive class, laboratory and activity notes. On-Line material; Thermodynamics- An Engineering Approach, Cengel, Y. A. and Boles, M. A. 2008 6th Edition, McGraw.

Assessment: Test, Class test; calculations, sketches, max.1000 words, 10%. Test, Class test; calculations, sketches, max.1000 words, 10%. Assignment, Laboratory on Refrigeration unit; calculations, sketches, max.1000 words, 10%. Examination, Final, 70%.

VAM2121 MECHANICS OF ENGINEERING MATERIALS

Locations: Footscray Park.

Prerequisites: ENF1102 - ENGINEERING PHYSICS 1

ENF1202 - ENGINEERING PHYSICS 2

Description: Revision of: Concepts of internal forces: axial force, shear force, bending moment, torsion; Youngs modulus and Poissons ratio; Hookes law. Internal forces diagrams; Bending stress and shear stress in beams; Mechanical behaviour of engineering materials; Structures and Mechanisms. Three dimensional forces and moments. Different types of structures, supports and reactions; Modes of failures. Deflection in beams; Shear stress and angle of twist in shafts. Buckling phenomenon. Complex loading; Two dimensional stress; Mohr's circles of stresses and strains; Theories of failures for ductile and brittle material behaviour. Statically indeterminate structures. Energy methods to find displacements of structures; strain energy; virtual work; Castigliano's theorems; Unit force method.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Characterise general behaviour of engineering materials and different modes of failure under effects of forces, moments, change of temperatures and humidity;
2. Evaluate effects of three dimensional and complex loading of forces and moments on one-dimensional structures commonly found in mechanical engineering (links, ties, struts, beams, shafts) in terms of stresses, strains and displacements;
3. Apply the principles of mechanics engineering materials to the analysis and design of structures and machinery components in mechanical engineering.

Class Contact: Sixty (60) hours for one semester comprising lectures, laboratory, seminars and group activities.

Required Reading: Lecture Notes by Danh Tran.

Assessment: Examination, Final, 50%. Assignment, Team Report and Individual Portfolio, 30%. Laboratory Work, Individual Reports, 20%.

VAM2122 STRESS ANALYSIS

Locations: Footscray Park.

Prerequisites: VAM2121 - MECHANICS OF ENGINEERING MATERIALS

Description: Three dimensional stress analysis. Three dimensional strain analysis. Stress-strain relationship. Plane stress and plane strain problems. Photoelasticity. Strain gauge. Polar coordinate problems. Thick cylinder and rotating disc. Theory of plate and shell. Advanced composite materials. Inelastic problems of plasticity, creep and stress relaxation and applications in mechanical engineering.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Formulate and solve general three dimensional problems of stress-strain analysis especially fundamental problems of elasticity in mechanical engineering;
2. Apply experimental techniques of stress analysis, especially photoelasticity and strain gauges;
3. Apply the principles of stress analysis to advanced problems involving composite materials and inelasticity.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials, laboratory.

Required Reading: Lecture Notes by Danh Tran.

Assessment: Examination, Final, 60%. Test, Test and Assignment, 20%. Laboratory Work, Individual Reports, 20%.

VAM2131 ENGINEERING ANALYSIS

Locations: Footscray Park.

Prerequisites: ENF1201 - ENGINEERING MATHEMATICS 2

ENF1202 - ENGINEERING PHYSICS 2

Description: This Unit of Study introduces students to the methodology of application of fundamentals laws of physics, mathematical concepts and computer programming tools in the process of systematic analysis of behaviour of engineering systems. It exposes students to generic analytical skills and methods relevant to contemporary engineering practice and illustrates their practical application in the analysis of various generic engineering systems. It covers the following topics: Introduction to the analysis of engineering systems. Formulation of simple numerical predictive models of mechanical systems. Transfer function. Familiarisation with and the application of a modern environment for numerical simulations involving Ordinary Differential Equations. Graphical presentation of complex sets of results. Instrumentation and sensors for mechanical processes. Signals. Measurement and collection of experimental data such as sound and vibration, and internal combustion engine cylinder pressure and dynamometer data. Processing and analysis of experimental data, e.g. calculation of p-V diagram and indicated work, engine overall efficiency, room sound reverberation time, vibration level, signal power and RMS. Fourier theorem, the frequency domain and frequency spectrum. Application of Fast Fourier Transform.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify approaches in engineering system analysis, Formulate models of simple engineering systems with Ordinary Differential Equations and transfer functions; Numerically simulate behaviour of these systems; Acquire and process large sets of experimental data and derive dependent parameters through computer programming; Produce frequency spectra using Fast Fourier Transform and interpret them;

6. Produce written technical reports as part of a team.

Class Contact: Sixty (60) hours for one semester comprising lectures, team project activities, field and laboratory experimentations and computer laboratories.

Required Reading: Introduction to MATLAB® 7 for Engineers, Palm W.J. (2003) McGraw-Hill. An Engineer's Guide to MATLAB® Magrab E.B et al (2005) 2nd edition, Pearson Prentice Hall (ISBN 0-13-145499-4)

Assessment: Formative assessment in the form of group reports. These will be assessed as satisfactory (0) or unsatisfactory (1).Other, Progress quizzes and diary, 10%. Examination, Final, weighted by the average score for group reports, 90%.

VAM2132 MANUFACTURING MATERIALS

Locations: Footscray Park.

Prerequisites: VAM2111 - INTRODUCTION TO ENGINEERING MATERIALS

Description: This subject will aim to extend the knowledge of materials science in alloy steels, leading edge non-ferrous alloys, polymers, ceramics and glasses and composites and integrate it into issues of sustainable engineering product design and manufacturing technologies. This subject gives students an understanding of the engineering practice through an introduction to problem solving methodology and knowledge of the responsibilities of the professional engineer. The content will include: - Merit matrices for material selection for economic and sustainable design and manufacture; - Diffusion in solids and the application of mathematical diffusion models to surface treatments of alloys; - Thermo- mechanical strengthening treatments of metal alloys; - Structure and properties of aluminium, magnesium, zinc, nickel, copper and titanium alloys, and their applications in engineering design; - Structure, properties and heat treatment of ceramics and glasses; - Introduction and structure to polymers, elastomers,foams and polymer composites; - Casting processes metals and polymers; - Introduction to surface physics and its application to powder metallurgy and joining processes; and, - The application of introductory plasticity theory to solid foerming processes

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Display understanding of processes and key issues related to engineering science in manufacturing and environment;
2. Solve a range of numerical engineering problems found in engineering practice and engineering design;
3. Display an improvement in a number of generic skills including problem identification/formulation/solution, effective communication, ability to use a system approach to design, and capacity to undertake life-long learning.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of a mix of lectures, small group work, workshops and laboratory exercises.

Required Reading: Manufacturing Materials, Class Notes Rojter, J., 2005 Victoria University Manufacturing Engineering and Technology Kalpakjian, S., 2002 Addison-Wesley Engineering Metallurgy Higgins, R.A., 2005 Edward Arnold

Assessment: Examination, Skills audit of tacit knowledge, 45%. Report, Problem-Project group assignment, 35%. Report, Laboratory - enquiry based, 12%. Presentation, Oral presentation and reflective journals, 8%.

VAM2142 MECHANICAL ENGINEERING DESIGN

Locations: Footscray Park.

Description: This unit is based on a series of problems designed to both introduce students to the design process and to apply knowledge introduced in other Year 1 units of study. The problems will therefore emphasise creative thinking in design, generating and evaluating alternatives against a range of technical, environmental, social and economic criteria, and making the final design decisions. The unit also incorporates a module on professional drawing practice including projections and views, dimensioning, different drawing types and using computer-aided design (CAD) software.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply a systematic approach to engineering design; Find, organise and evaluate information on a range of topics related to problems in engineering design; Identify and evaluate technical, environmental, social and economic factors impacting on the solution of engineering design problems; Use computer-aided design (CAD) software to develop and present design solutions; Communicate effectively with others orally, in writing and by means of engineering drawings; Demonstrate an ability to learn individually and collaboratively in a team environment; Use a personal reflective journal and demonstrate improvements in their effectiveness as learners;

8. Respond to diverse learning situations in a socially and culturally responsible manner.

Class Contact: Sixty (60) hours for one semester comprising team workshops, including supporting lectures and labs.

Required Reading: Sustainable Design: The Science of Sustainability and Green Engineering, Vallero, DA, and Brasier, C, 2008, Wiley. PBL in Engineering Manual, VU, School of Engineering and Science, 2009, 2nd edn. Victoria Univeristy 2009, Communication Skills Handbook for First Year Students in the Faculty of Health, Engineering and Science, VU, Faculty of Arts, 2009, 9th edn. Victoria University

Assessment: Report, Group Reports, 30%. Portfolio, Individual Portfolio, 70%.

VAM3012 SIGNAL ANALYSIS

Locations: Footscray Park.

Prerequisites: VAM2011 Computation and Engineering Analysis.

Description: This unit of study aims to give students an understanding of the principles of modern signal measurement and analysis with applications to mechanical engineering. It relies heavily on the development of computer algorithms and the use of specialist engineering software, and covers the following topics. Engineering measurement theory and fundamentals. Instrumentation and sensors for mechanical processes. Dynamic response of measurement systems. Data acquisition systems: analogue-to-digital converters, quantisation. Shannon's sampling theorem. Aliasing. Anti-aliasing filters. Use of data acquisition and analysis software: Matlab®, DADiSP®, HPVee®, Data file manipulation. Signal classification: Static, transient and dynamic signals, deterministic signals, random signals, non-stationary signals. Analysis and interpretation of digital experimental data: Time domain analysis: trends, RMS, moving statistics (mean, RMS), synchronous averaging, transient (shock) signals, probability distribution statistical estimates. Frequency domain analysis: Fast Fourier Transform (FFT), frequency spectra, spectrum types and scaling. Frequency response functions, coherence, signal-to-noise ratio. Introduction to wavelet transforms. The projects involve applications such as shocks and vibrations, noise contaminated signals, acoustic signals and other physical phenomena relating to modern mechanical engineering.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students will have: developed an understanding of processes and key issues related to modern measurement and signal analysis principles and techniques relating to mechanical engineering practice. demonstrated an ability to solve a wide range of problems and carry out design tasks pertaining to sensor selection and evaluation, and develop computer algorithms for a wide range of signal analysis techniques in the time and the frequency domains. completed work designed to improve a number of generic skills including problem identification/formulation/solution, effective oral and written communication, experimental techniques, computer skills and the ability to use a systematic approach to engineering investigation and algorithm development, as well as a capacity to undertake life-long learning.

Class Contact: This unit will be delivered in PBL mode and based on up to three projects to be undertaken by students working in teams. It will comprise 60 hours (5 hours equivalent per week) of lectures, tutorials, laboratory/field work, workshops and small group project work. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Required Reading: Bendat, J.S. and Piersol, A.G. (2000) Random Data Analysis and Measurement Procedures, Third Ed. John Wiley and Sons, New York; Randall R.B. (1987), Frequency Analysis. Bruel & Kjaer, Denmark; Newland, D.E. (2005) An Introduction to Random Vibrations, Spectral and Wavelet Analysis, Third Ed. Longman Scientific & Technical, Harlow U.K.; Matlab Online Reference Manuals; Class Notes.

Assessment: Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including technical calculations, laboratory reports, a reflective journal, workbook(s), and self and peer assessment Further details on portfolio components will be issued to students during the first week of classes.

VAM3021 STRESS ANALYSIS 1

Locations: Footscray Park.

Prerequisites: VAN2021 Solid Mechanics 2.

Description: Three-dimensional stress analysis: stress vector, Cartesian stress components, equation of equilibrium, principal stresses and principal stress directions. Three-dimensional strain analysis: displacement vector, Cartesian strain components, similarity between stress and strain matrix, equation of compatibility. Experimental stress analysis: strain gauges and photoelasticity. Introduction in linear elasticity: stress strain relationship, Lame's equations and Hooke's law, various formulation of boundary value problems, plane stress and plane strain problem, orthotropic materials, composite materials.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: three hrs of lectures and two hrs of tutorials per week.

Required Reading: Lecture Notes by Danh Tran.

Assessment: Laboratory 1: three-hour on Strain Gauge, report 2000-3000 words, 10%; Laboratory 2: three-hour Photoelasticity, report 2000-3000 words, 10%; Test 1: based on Week 1-4, open book, one hour,10%; Test 2: based on Week 6-8, open book, one hour, 10%; Examination: three-hour (open book), 60%.

VAM3022 STRESS ANALYSIS 2

Locations: Footscray Park.

Prerequisites: VAM3021 Stress Analysis 1.

Description: Thick cylinders and Rotating Discs. Theory of plates and shells. Introduction to plasticity. Introduction to viscoelasticity, creep and stress relaxation. Introduction to finite element. Stress analysis by Finite Element.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 5 hrs of lectures and tutorials per week, including Finite Element computer based laboratory using a finite element software.

Required Reading: Lecture Notes by Danh Tran

Assessment: Assignment 1: Truss analysis by Solid Mechanics and Finite Element, 1500-2000 words, 10%; Assignment 2: Stress analysis by ANSYS, 1500-2000 words, 10%; Test 1: based on Week 1-4, open book one hour, 10%; Test 2: based on Week 5-8, open book, one hour, 10%; Examination: three hour, open book, 60%.

VAM3031 MECHANICAL ENGINEERING DESIGN 1

Locations: Footscray Park.

Prerequisites: VAN2032 Engineering Design.

Description: This unit of study aims to give students broad skills in designing a range of machine elements and more interated plant used in mechanical engineering systems. It covers the following topics. Design of mechanical elements: Design of Power Screws and fasteners. Design of power transmission shafting, gears, cams and followers, Design and selection of rolling contact and journal bearings, Selection of chain drives, belt drives, clutches and couplings. Design of plant equipment: Machine Design, Design of Conveyors, Fan Duct systems, Piping systems. Pipe Flexibility. Programming for the design of mechanical elements and plant Design. Solids modelling of mechanical elements.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students will have demonstrated: significant knowledge and competence in the application of fundamental mechanics and scientific skills to design and selection of mechanical elements. development of skills to identify, formulate and solve engineering design problems in a systematic way. an ability to use computing methods to solve mechanical engineering design problems. ability to work effectively as a member and/or leader of a team and to time manage multiple tasks ability to use mechanical engineering design skills to solve a plant design problem experienced in industry.

Class Contact: This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of small group work, team meetings, lectures, workshops, seminars and computing work. In addition, students are expected to devote at least the same amount of time for private and/or group study. The unit is worth 12 credit points.

Required Reading: Shigley J.E. and Mischke C.R. (2004), Mechanical Engineering Design, Seventh Metric Ed., McGraw Hill; Class Notes.

Assessment: Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including technical calculations, design software development work, a reflective journal, and self and peer assessment Further details on portfolio components will be issued to students during the first week of classes.

VAM3041 THERMODYNAMICS AND FLUID MECHANICS 2

Locations: Footscray Park.

Prerequisites: VAM2042 Thermodynamics and Fluid Mechanics 1.

Description: Availability analysis and second law efficiency of Thermodynamics. Carnot engines. Gas power cycles - the Otto cycle, Diesel cycle, gas-turbine cycle, and jet-propulsion cycle. Vapor and combined power cycles - Rankine cycle, using reheat and regeneration to improve the efficiency of the Rankine cycle. Introduction to viscous flows. Laminar and turbulent flows. Detail analysis of wall shear flows (pipe and boundary layer) and free shear flows (jets and wakes).

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: three hrs of lectures and two hrs of tutorial/laboratory sessions per week.

Required Reading: Comprehensive class, laboratory and activity notes. On-Line material; Cengel, Y. A. and Boles, M. A. 2002 Thermodynamics- An Engineering Approach, 4th Edition, McGraw Hill. Hamill, I. 2001 Understanding Hydraulics, 2nd edn., MacMillan Presses; White, F., 2002, Fluid Mechanics, 5th edn, McGraw Hill.

Assessment: Class Test: based on weeks 1- 6 (calculations, sketches, max word limit of 1000 words), 10%; Class Test: based on weeks 6- 12 (calculations, sketches, max word limit of 1000 words), 10%; Assessment 3: Lab on external flows (calculations, sketches, max word limit of 1000 words), 10%; Assessment 4: Lab on Engine (calculations, sketches, max word limit of 1000 words), 10%; Final Exam: 3hrs, 60%.

VAM3071 DYNAMICS

Locations: Footscray Park.

Prerequisites: ENF1201 - ENGINEERING MATHEMATICS 2

ENF1202 - ENGINEERING PHYSICS 2

Description: This unit of study aims to give students an understanding of principles of engineering dynamics including particle dynamics and rigid body dynamics (kinematics and kinetics) in two and three dimensional space, as well as to develop problem solving, computing and design skills in the areas of mechanism design and analysis. It covers the following topics. Introduction to dynamics, Kinematics of particles - rectilinear and plane curvilinear motion co-ordinates systems, 3-D curvilinear motion and relative motion. Plane kinematics of rigid bodies - rectilinear and plane curvilinear motion, relative velocity, instantaneous centre of zero velocity, relative acceleration, space curvilinear motion. Kinetics of particles - Newton's law, work and energy, impulse and momentum. Plane kinetics of rigid bodies - moments and products of inertia, Newton's law, work and energy, impulse and momentum. Three-dimensional dynamics of rigid bodies - kinematics, kinetics, gyroscopic motion.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students will have:

1. Developed an understanding of processes and key issues related to particle dynamics and rigid body dynamics in two and three-dimensional space;
2. Demonstrated an ability to solve a wide range of problems and carry out design tasks using kinematics of particles, plane kinematics of rigid bodies, kinetics of particles, plane kinetics of rigid bodies and three-dimensional kinematics and kinetics of rigid bodies;
3. Completed work designed to improve a number of generic skills including problem identification/formulation/solution, effective oral and written communication, experimental techniques, computer skills and the ability to use a systematic approach to design, and a capacity to undertake life-long learning.

Class Contact: 60 hours per semester comprising lectures, tutorials and workshops.

Required Reading: Engineering Mechanics Vol. 2 DYNAMICS Meriam J.L. and Kraige L.G (2002) Fifth Ed. John Wiley and Sons Engineering Mechanics, DYNAMICS Riley W.F. and Sturges L.D. (1996) Second Ed. John Wiley and Sons

Assessment: Assignment, Assignments throughout semester, 40%. Examination, End-of-semester examination, 60%.

VAM3072 MECHANICAL VIBRATIONS

Locations: Footscray Park.

Prerequisites: ENF1201 - ENGINEERING MATHEMATICS 2

ENF1202 - ENGINEERING PHYSICS 2

Description: This unit of study aims to give students a basic understanding of problem solving and design skills in Mechanical Vibrations. It covers the following topics: Introduction to mechanical vibrations and vibratory elements; Single Degree of Freedom Systems - free vibrations of undamped systems, free vibrations with viscous, coulomb and hysteretic damping, harmonically excited vibrations of undamped systems, response of damped systems to harmonically forced excitation and base motion, response of damped systems, equivalent viscous damping, general forcing functions; Two Degree of Freedom Systems - free vibrations of undamped systems, co-ordinate coupling, forced vibrations; Multi Degree of Freedom Systems - influence coefficients, Eigenvalue problem, determination of natural frequencies and mode shapes; vibration measurement, vibration control and random vibration analysis.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students will have demonstrated:

1. An understanding of key issues involved in the vibratory analysis of mechanical systems;
2. An ability to identify, formulate and solve related problems, and to carry out associated design work;
3. An ability to evaluate solutions against technical, environmental, economic and social criteria;
4. An ability to work effectively as a member and/or leader of a team, and to time manage multiple tasks;
5. Good communication skills, based on technical reports, discussions and debates.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials, workshops, field work and laboratory experiments.

Required Reading: Mechanical Vibrations Rao S.S. (1995) Third Ed. Addison-Wesley Publishing Company Engineering Vibration Inman D.J. (2001) Second Ed. Prentice Hall Class Notes

Assessment: Formative assessment in the form of group reports. Each project report will be assessed as 0 (unsatisfactory) or 1 (satisfactory) and every team member receives the same mark. As these are designed to assist the learning process, unsatisfactory reports may be re-submitted after feedback has been obtained from the facilitator.

Test, Weekly Quiz., 10%. Examination, Final examination, 90%. The final examination will be weighted by the the results of the group reports.

See unit coodinator for further information.

VAM3111 DESIGN OF MECHANICAL SYSTEMS

Locations: Footscray Park.

Prerequisites: VAM2142 - MECHANICAL ENGINEERING DESIGN

Description: This unit of study aims to give students broad skills in designing a range of machine elements and more interated plant used in mechanical engineering systems. It covers the following topics. Design of mechanical elements: Design of Power Screws and fasteners. Design of power transmission shafting, gears, cams and followers, Design and selection of rolling contact and journal bearings, Selection of chain drives, belt drives, clutches and couplings. Design of plant equipment: Machine Design, Design of Conveyors, Fan Duct systems, Piping systems. Pipe Flexibility. Programming for the design of mechanical elements and plant Design. Solids modelling of mechanical elements.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students are expected to be able to: Apply fundamental mechanics and scientific skills to design and selection of mechanical elements. Identify, formulate and solve engineering design problems in a systematic way. Use computing methods to solve mechanical engineering design problems. Work effectively as a member and/or leader of a team and to time manage multiple tasks 5. Use mechanical engineering design skills to solve a plant design problem experienced in industry.

Class Contact: Sixty (60) hours comprising small group work, team meetings, lectures, workshops, seminars and computing work.

Required Reading: Mechanical Engineering Design, Shigley J.E. and Mischke C.R. (2004), Seventh Metric Ed., McGraw Hill Class Notes. Class Notes.

Assessment: Portfolio, Individual Portfolio, 100%. Portfolio documents evidence that the learning outcomes have been achieved. The portfolio may include skills audit results, assignment/project reports including technical calculations, design software development work, a reflective journal, and self and peer assessment Further details on portfolio components will be issued to students during the first week of classes.

VAM3112 ELECTRICAL ENGINEERING

Locations: Footscray Park.

Prerequisites: ENF1202 - ENGINEERING PHYSICS 2

Description: Electrical - Revision of DC/AC circuit theories. Nodal Voltage method for circuit analysis. Superposition principle. Thevenin and Norton Equivalent circuits. Maximum power transfer theorem. AC circuit analysis using complex numbers. The concept of power factor and power factor correction. Three-phase AC systems. Introduction to transformers and AC motors and generators and motor selection. Introduction to the basic operation of DC motors and generators. Digital Electronics, Number systems including binary numbers and arithmetic operations, Boolean expressions and reduction techniques, combinational digital circuit designs including Nand/Nor design, Latches, Flip-Flops, sequential digital circuit design, Counter circuits design, analogue to digital converters and devices for microprocessor interface.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Solve DC and AC circuit analysis problems; Apply the knowledge of transformers and induction motors in industry environment; Select suitable motors for different applications; Design and implement simple digital circuits for real world applications.

Class Contact: Sixty (60) hours per semester comprising lectures/tutorials/ laboratory work.

Required Reading: Principles and applications of Electrical Engineering. Rizzoni, G (2000). McGraw Hill. Digital Systems - Principles and Applications Tocci, R.J. & Widmer, W.D.(1998). 6th edition Prentice-Hall

Assessment: Test, Class tests, 20%. Laboratory Work, Laboratory reports, 15%. Examination, Final, 65%.

VAM3121 THERMODYNAMICS 2

Locations: Footscray Park.

Prerequisites: VAM2112 - THERMODYNAMICS 1

Description: Gas power cycles - the Otto cycle, Diesel cycle, gas-turbine cycle, and jet-propulsion cycle. Vapor and combined power cycles - Rankine cycle, using reheat and regeneration to improve the efficiency of the Rankine cycle. Gas mixture, mass and mole fraction, and properties of gas mixtures. Air-conditioning, specific humidity and relative humidity, dew-point temperature, wet bulb temperature, psychometrics chart, human comfort and air-conditioning. Combustion, type of fuels, theoretical and actual combustion processes, enthalpy of formation and enthalpy of combustion, first-law analysis of combustion systems, adiabatic flame temperature.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Define the various cycles related to petrol engines, diesel engines, gas turbine, and jet engines and determine their performance; Define the various cycles related to steam power cycles and determine their performance in large power stations; Determine the various thermodynamic properties of mixtures; Describe basic concepts of air-conditioning, and determine the energy and mass balance in air-conditioning systems; Describe the basic concepts of combustion; determine the air to fuel ratio and flame temperture.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorial/ laboratory sessions.

Required Reading: Comprehensive class, laboratory and activity notes. On-Line material; Thermodynamics- An Engineering Approach, Cengel, Y. A. and Boles, M. A. 2008 6th Edition McGraw Hill

Assessment: Test, Class test; calculations, sketches max. 1000 words, 10%. Test, Class test; calculations, sketches max. 1000 words, 10%. Laboratory Work, Laboratory on Air Conditioning; calculations, sketches max. 1000 words, 10%. Examination, Final, 70%.

VAM3122 FLUID MECHANICS 2

Locations: Footscray Park.

Prerequisites: VAM3131 - FLUID MECHANICS 1

Description: Brief review of conservation laws in integral form. Conservation equations in differential form (covering continuity and Navier-Stokes equations). Exact solutions. Wall bounded shear flows, boundary layers, pipe and channel flows. Free shear flows, jets and wakes. Introduction to turbulent flows. Measurements in fluid mechanics, error analysis.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss conservation laws to differential form;

2. Think and reason with applied physics.

Class Contact: Sixty (60) hours for one semester comprising interactive lectures and tutorial/laboratory/discussion sessions.

Required Reading: Fluid Mechanics White, F.M. 2008 6th edition McGraw Hill.

Assessment: Portfolio, Portfolio, 100%. Portfolio consisting of 10% weekly assignments, two tests 10% each, two experiments with brief laboratory reports 10% each, and final examination, 50% (3hrs). The assignments and experiments to be chosen by students with guidance. The experiments can be carried out in groups of up to four, provided the reports identify individual contributions to the team. All reports to be submitted via turn-it-in.

VAM3131 FLUID MECHANICS 1

Locations: Footscray Park.

Prerequisites: VAN2041 - THERMOFLUIDS

Description: Brief review of fluid statics. Flow properties. Dimensional analysis, dimensionless numbers and introduction to modelling principles. Conservation laws in integral form (Reynolds transport theorem). Conservation of mass, linear momentum and energy. Bernoulli s equation. Conservation of angular momentum. Basic hydraulic machinery. Measurements in fluid mechanics, error analysis.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe flow basics and conservation laws in integral form;

2. Think and reason with applied physics.

Class Contact: Sixty (60) hours for one semester comprising interactive lectures and tutorial/laboratory/discussion sessions.

Required Reading: Fluid Mechanics, White, F.M. 2008 6th edition, McGraw Hill.

Assessment: Portfolio, Portfolio, 100%. Portfolio consisting of 10% weekly assignments, two tests 10% each, two experiments with brief laboratory reports 10% each, and final examination, 50% (3hrs). The assignments and experiments to be chosen by students with guidance. The experiments can be carried out in groups of up to four, provided the reports identify individual contributions to the team. All reports to be submitted via turn-it-in.

VAM4021 COMPUTATIONAL MECHANICS

Locations: Footscray Park.

Prerequisites: VAM3022 Stress Analysis 2, VAM3072 Mechanical Vibration.

Description: Solid modelling: Bottom-Up and Top-Down approach. Formulation of Finite Element Problem using Total Potential energy and Element stiffness matrix. Structural Stiffness matrix. Solution techniques, error, convergence and stability. Static Stress analysis in elasticity. Mathematical modelling of dynamic systems. Transient and steady state analysis. Root locus analysis and control system design. Frequency response analysis. PID controls. Stability. Analysis and simulation of control design by MATLAB.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 5 hrs of lectures and tutorials per week for 12 weeks, including computer based laboratory using software.

Required Reading: Lecture Notes.

Assessment: Assignment 1: Solid Modelling of a structure by ANSYS (2000-3000 words), 25%; Assignment 2: Stress Analysis by Finite Element by ANSYS (2000-3000 words), 25%; Assignment 3: Dynamics and Control of systems using MATLAB (2000-3000 words), 25%; Laboratory 1: 3-hour experiment in Automation and Control, Report of 2000-3000 words, 25%.

VAM4032 MECHANICAL ENGINEERING DESIGN 2

Locations: Footscray Park.

Prerequisites: VAM3031 Mechanical Engineering Design 1.

Description: This unit aims to broaden students' design skills in several areas of mechanical engineering and to further develop a range of more generic skills including teamwork and communication. Students will generally work in small design teams to carry out projects relating to introductory design for optimisation, graphical optimisation, analytical and numerical search methods, linear programming, design for quality and Taguchi principles,and experimental optimisation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will: have developed an understanding of standard problem formulation for optimisation. have developed a working knowledge of graphical, analytical and numerical optimisation procedures. have learned the fundamental concepts of : quantifying quality in design, designing for quality, and design and assessment experimental optimisation procedures.

Class Contact: This unit will be delivered in PBL mode, and will comprise 60 hours (5 hours equivalent per week) of sessions made up of lectures, design workshop/ seminars and student team design work. In addition, students are expected to devote at least the same amount of time for private and/or group work on the design projects. The unit is worth 12 credit points.

Required Reading: Semercigil, E., VAM4032 Lecture notes.

Assessment: Based 100% on an individual portfolio which documents evidence that the learning outcomes have been achieved. The portfolio will normally include skills audit results and design reports including technical calculations, but may also include a reflective journal, workbook(s), and self and peer assessment Further details on portfolio components will be issued to students during the first week of classes

VAM4041 HEAT TRANSFER AND COMBUSTION

Locations: Footscray Park.

Prerequisites: VAM3041 Thermodynamics and Fluid Mechanics 1.

Description: Conduction: steady state conduction in simple geometries, extended surfaces, one-dimensional and two-dimensional steady state conduction, transient heat conduction, charts for transient heat conduction. Numerical solution of heat transfers. Finite difference representation.Convection: thermal boundary layer, laminar flow, Reynolds analogy, heat transfer in turbulent boundary layers. Forced convection inside tubes and ducts and over exterior surfaces. Heat exchangers. Natural convection - empirical correlations for various shapes.Radiation heat transfer: thermal radiation, blackbody radiation, radiation properties, shape factors, enclosures with black surfaces, enclosures with grey surfaces. Computer simulation of heat transfer using finite element software.Fuel analysis: proximate analysis, ultimate analysis. Basic combustion equations for solid, liquid and gases fuels. Heating values of various fuels. The theoretical and actual air to fuel ratios. Enthalpy of formation. First law analysis of the reacting systems. Adiabatic flame temperature. Entropy change of reacting systems. Second law analysis of reacting systems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: three hrs of lectures and two hrs of tutorials per week.

Required Reading: Kreith F. and Bohn, M.S, 1998, Principles of Heat Transfer, 6th Edition, Harper and Row; Cengel, Y. A. and Boles, M. A. 2002 Thermodynamics An Engineering Approach, 4th edn McGraw Hill; Glassman, I., 1996 Combustion, Academic Press.

Assessment: Assignment 1: based on weeks 1-6 (maximum 1500 words), 10%; Assignment 2: based on weeks 7-12 (maximum 1500 words), 10%; Test 1: based on weeks 1-6, 10%; Test 2: based on weeks 7-12, 10%; Laboratory Program: based on weeks 1-10, 10%; three-hour examination, 50%.

VAM4042 FLUID DYNAMICS

Locations: Footscray Park.

Prerequisites: VAM3041 Thermodynamics and Fluid Mechanics 2.

Description: An introduction to the power of computational fluid dynamics. Continuous equations and their discretised form. Solution of one-dimensional steady-state and transient diffusion problems. The Thomas algorithm. Generalisation to two- and three-dimensions. Difficulties inherent in dealing with advection, and an introduction to up-wind differencing and the power law methods. Advection and dispersion of scalar quantities. An introduction to commercial software that is based on the above fundamental principles.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: two hrs of lectures and three hrs of tutorials per week.

Required Reading: Wesseling, P. (2000) Principles of Computational Fluid Dynamics, Springer-Verlag.

Assessment: Assignment 1: based on weeks 1-3, 15%; Assignment 2: based on weeks 1-6, 15%; Assignment 3: based on weeks 7-8, 20%; Assignment 4: based on weeks 7-12, 20%; Assignment 5: based on weeks 7-12, 30%.The assessment tasks will demonstrate that students are capable of presenting sustained intellectual arguments. Some of the arguments take the form of narratives, whilst some of the arguments will be intensely mathematical, but illustrative of the narratives. It is expected that the written work will be based on rational argument and it will not be based on dubious ways of knowing and epistemologies. It is anticipated that students will be able to celebrate the achievements of scientific method over primitive myths. Each assessment task will be 500-1000 words.

VAM4062 MANUFACTURING AND POLYMER TECHNOLOGIES

Locations: Footscray Park.

Prerequisites: VAM 2062 Materials and Manufacture.

Description: Selection of Materials for engineering design, manufacture and recycling. Recycling processes of materials. Mathematical modelling of metal casting processes. Introduction to polymer rheology and viscoelasticity. Application of rheology in mathematical modelling of polymer injection moulding, calendering and extrusion processes. Manufacturing techniques of composite materials. Energy analysis of materials/manufacturing cycle.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hrs of lectures (common tutorials, site visits) and one hr of tutorials and laboratory classes per week.

Required Reading: Rojter, J. (2005), Fundamentals of Materials Technology, Victoria University. Class Notes; Rojter, J. (2005), Class Notes; Rojter, J. (2005), Manufacturing Materials: Part 1, Victoria University. Class Notes; Callister, W.D. Jr (2004), Materials Science and Engineering- An Introduction, John Wiley and Sons Inc; Higgins, R.A. (2005), Engineering Metallurgy, Edward Arnold; Kalpakjian, S. (2002), Manufacturing Engineering and Technology, Addison- Wesley.

Assessment: Test 1 in week 5, 10%; Test 2 in week 11, 10%; Laboratory Reports and Assignments. Students are required to achieve a minimum of 40% in these assessment tasks to successfully complete the subject.Assignments and laboratory reports have a limit of 2500 words (excluding diagrams, graphs, appendices and bibliography), 25%; three-hour examination, 55%.

VAM4072 ADVANCED MECHANICS

Locations: Footscray Park.

Prerequisites: VAM4021 Computational Mechanics.

Description: Introduction. Review of MDOF system. Continuous system. Frequency response function of a MDOF system. Vibration testing: calibration, vibration tests by shaker, by impact hammer. Modal analysis by software ICATS. Modal analysis of a continuous system by Finite Element Modellling.Fundamental concepts of fracture mechanics: stress intensity factor, energy balance approach. Linear Elastic Fracture Mechanics and brittle materials. Elastic-plastic fracture mechanics and ductile materials. Application in fatigue fracture analysis. Crack modelling by finite element.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 5 hours of lectures and tutorials per week for 12 weeks, including experiments and computer-based laboratory.

Required Reading: Lecture notes.

Assessment: Laboratory 1: three-hour Vibration testing (report of 2000-3000 words), 20%; Laboratory 2: three-hour Modal analysis by ICATS (report of 2000-3000 words), 20%; Assignment 1: Modal analysis by Finite Element (2000-3000 words), 20%; Assignment 2: Crack modelling by Finite Element Modelling (2000-3000 words), 20%; Assignment 3: J integral by finite element modelling (2000-3000 words), 20%.

VAM4082 AUTOMOTIVE ENGINES, ENERGY AND ENVIRONMENT

Locations: Footscray Park.

Prerequisites: VAM3041 Thermodynamics.

Description: Engine types and their operation. Engine design and operational parameters. Engine dynamics. Engine testing and control. Engine performance characteristics. Thermochemistry of fuel air mixtures. Ideal models of engine cycles. Air, fuel and exhaust flow. Gas exchange processes. Heat and mass transfer within the engine. Combustion is spark ignition and compression ignition engines. Pollutant formation and control. Engine friction and lubrication. Fuels and lubricants. Modelling engine flow and combustion processes.Available energy resources. Environmental impact of using fossil fuels. Alternative energy resources. Wind power. Basic acoustics. Human perceptions and noise criteria. Control of noise.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours in one semester comprising lectures, tutorials and practical laboratory sessions.

Required Reading: Comprehensive class, laboratory, activity notes and On-Line materials; Ferguson, C. and Kirkpatrick A. (2001) Internal Combustion Engines - Applied Thermoscience, 2nd edition, Wiley (ISBN 0-471-35617-4); Heywood J.B. (1988) Internal Combustion Engine Fundamentals, McGraw Hill (ISBN 0-07-100499-8).

Assessment: Test 1: based on weeks 1- 6 (calculation, sketch and maximum 1500 words), 15%; Test 2: based on weeks 6-12 (calculation, sketch and maximum 1500 words), 15%; Written laboratory reports, assignment and presentation (calculation, sketch and maximum 2000 words), 20%; Final Exam: three hours, 50%.

VAM4092 TRANSPORTATION AND PACKAGING DYNAMICS

Locations: Footscray Park.

Prerequisites: VAM3972 Mechanical Vibrations

Description: Shock and vibration in transportation environment. Road vehicle interaction. Fragility, critical element. Effect of shocks and vibration on critical element. Characterisation of product/package systems relevant to package protection functions. Measurement of hazards in distribution environment. Analysis of data from distribution environment. Analysis of shocks and vibration. Response to shock loading. Shock spectra. Damage boundary curve. Experimental assessment of fragility with shock machines. Experimental assessment of vibration transmissibility. Remote monitoring of shock and vibration data. Five step method for design of protective packaging. Characterisation of packaging materials relevant to their protective functions. Principles of design of a product package system. Performance testing of shipping containers and units. International standards for performance testing of shipping containers and units (ASTM, ISTA, ISO). Testing protocols. Equipment for implementation of performance testing

Credit Points: 12

Learning Outcomes: Upon satisfactory completion of the subjects students should have a good understanding of key principles underpinning the design of protective packaging for transportation, be familiar with experimental techniques relevant to performance testing of packaging and be equipped with specialist knowledge relevant to seeking employment in this field.

Class Contact: 60 hours in one semester comprising lectures, tutorials and practical laboratory sessions.

Required Reading: Brandenburg R.K. and Lee J.J-L. (2001) Fundamentals of Packaging Dynamics, L.A.B. Equipment Hanlon J.F., Kelsey R.J. and Forcino H.E. (1998) Handbook of Package Engineering, 3rd edition, Technomic Publishing (ISBN 1-56676-306-1)ASTM Standards

Assessment: Test 1 - 90 minutes based on weeks 1- 5A written laboratory report on package performance testing - calculations, figures and diagrams, discussion (max 1000 words) 15%Essay on an aspect of modern packaging/transportation technology (max 1500 words) and its oral presentation (10 minutes)20%Exam - 3 hours 50%

VAM4111 ADVANCED MECHANICS 1

Locations: Footscray Park.

Prerequisites: COMPLETION OF AT LEAST HALF OF ALL 3RD YEAR SUBJECTS AND ANY UNIT OF STUDY RELEVANT TO THE SELECTED TOPIC (TO BE DETRMINED BY TOPIC SUPERVISOR).

Description: Students will select one project from a list of advanced topics aligned with the engineering and research expertise of academic staff and learn in the PBL mode under advice of their academic mentors. The topics offered in this UoS will be of interest to local and/or international research community in fields such as: Automotive engines. Computational fluid dynamics. Energy, environment and sustainability. Design of distribution packaging. Design optimisation. Environmental shocks and random vibrations. Finite element analysis. Heat transfer. Manufacturing and polymer technologies. Modal analysis. Modelling and computer simulation. Signal analysis.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an established knowledge in a specialist aspect of a mechanical engineering discipline under the academic mentorship;
2. Work effectively as a member and/or leader of a team, and to time manage multiple tasks.
3. Produce technical reports and participate effectively in discussions and debates.

Class Contact: Sixty (60) hours for one semester comprising consultations, team workshops, seminars, oral presentations, and team project activities.

Required Reading: Journal and conference papers related to the literature review of projects.

Assessment: Report, Written report in Scientific Conference Paper format, 100%.

VAM4112 ADVANCED MECHANICS 2

Locations: Footscray Park.

Prerequisites: COMPLETION OF ALL 3RD YEAR SUBJECTS

Description: Students will select one project from a list of advanced topics aligned with the engineering and research expertise of academic staff and learn in the PBL mode under advice of their academic mentors. The topics offered in this UoS will be of interest to local and/or international research community in fields such as: Automotive engines. Computational fluid dynamics. Energy, environment and sustainability. Design of distribution packaging. Design optimisation. Environmental shocks and random vibrations. Finite element analysis. Heat transfer. Manufacturing and polymer technologies. Modal analysis. Modelling and computer simulation. Signal analysis. Topic selection must differ from the selection made for Advanced Mechanics 1.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate an established knowledge of a specialist aspect of a mechanical engineering discipline under the academic mentorship; Work effectively as a member and/or leader of a team, and to time manage multiple tasks; Produce technical reports and participate effectively in discussions and debates.

Class Contact: Sixty (60) hours for one semester comprising consultations, team workshops, seminars, oral presentations, and team project activities.

Required Reading: Journal and conference papers related to the literature review of projects.

Assessment: Report, Written report in the format of a scientific conference paper, 100%.

VAM4121 FINITE ELEMENT ANALYSIS

Locations: Footscray Park.

Prerequisites: VAM2122 - STRESS ANALYSIS

VAM3072 - MECHANICAL VIBRATIONS

Description: Introduction in finite element method. Example of plane truss structure. Structural stiffness matrix. Finite element modelling: node-element generation, solid modelling, top-down and bottom up approach. Static stress and structural analysis. Solution method, convergence and stability. Dynamic analysis: linear modal analysis, non-linear transient analysis, harmonic analysis, random vibration analysis. Parametric Design Language. Optimisation

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe the fundamentals of Finite Element Method
2. Model and solve static, dynamic and non-linear problems of Mechanical Engineering by Finite element.
3. Apply Finite Element Method to advanced problems of design and optimisation and problems in other areas of Mechanical Engineering.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials, computer and software based laboratory.

Required Reading: Lecture Notes by Dr Danh Tran

Assessment: Assignment, Assignment 1, 10%. Assignment, Assignment 2, 15%. Assignment, Assignements 3, 4 and 5, 75%.

VAM4122 ENGINEERING DESIGN AND OPTIMISATION

Locations: Footscray Park.

Prerequisites: VAM3111 - DESIGN OF MECHANICAL SYSTEMS

Description: This unit aims to broaden students design skills in several areas of mechanical engineering and to further develop a range of more generic skills including teamwork and communication. Students will generally work in small design teams to carry out projects relating to introductory design for optimisation, graphical optimisation, analytical and numerical search methods, linear programming, design for quality and Taguchi principles,and experimental optimisation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply standard problem formulation for optimisation; Apply graphical, analytical and numerical optimisation procedures;

3. Identify the concepts of : quantifying quality in design, designing for quality, and design and assessment experimental optimisation procedures.

Class Contact: Sixty (60) hours for one semester comprising sessions made up of lectures, design workshop/seminars and student team design work.

Required Reading: Semercigil, E., VAM4032 Lecture notes.

Assessment: Portfolio, Portfolio, 100%. The portfolio documents evidence that the learning outcomes have been achieved. The portfolio will normally include skills audit results and design reports including technical calculations, but may also include a reflective journal, workbook(s), and self and peer assessment Further details on portfolio components will be issued to students during the first week of classes.

VAM4132 ADVANCED ENGINEERING ANALYSIS

Locations: Footscray Park.

Prerequisites: VAM2131 - ENGINEERING ANALYSIS

VAM3072 - MECHANICAL VIBRATIONS

Description: This Unit of Study introduces students to advanced methods of signal and system analysis and systematic analysis of behaviour of engineering systems, including their automatic control. It continues to expose students to generic analytical skills and methods relevant to contemporary engineering practice and illustrates practical applications in the analysis of various generic engineering systems. It covers the following topics: Instrumentation and sensors for mechanical processes. Data acquisition for signal and system analysis. Classification of signals. Digital signal processing. Signal noise minimisation techniques. Digital filters. Random signals. Signal statistical estimates. Advanced signal and dual channel system analysis in the frequency domain. Scaling of FFT spectra. Power Spectral Density. Measurement of Frequency Response Function (FRF). Bode and Nyquist plots. Spectral averaging. Auto- and cross spectra. The time domain equivalents: impulse response function, auto- and cross correlation, synchronous averaging. Coherence and signal-to-noise ratio. Simulation of dynamic response of systems using the FRF and transfer functions. Adaptive filters. Control system theory. Application of FRF in feedback control. PID control. Control system design. Stability. Root locus. Applications of advanced analysis in various branches of mechanical and civil engineering, such as: the measurement of structural modes and structural damping, the validation of results of Finite Element Method, the Noise-Vibration-Harshness analysis, analysis of noise contaminated signals, acoustic signals and sensor response, automatic feedback controllers.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Identify and perform digital signal processes relevant to mechanical and structural engineering;
- Identify and participate in measurement of Frequency Response Function, other aspects of dual channel analysis techniques of systems and their applications;
- Describe fundamentals of control theory;
- Work effectively as a member and/or leader of a team, and to time manage multiple tasks;
- Produce technical reports and participate effectively in discussions and debates.

Class Contact: Sixty (60) hours for one semester comprising lectures, team project activities, field and laboratory experimentations and computer laboratories.

Required Reading: Frequency Analysis. Randall R.B. (1987), Bruel & Kjaer, Demnark. Modern Control Systems, Dorf R.C. and Bishop R.H, (2004) 10th ed., Prentice Hall

Assessment: Formative assessment in the form of group reports. These will be assessed as satisfactory (0) or unsatisfactory (1).Other, Progress quizzes and diary, 10%. Examination, Final. Weighted by the average score for group reports., 90%.

VAN1011 EXPERIMENTATION AND COMPUTING

Locations: Footscray Park.

Description: Experimentation and measurement: The use of instrumentation, laboratory and technical procedures, work-place safety requirements, report writing and oral presentation.Data analysis and presentation: Algorithm development, Introduction to Data types, Data file reading and writing, Graphing and analysis of experimental data, curve fitting. Statistical and error analysis of experimental data, Solutions of equations.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject students will: be able to demonstrate engineering project and time management skills. have developed independent, self reflective learning and evaluation skills; be able to research and analyse engineering problems and identify a range of appropriate solutions; be able to demonstrate an ability to work effectively as a member of a team and to manage multiple tasks. have acquired skills and knowledge related to small and large scale measurements with use of instrumentation and laboratory equipment. have become familiar with laboratory procedures and work-place safety requirements, experimental techniques and methods of presentation. have demonstrated appropriate professional written and oral communication skills. have acquired skills in the analysis, simulation and presentation of engineering data measured in the laboratory, using computing techniques. be able to use the knowledge gained from this subject to conduct effective project-based, laboratory and measurement activities and report presentations for subjects at higher years of the course.

Class Contact: 5 hrs equivalent per week of sessions made up of small group project work, team meetings, workshops, seminars and presentations. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: Comprehensive project, laboratory and activity notes. On-line material.Kirkup, Les., 2001 'Experimental Methods - An Introduction to the Analysis and Presentation of Data', Wiley.Palm, William, J., 2001, 'Introduction to Matlab 6 for Engineers', McGraw-Hill.

Assessment: An individual portfolio which providesevidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, project reports, reflective journals, workbooks,self and peer assessment.

VAN1022 SOLID MECHANICS 1

Locations: Footscray Park.

Description: Concept of force. Equilibrium of coplanar forces. Resultant forces, components of forces. Levers and moments. 2D statical equilibium. Free body force diagrams. Pin jointed trusses. Beams, loads and reactions. Internal forces in beams. Bending moment and shearing force diagrams for beams. 3D statical equilibrium. Direct stress and strain. Elastic modulus. Simple bending stress and strain. Shear stress and strain. Shear modulus, Poisson s ratio.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject, students will: have developed an understanding of forces and moments. be able to use Free Body Diagrams and equilibrium equations to determine forces and reactions of simple structural systems such as two-dimensional trusses and beams. have developed an understanding of sectional properties, of stress and strain, and of bending and shear stresses in beams. be able to think independently and develop and exercise imagination and insight to solve statically a given structure. have demonstrated an ability to work effectively as a member of a team, to write technical reports and to manage time effectively. be able to use the knowledge obtained from this subject to undertake later engineering subjects.

Class Contact: 5 hrs equivalent per week made up of a mix of small group work, lectures, and workshops. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: ·Hibbler, R.C (2004), Statics and Mechanics of Materials, Fifth Edition - SI Units, Pearson International·University, "WebCT" Website for the subject.

Assessment: An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio will include two major parts: a skills audit and an assignment set which includes structural model making, drawings and project reports.

VAN1032 INTRODUCTION TO DESIGN

Locations: Footscray Park.

Description: the design process and the history of Engineering design creative thinking in design, generating and evaluating design alternatives technical, environmental, human, economic, legal criteria for evaluation of design alternatives making the final decision in design professional Engineering drawing practice, projections and views, dimensioning, layout, assembly, detailed drawings and sketching computer generated drawings utilizing the commercial industry standard software AutoCAD.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject, students will: be able to identify apparent and real design problems and identify alternatives for a given design problem be able to evaluate various alternatives against various design criteria, such as environmental, economical, technical, human and legal be able to think independently and develop and exercise imagination and insight to solve a given engineering project have demonstrated an ability to work effectively as a member of a team, to write technical reports and to time manage multiple tasks have a sound understanding of graphic procedures appropriate to Engineering design and achieved a basic level of engineering graphic skills have demonstrated an appropriate level of professional written and oral communication skills be able to prepare and use computer generated drawings as a means of communicating Engineering design to others. be able to use the knowledge gained from this subject to conduct effective project-based, laboratory and measurement activities and report presentations for subjects at higher years of the course.

Class Contact: 5 hrs equivalent per week made up of small group work, team meetings, workshops, seminars and presentations. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: Fogler, H.S. and LeBlanc, S.E., 1995, Strategies for Creative Problem Solving, Prentice Hall PTR.

Assessment: An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio will include skills audits, design project reports, design drawings and models, reflective journals, design notebooks, self and peer assessment, oral presentations.

VAN1051 ENGINEERING PROFESSION

Locations: Footscray Park.

Description: This subject gives students an understanding of how society has developed as a result of science and engineering, exploring the need for and the responsibilities of the professional engineer. Professional written and oral communication skills, time management and teamwork skills, self reflection and evaluation skills will be developed in the context of engineering issues. Topics considered include the role of an engineer, ethics, approaches to problem solving and design, the environment and sustainable development. Content is divided equally between consideration of these engineering issues and the development of written and oral communication skills.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject, students will: be able to make effective oral presentations; be able to produce written text in a variety of genres be able to articulate at a fundamental level the language of engineering; have developed independent, self reflective learning and evaluation skills; have developed an understanding of the importance of science and engineering in a civilised society; have demonstrated a knowledge of appropriate ethical behaviour in professional engineers; be able to research and analyse engineering problems and identify a range of appropriate solutions; be able to demonstrate an understanding of environmental issues and sustainable development; be able to demonstrate an ability to work effectively as a member of a team and to manage multiple tasks; be able to demonstrate time management skills to complete a project in a specified time.

Class Contact: 5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars and site visits. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: Engineering in Society 2006, Class Notes.VU, Faculty of Arts 2006, Handbook of Communication Skills for first year students in the Faculty of Science, Engineering and Technology, 7th edn.

Assessment: An individual portfolio which providesevidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, project reports, reflective journals, workbooks,self and peer assessment.

VAN2021 SOLID MECHANICS 2

Locations: Footscray Park.

Prerequisites: VAN1022 - SOLID MECHANICS 1

VAN1022 Solid Mechanics 1

Description: Properties of sections, including area, centroids, first and second 'moments' of area. Polar moment of area. Principal axes of sections. Parallel axis theorem. Deflection of simple determinate beams. Deflections by Macaulay's method and superposition. Failure modes and loads for compression members, includes squashing/elastic buckling and combined effect of direct and bending stresses. Stresses and strains in two dimensions, Mohr's circle, principal stress. Elastic bending stresses and shear stress distribution in beams. Unsymmetrical bending. Shear centre. Principal axes. Torsion in solid and thin-wall tubes. Open and closed sections. Simple frames under bending.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Calculate centroids, centre of gravity, moment of inertia for simple and composite elements; Calculate the deflection of beams; Calculate shear stresses in beams and sketch shear flow distribution; Define failure modes of compression members; Explain the concepts of principal stress and Mohr s circle; Describe twist and torsion in structures and determine shear stress and angle of twist in simple structures.

Class Contact: Sixty (60) hours or equivalent for one semester comprising of a mix of small group work, lectures, and workshops.

Required Reading: Statics and Mechanics of materials Hibbeler, R.C (2004) SI Units Pearson International Mechanics of materials Hibbeler, R.C (2008). Seventh (SI) edition Pearson international

Assessment: An individual portfolio which provides documented evidence demonstrating that the learning outcomes for the subject have been achieved. The portfolio will include two major parts: a skills audit and an assignment set which includes structural model making, drawings and project reports.Report, Based on PBL activites, 40%. Examination, Written - Closed book, 40%. Presentation, Oral, 10%. Test, Open book, 10%.

VAN2032 ENGINEERING DESIGN

Locations: Footscray Park.

Prerequisites: VAN 1022 Solid Mechanics 1

Description: The structural design covers: Static dead and live loads, The fundamental rationale in choosing design loads and the calculation of specific loads.Design of simple structural steel beams and columns. Design of bolted and welded connections in simple shear or tension.The mechanical design covers: Design uncertainties and reliability, Theories of Static Failure, Low and High cycle fatigue failure, Linear and torsional impact failure.Many of the topics will be related to case studies such as building components and mechanical elements.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject students will be able to demonstrate: An understanding of the concepts for static and dynamic and structural actions. The ability to apply concepts in the appropriate determination of design loads to an introductory level. The ability to apply concepts in the design of simple structural and mechanical elements. The ability to critically evaluate the sensibility of design outcomes. The ability to present design outcomes in a professional manner. The ability within the context of the subject areas, to formulate and solve specific design problems. The ability to work both autonomously and as a member of a team, and effectively communicate design investigations by a variety of means.

Class Contact: 5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars and presentations. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: Nil.

Assessment: An individual portfolio, which provides evidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, project reports including technical calculations, reflective journals, workbooks, self and peer assessment.

VAN2041 THERMOFLUIDS

Locations: Footscray Park.

Prerequisites: ENF1201 - ENGINEERING MATHEMATICS 2

ENF1202 - ENGINEERING PHYSICS 2

Description: Basic concepts of thermodynamics and fluid mechanics. Thermodynamic properties of gases, liquids and solids. The ideal gas law. Energy transfer by heat, work and mass. The first law of thermodynamics for closed and open systems. Fluid statics-forces on submerged planes, Archimedes' principle, and stability of floating bodies. Fluid dynamics - basic concepts of fluid flow. Continuity, momentum and energy equations in control volume forms. Application of these equations to pipe flows.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Understand basic concepts of Thermodynamics and Fluid Mechanics;
2. Determine phase changes of pure substances;
3. Use First Law of Thermodynamics to solve engineering related problems;
4. Calculate hydrostatic force on submerged bodies;
5. Use continuity, momentum and energy equation to solve engineering related problems.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratory experiments.

Required Reading: Thermodynamics- An Engineering Approach Cengel, Y. A. and Boles, M. A. 2008 6th Edition McGraw Hill Understanding Hydraulics Hamill, I. 2001 2nd Edition Palgrave Presses Fluid Mechanics White, F., 2002 5th edition McGraw Hill Comprehensive class, laboratory and activity notes. On-Line material

Assessment: Test, Based on weeks 1-6, 10%. Test, Based on weeks 6-12, 10%. Laboratory Work, Assessment on stability of floating body, 10%. Laboratory Work, Assessment on Tube and Shell heat exchanger, 10%. Examination, End-of-semester examination, 60%.

VAN2061 ENGINEERING MATERIALS

Locations: Footscray Park.

Prerequisites: VAN1022 Solid Mechanics 1 and REP1001 Engineering Physics 1A.

Description: Atomic structure and bonding. Prediction of properties of materials. Chemical stoichiometry and application of mass balances in chemical processes in environment and manufacturing. Extent and speed of reactions incorporating rate laws and Arrhenius theory and their applications to materials science, automotive engineering, civil engineering and biochemical reactions. Reactions involving thermal and electrical energy production and their application to fuel technology and fuel cells. Corrosion and corrosion protection of metals. Processes of polymer, aluminium, steel and copper production.Introduction to microstructure and crystallography of materials and their effect on material properties. Formation of metal grains and casting processes. Dislocation theory and strengthening processes in metals. Introduction to metal alloys and phase equilibria and phase equilibrium diagrams. Phase diagrams and microstructures of plain carbon steels and cast irons. Construction of TTT curves and their application to heat treatments of plain carbon steels and cast irons.

Credit Points: 12

Learning Outcomes: Upon successful completion of this subject, students will be able to demonstrate: An understanding of processes and key issues related to engineering science in manufacturing and environment. An ability to solve a range of numerical engineering problems found in engineering practice and engineering design. An ability, within the context of the subject areas above, to find and use relevant information, to formulate and solve specific problems, to work both autonomously and as a member of a team, to effectively communicate ideas, issues, investigations and results by a variety of methods, and to work in culturally diverse settings.

Class Contact: 5 hrs equivalent per week of sessions made up of small group work, team meetings, workshops, seminars, laboratory sessions and site visits. In addition, students are expected to devote at least this much time for private and/or group study.

Required Reading: Rojter, J. (2005), Fundamental Applications of Science to Materials Technology, Victoria University.Class Notes.Rojter, J. (2005), Structure and Mechanical Properties of Solids1, Victoria University. Class Notes.Zumdahl, S.S., and Zumdahl, A.S (2003), Chemistry, 6th Ed, Houghton Mifflin Company.Callister, W.D. Jr (2004), Materials Science and Engineering- An Introduction, John Wiley and Sons Inc.

Assessment: An individual portfolio which providesevidence that demonstrates that the learning outcomes have been achieved. The portfolio may include skills audits, laboratory reports, site visit/project reports, reflective journals, workbooks, self and peer assessment.

VAN3052 ENGINEERING MANAGEMENT

Locations: Footscray Park.

Description: Role and responsibilities of engineering managers in the industry. Principles of engineering management. General management principles and engineers as managers. Introduction to network planning, critical path analysis, resource allocation and the management of a development project. Feasibility studies and project evaluation. Economic analysis of engineering projects. Financial modelling of engineering systems. Strategies for plant selection. Planning and scheduling techniques for engineering projects. Tools for project control. Planning techniques for repetitive construction or production. Optimising resources and trend monitoring. Management of the development process using a computer package.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Prepare a plan, prepare network logic diagrams, determine critical paths and optimise project resources;
2. Apply the time value of money concepts for the economic evaluation of engineering systems or projects;
3. Apply general management principles for the successful delivery and management of engineering projects; 4. Use commercially available software, such as Microsoft Project and Microsoft Excel, as time management and economic analysis tools.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and computer laboratories.

Required Reading: Engineering Economy Leland Blank & Anthony Tarquin, 2007 Antill's Engineering Management Antill J.M., 1999 3rd ed. Wiley Project Management: Planning and Control Techniques Rory Burke, 2005

Assessment: Test, Class tests and assignments, 40%. Examination, End-of-semester examination, 60%.

VAN4011 ENGINEERING PROJECT 1

Locations: Footscray Park.

Prerequisites: VAN3052 - ENGINEERING MANAGEMENT

Description: This unit constitutes a major capstone task for the engineering courses listed above, and provides students with the opportunity to integrate and further develop a range of technical and generic skills acquired in earlier course years. It will typically expose students to industry practice or the research approach and will involve: preliminary investigation followed up by explicit formulation of an engineering-related problem, review of relevant literature and/or discussion with a range of stakeholders, critical analysis of the problem, development/testing of a range of possible alternative solutions, and evaluation of these against social, environmental and economic criteria prior to selection of a 'best' solution. Students are also required to undertake a number of activities aimed at improving their communication and project management skills. This project will normally be continued in VAN4012, semester 2.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply engineering knowledge, problem solving and project management skills learnt from the course;
2. Demonstrate resourcefulness, creative approach and ability to generate ideas utilising information pertaining to a broad range of topics relevant to the project;
3. Formulate, plan, design and/or construct and test solutions for an engineering problem specific to their chosen discipline;
4. Demonstrate skills in working with technical support staff, fellow students, and industry and/or community representatives and reflect on own and others environmental, social and cultural practices;
5. Critically evaluate and respond to own and others performance using established parameters.

Class Contact: Sixty (60) hours per week comprising supervised and unsupervised sessions made up of individual or small group work, team meetings, seminars, practical work and site visits.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Portfolio, Project Participation, 85%. Presentation, Oral, 15%. The portfolio will typically be based on individual project participation (which may be demonstrated by a project reflective journal Plus peer group and staff observations)

VAN4012 ENGINEERING PROJECT 2

Locations: Footscray Park.

Prerequisites: VAN4011 - ENGINEERING PROJECT 1

Description: This unit constitutes a major capstone task for the engineering courses listed above, and provides students with the opportunity to integrate and further develop a range of technical and generic skills acquired in earlier course years. It will typically expose students to industry practice or the research approach and will involve: preliminary investigation followed up by explicit formulation of an engineering-related problem, review of relevant literature and/or discussion with a range of stakeholders, critical analysis of the problem, development/testing of a range of possible alternative solutions, and evaluation of these against social, environmental and economic criteria prior to selection of a 'best' solution. Students are also required to undertake a number of activities aimed at improving their communication and project management skills. (The project work undertaken here will normally be a continuation of that carried out in VAN4011.)

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply engineering knowledge, problem solving and project management skills learnt from the course;
2. Demonstrate resourcefulness, creative approach and ability to generate ideas utilising information pertaining to a broad range of topics relevant to the project;
3. Formulate, plan, design and/or construct and test solutions for an engineering problem specific to their chosen discipline;
4. Apply skills in working with technical support staff, fellow students, and industry and/or community representatives and reflect on own and others environmental, social and cultural practices;
5. Critically evaluate and respond to own and others performance using established parameters.

Class Contact: Sixty (60) hours for one semester comprising of supervised and unsupervised sessions made up of individual or small group work, team meetings, seminars, practical work and site visits.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Portfolio, Project Participation, 75%. Presentation, Oral and Project, 25%. The portfolio will typically be based on individual project participation (which may be demonstrated by a project reflective journal Plus peer group and staff observations).

VAN4051 ENGINEERING PROJECT MANAGEMENT

Locations: Footscray Park.

Prerequisites: VAN3052 - ENGINEERING MANAGEMENT

Description: The role of engineering project management in the industry. Roles of Project Managers. Principles of project management. Nine areas of Project Management Body of Knowledge and five processes (PMBoK). Tendering process, strategies and practices. Forms of engineering, construction and project management contracts. Contract administration phases. Cost management systems for the progressive cost control of a project. Plan site administration of medium sized projects. Financial feasibility for long-term development projects; break-even analysis; engineering project evaluation; preparation of project cash flow; current engineering industry practices. Understand various forms of project delivery methods. Developing quality management system. Developing quality assurance process; measuring process performance; feedback and corrective action; responding to external changes; alternative approaches to total quality management. Identifying required resources - in terms of human, equipment and materials; understanding needs versus wants; selecting and apportioning in a resource limited situation. Managing through people; motivation; use of power; management styles; effective project communication; non-adversarial approach to people management; role of unions and employer organisations in an engineering industry; legal aspects relating to contracts, responsibility and liability of a manager running a small engineering company. This unit includes a mandatory series of lectures on professional conduct and ethics.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply the nine areas of project management body of knowledge and five processes in engineering projects;
2. Demonstrate project cash flows and budgets with respect to project control at various stages of the projects;
3. Undertake preliminary financial feasibility studies of engineering facilities;
4. Participate effectively as a member of a multi-discipline project control group;
5. Demonstrate and implement quality management system in an engineering industry or an engineering project;
6. Describe the role of unions and employer organisations in an engineering industry;
7. Identify resource conflicts and resolve them;
8. Describe the processes involved in running a successful engineering business.
9. Demonstrate proper and ethical professional conduct.

Class Contact: Sixty (60) hours for one semester comprising of lectures, workshops and computer laboratories.

Required Reading: Project management: a systems approach to planning, scheduling, and controlling Kerzner H., 2001 10th Ed. John Wiley Project Management - A Managerial Approach Meredity and Mantel 6th Ed. John Wiley

Assessment: Portfolio, Portfolio, 100%. The portfolio may include calculations, site visit reports, a reflective journal, workbook(s), self and peer assessment, skills audit tests, tests/exams, assignment/project reports.

Further details on portfolio components will be issued to students during the first week of classes.

VAR2001 MECHATRONICS 1

Locations: Footscray Park.

Prerequisites: VAR1001 Robotics 1.

Description: Co-ordinate and measurement systems, actuator and control systems, application of kinematics and dynamic concepts, trajectory planning and control, electronic and mechanical devices, sensors and instrumentation, application of power motors, actuators and transmission devices.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hrs of lectures and two hrs of tutorials per week.

Required Reading: John J. Craig, Introduction to Robotics: Mechanics and Control: International Edition, Prentice Hall, 2004.

Assessment: Laboratory report #1, 5%; Laboratory report #2, 5%; Laboratory report #3, 5%; Assignment (maximum 1500 words), 10%; Mid-semester test, 10%; Tutorial presentation, 5%; three-hour examination, 60%.

VCC8001 RESEARCH THESIS FULL TIME

Locations: Footscray Park.

Description: The unit will enable students to: identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student's ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the Department of Civil and Building Engineering and by a joint supervisor external to the Department. The external supervisor will be an academic from another Department of Victoria University or from another institution or an industry practitioner.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: Twelve hours per week for one semester.

Required Reading: To be advised by lecturer.

Assessment: To be advised.

VCC8002 RESEARCH THESIS FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VCC8011 RESEARCH THESIS (PART-TIME)

Locations: Footscray Park.

Description: The unit will enable students to: identify a research problem and critically review the relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the research undertaken, both clearly and accurately in a written thesis. The research topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student's ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall also demonstrate both the ability to develop and/or apply models to study the problem and good data selection, collection and analysis skills. Students will normally be supervised by an academic member of the School of the Built Environment and by a joint supervisor external to the Department. The external supervisor will be an academic from another Department/School at Victoria University or from another institution or an industry practitioner.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Six hours per week for two semesters.

Required Reading: To be advised by lecturer.

Assessment: To be advised.

VCC8012 RESEARCH THESIS (PART TIME)

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VCP5705 PROJECT MANAGEMENT AND INFORMATION TECHNOLOGY

Locations: Footscray Park.

Description: This unit will develop students' skills in the use of a number of software packages in the areas of General Project Management Information Systems and Specialised Project Management Information Systems. Students will gain appreciation of where computer packages can aid the project management process for feasibility and sensitivity analysis, planning and monitoring and information processing and decision support functions. The subject content includes the decision to computerise, hardware and software procurement considerations, current computer usage in this industry; overview of computer hardware and software, current computer trends; overview of Project Management Information Systems (spreadsheet/financial modelling, planning and resource control, Data Base Management Systems (DBMS), and Risk analysis); detailed investigation of at least two software packages from item above; managing change and introduction of computers, the machine/human interface, training and installation problems and opportunities simulation modelling as an alternative to traditional, activity based management systems; trends in CAD/CAM and its impact on Project Management; quality control and Project Management Information Systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Identify hardware and software relevant to the project environment;
2. Integrate the nine areas of project management body of knowledge and five processes in development projects;
3. Select appropriate project management software to develop project cash flows and budgets with respect to project control at various stages of the projects;
4. Develop a baseline plan and monitor progress by the use of a software for the delivery of a project;
5. Evaluate and assess various risks on development projects;
6. Deal with resource conflicts and be able to resolve them by the use of software;
7. Participate effectively as a member of a multi-discipline project planning control group.

Class Contact: Thirty six (36) hours for one semester comprising of lectures/seminars and computer laboratory sessions.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Assignment, Individual assignment, 15%. Assignment, Group assignment presentation, 5%. Report, Semester report, 40%. Examination, End-of-semester examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VCP5716 PROJECT DEVELOPMENT

Locations: Footscray Park.

Description: The unit will develop skills and techniques to asses and manage building property and to appreciate the role and objectives of developers and property managers. Subject content examines Management of property in the economy: An overview: typology of property relationship between project management and Property Management. Feasibility and economic issues in development of property: Elements of a property development feasibility study. Parameters of property investment. Decisions including market analysis and financial evaluation techniques. Property investment criteria and considerations. Management of the development process (a client perspective): client briefing; formation of project team; design management, construction and financial management, project marketing. Financial feasibility - Case study and methods of evaluation. Law and property management - Strata titles; standard mortgage clauses; standard lease agreements. Land valuation and techniques for valuing property. Market survey and predictions - impact of macro-economic conditions on decisions to develop; marketing of space. Sources of finance, taxation, cash flow and forms of ownership. Management of leasehold, rental and home unit properties. Shopping centre development and management. Computer applications on financial feasibility analysis. Insurance, obsolescence, maintenance and replacement considerations.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester.

Required Reading: To be advised by lecturer.

Assessment: Assignments, 15%; group project, 45%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VCP5726 PROJECT PROCUREMENT MANAGEMENT

Locations: Footscray Park.

Description: The unit will develop an understanding of procurement systems and modern building technology with respect to procurement options available to project sponsors including build-ability and use-ability issues: The subject content provides an overview of procurement systems and modern technology and the problems that have arisen from it, the lessons to be learned from them and how to try and avoid similar pitfalls in the future. Forms of traditional and non-traditional procurement options such as D&B, GMP, BOO/BOT. Modern building materials and the problems that are being encountered in their use, including concrete, cement sheet, brickwork, etc. Building materials and their modern usage, including aluminium, steel and plastics; looking at usage and cost considerations. Modern formwork systems. Fire protection approach to building. On-site considerations. Materials handling - cranes, hoists, concrete control, concrete pumping and mix design criteria, safety factors and cost implications. Modern construction techniques.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester.

Required Reading: To be advised by lecturer.

Assessment: Assignments, 15%; group project, 45%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VCP5736 FACILITY LIFE CYCLE COSTING

Locations: Footscray Park.

Description: A description of and the need for consideration of lifecycle costing; maintainability and efficiency. Terotechnology: why we need to use terotechnology in building industry; economic and technical factors - measures of performance; present state of knowledge. An integrated treatment of design, specification, construction use, maintenance and re-use phases for building and the effect on the life-cycle costs of the building. Discounting theory. Time value of money; discounting formulae; inflation; depreciation, taxation; before and after-tax project return; evaluation methods for economy studies. Theory of life-cycle cost optimisation. Basis of theoretical analysis of costs; total life-cost concepts; maintenance costs and capital costs; energy costs and capital costs; taxation and other factors; constraints; technical and others. Practice of life-cycle cost optimisation. Case study; practical issues; introduction; outline of factors to be considered in building obsolescence and refurbishment; market aspects; physical aspects and limitations; authorities and regulatory constraints; economic constraints. Measurement and the assessment of utilisation of resources during each phase of the building process. Design phase (including brief documentation); construction phase; functional (occupational) life; re-evaluation as to refurbish or demolish phase. Asset management using an integrated planning and budgeting approach. Need for an integrated system; provision of funds at regular intervals and/or in emergency situations; fabric of building and other services; total assets management; case-studies - Latrobe system, others. Operational control. Control systems; identification of effective, preventive and remedial measures. Establishment of a maintenance policy. Preventive maintenance; corrective maintenance; records and register for maintenance as a control tool; accounting and costs records and audits. Degradation of buildings. Identification of maintenance approaches for building structure, fabric, equipment and plant; nature and causes of degradation. Information and management systems. Building services supervisory system; description Local Monitoring and Control Systems (LMCS); Central Supervisory Systems (CSS). Building engineering services information and management systems; functions; commercially available packages; selection, evaluation of benefits. Case study presentation and review.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Understanding of life cycle costing theory, terminology, relevance to simple and complex assets, facilities, benefits, total asset management concepts;
2. Address relevant issues including functionality, standards, asset accounting, relevant economic parameters, return on investment, and measures of worth;
3. Apply theory to simple and complex assets, with and without inflation, depreciation and taxation considerations, choice of alternative asset solutions;
4. Apply theory of facility management, policy formation, information systems, operations and maintenance;
5. Produce life cycle cost evaluations of commercial income-producing facilities including written and oral presentations of results as though to a client.

Class Contact: Thirty six (36) hours for one semester comprising, lectures, computer laboratory sessions, seminars and workshops.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Assignment, Individual assignment, 20%. Project, Group project, 40%. Examination, End-of-semester examination, 40%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VCP5745 BUILDING REGULATORY MANAGEMENT

Locations: Footscray Park.

Description: The unit will develop a suitable background and understanding of by-laws and regulations that apply to building activities in Victoria. Subject content includes authorities controlling building activities; role and function of the building surveyors; contents and interpretation of various by-laws and regulations governing building activities such as: Local Government Acts, Building Code of Australia, Water and Sewerage Acts, Health Act, Labour and Industry Act, Lifts and Crane Act, Scaffolding Act, Environmental Protection Act, By-laws governing fire protection, Strata and Cluster Titles Act, Housebuilder's liability, Land use and development strategy, Guide to administrative procedures, Planning guidelines, Townscape and heritage considerations, Checklist of requirements in a major development, The role of various professional disciplines. General introduction to BC Act. Definitions. Relationship to other Acts, new Acts. Building Approvals process. Introduction to BCA, Part A. Classes of buildings Parts C, D, F and G. Accreditation: Protection of adjoining property. Enforcement. BCA and plan check. Fire as hazard to life and property. Overview of current knowledge in fire start and spread in buildings. Overview of fire safety and regulations in Australia; current practices in regulation and building control; fire safety in new proposed Code. Overview of planning schemes in Victoria. Need for a Uniform Planning Scheme; need for optimisation of planning process. Local Government planning officials' views on a rational new system; industry perception of the planning system's current operation; possibility of planning being accomplished by certification. International - scene and practice - what can we learn from it.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester.

Required Reading: To be advised by lecturer.

Assessment: Assignments, 20%; examination, 70%; class participation, 10%. Students must attain a mark of 50% in each assessable component to pass this subject. Supplementary assessment will not be available.

VEA2101 INTRODUCTION TO COMPUTER CONTROL AND AUTOMATION

Locations: Footscray Park.

Prerequisites: VEF1002 - ENABLING SCIENCES 1B

Description: Programmable Logic Controllers: Introduction to PLCs, programming and application. Introduction to Digital Control: Control loops, Process responses, PID algorithm. Loop tuning. Sensors and Actuators: Resistive, inductive, capacitive, photo-electric, Stepping Motors, Solenoids and applications. Analog to Digital Conversion, Digital to Analog Conversion and Signal Conditioning Circuits.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: program PLC; apply PID algorithm to effectively control a system; use appropriate sensors and actuators in an engineering setting; use A-to-D and D-to-A for interfacing.

Class Contact: 30 hours of contact for one semester comprising 20 hours of lectures/tutorials and 10 hours of laboratory sessions.

Required Reading: Ng, Y. (Ed.). (2008). Class notes (Rev. ed.). Footscray, Australia: Victoria University, School of Electrical Engineering.

Assessment: Laboratory Assignments (30%); Tests (10%); Examination (60%).

VEA2102 INDUSTRIAL CONTROL SYSTEMS AND ELECTRONICS MANUFACTURING AUTOMATION

Locations: Footscray Park, Other.

Description: SCADA : Concepts, Human Interface, Remote Terminal Unit, Master Station, Communication Infrastructure, Controller Area Network, Machine to machine communication, Security. System Design and Implementation. Electronics Manufacturing: PCB Design, Routing, Components Placement, Signal Integrity, Electromagnetic Compatibility, Design for Manufacturing, Schematic and Netlist, Library, Components and Data Sheets.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: explain SCADA systems and its components as well as being able to design a SCADA system for a simple manufacturing plant; explain the whole electronics manufacturing process in general and PCB design and production in particular; design a PCB for a given electronic circuit that could be produced in volume by outsourcing to other companies.

Class Contact: 30 hours of contact comprising 18 hrs of lectures/tutorials and 12 hours of laboratory sessions.

Required Reading: Ng, Y. (Ed.). (2008). Class notes (Rev. ed.). Footscray, Australia: Victoria University, School of Electrical Engineering.

Assessment: Laboratory Assignments (50%); Tests (10%); Examination (40%).

VEA3001 INTRODUCTION TO CONTROL SYSTEMS A

Locations: Other.

Prerequisites: VEF2002 Systems and Mathematics 2B

Description: The unit is designed to enable it to both ensure that students develop an understanding of Control Engineering, and to provide support for students requiring knowledge of Control Engineering in a concurrently studied PBL unit. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the subject will incorporate laboratory exercises and demonstrations of the concepts and techniques presented. Although primarily concerned with continuous time systems, lectures on discrete time systems may be delivered should these be required for the concurrent Engineering Design exercises.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: To have a basic understanding of the use of transfer functions, signal flow graphs and block diagrams in the description and analysis of control systems To appreciate the difference between real systems and the models of these systems. To be aware of the limitations of simulation software. To be able to write a quantitative specification of system performance. To be able to use Root Locus Techniques and Matlab to analyse the performance of LTI SISO system models. To be able to design P, PI, PID, lead, lag and lead-lag controllers to modify the behaviour of a LTI SISO model. To have an introductory knowledge of state-space models. To be able to calculate an overall transfer function by use of both Mason s Gain Formula and Block Diagram Reduction To be able to use Matlab/Simulink to analyse the behaviour of LTI SISO systems (including use of LTI viewer and rltool).

Class Contact: 30 hours of class contact per semester. 2 hours lecture/tutorial and 0.5 hours of laboratory exercises per week.

Required Reading: Ives, R., Introduction to Control Systems 3B Lecture Notes, Victoria University, 2008.

Assessment: End of semester examination 65%, mid-semester test 15%, and laboratory 20%.

VEA3002 INTRODUCTION TO CONTROL SYSTEMS B

Locations: Other.

Prerequisites: VEA3001 Introduction to Control Systems A

Description: This unit of study further develops the student's knowledge of Control Systems and Control Engineering. The unit is designed to enable it to both ensure that students develop an understanding of Control Engineering and to provide support for students requiring knowledge of Control Engineering in a concurrently studied Engineering Design unit. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: To be able to write and execute C programs on the DSpace DS1102 card to both control and monitor a DC motor servomechanism. To be able to operate the DS1102 system using both the Control Desk GUI and through Matlab/Simulink. To understand how execution time impacts upon and limits the ability to achieve real time control. To be able to convert between State-Space and transfer function models of a LTI SISO system. To understand that State-Space models enable the representation of internal signals, and may be used to model MIMO systems.

Class Contact: To be advised.

Required Reading: Ives, R., Introduction to Control Systems 3B (Real Time Control) Lecture Notes, Victoria University, 2009.

Assessment: End of semester examination 65%, a mid-semester test 15% and laboratory 20%.

VEA4001 DISCRETE TIME CONTROL SYSTEMS A

Locations: Other.

Prerequisites: VEA3001 Introduction to Control Systems A

Description: This unit of study further develops the student's knowledge of Control Systems and Control Engineering and to provide support for students requiring knowledge of Computer Controlled Systems in a concurrently studied Engineerung Design unit. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the subject will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: To have a basic understand of the use of pulse transfer functions in the description and analysis of computer controller systems. To be able to convert a continuous-time transfer function model into a zero-order hold equivalent pulse transfer function model. To be able to convert between pulse transfer function models and difference equation models. To be able to perform analysis and design of discrete-time control systems with the Root Locus method. To be able to perform analysis and design of discrete-time control systems with the use of Bode diagrams in conjunction with the Bilinear transformation. To understand the need of performance trade-off in control design problems. To be able to use MatLab/Simulink to analyse and design discrete-time control systems. To be able to use the DSpace DS1102 DSP card and Real-Time Workshop for rapid prototyping.

Class Contact: 30 hours of class contact. 2 hours lecture/tutorial and 0.5 hours of laboratory exercises per week.

Required Reading: Ogata, K., Discrete-Time Control Systems, Prentice-Hall, 1995.

Assessment: End of semester examination 65%, a mid-semester test 15% and laboratory 20%.

VEA4200 FUZZY CONTROL AND APPLICATIONS

Locations: Footscray Park.

Prerequisites: VEA3001 Introduction to Control Systems A.

Description: Introduction to fuzzy sets theory: vagueness and uncertainty formalisation problem, fuzzy sets theory and probability theory comparison and discussion, fuzzy set definitions, properties of fuzzy sets, operations on fuzzy sets. Fuzzy relations: classical relations, fuzzy relations, operation on fuzzy relations, the extension principal. Natural language formalisation and approximate reasoning: linguistic variables, fuzzy propositions, fuzzy if - then statements, inference rules. Theoretical fundamentals of fuzzy control: the structure of a fuzzy controller, the rule base, the data base, the inference engine, choice of fuzzification and defuzzification procedures. Software and hardware tools for fuzzy control. Fuzzy controller design using software packages. Fuzzy controller implementation. Applications of fuzzy control.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent PBL exercises. On successful completion of this unit, it is expected that students will be able: To be able to understand the basic mathematical concepts of fuzzy sets. To be able to understand the structure of fuzzy logic controller. To be able to design and implement fuzzy logic controller. To be able to use MatLab/Simulink to analyse and design fuzzy control systems. To be able to use the DSpace DS1102 DSP card and Real-Time Workshop for rapid prototyping of the fuzzy control systems.

Class Contact: 30 hours comprising 15 hours of lectures/tutorial and 15 hours of laboratory and project work.

Required Reading: K.M. Passino and S. Yurkovich, Fuzzy Control, Addison-Wesley, 1998. Free downloads from http://www.eleceng.ohio-state.edu/passino/.

Assessment: Class tests/assignments throughout the semester 20%; Laboratory work 40%; Project work 40%.

VEA4400 ROBOTICS AND AUTOMATION

Locations: Footscray Park.

Prerequisites: VEF1002 Enabling Sciences 1B and VEF1004 Electrical Fundamentals 1B.

Description: Programmable Logic Controllers: Introduction to PLCs, programming and application. Overview of Robotics, classification, control methods, drive mechanisms. Programming and applications of specific robots. Homogenous transforms, configurations. Euler angles. Manipulator Kinematics. Introduction to KAREL. Robotic Vision: vision systems, introduction to image processing, edge detection algorithms, 2D recognition, stereo vision.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: apply programmable logic controllers and manipulators in factory automation, program robots for manufacturing tasks, analyse and design vision systems for automatic inspection and guidance.

Class Contact: 30 hrs of contact comprising 15 hrs of lectures/tutorials and 15hrs of Laboratory.

Required Reading: Handout Notes.

Assessment: Examination 40%, Tests 10%, Laboratory Assignments 50%.

VEA6311 MODELLING AND COMPUTER CONTROL

Locations: Footscray Park.

Prerequisites: VEA6310 - LINEAR SYSTEMS AND CONTROL

OR equivalent.

Description: Overview of computer control. Sampling of continuous-time signal. Computer-oriented mathematical models; discrete-time systems. Linear regression model and system identification. Analysis of discrete-time control systems. Translation of analog design. State-space design methods. Implementation of digital controllers. Introduction to adaptive control.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: Astrom, K.J. and Wittenmark, B., Computer Controlled Systems, Prentice Hall, 1990.

Assessment: Tests, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

VEA6312 MODEL BASED PROCESS CONTROL

Locations: Footscray Park.

Prerequisites: VEA6310 - LINEAR SYSTEMS AND CONTROL

OR equivalent.

Description: Overview of model based control design. Model complexity and the model building process. Design of robust control systems by the internal model control method; performance and robustness trade-off. Difficulty in the realisation of continuous-time Smith Predictors; design of the unified predictive controller (UPC). Analysis of design parameters and tuning of the UPC.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: To be advised by the lecturer.

Assessment: Tests, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

VEA6321 FUZZY AND NEURAL CONTROL

Locations: Footscray Park.

Description: Introduction to fuzzy sets and fuzzy logic theory. Fuzzy set operations. Theoretical fundamentals of fuzzy control: the structure of a fuzzy logic controller, the rule base, the inference engine, choice of fuzzification and defuzzification procedures. Introduction to different neural networks and neural-fuzzy controllers. Software and hardware tools of neural-fuzzy control. Neural-fuzzy controller design using software packages. Applications of neural-fuzzy control.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: Reznik, L., Fuzzy Controllers, Butterworth-Heinemann, Oxford, 1997. Passino, K.M. and Yurkovich, S., 1998, Fuzzy Control, Addison-Wesley

Assessment: To be advised by lecturer.

VEA6322 PROCESS INSTRUMENTATION AND CONTROL

Locations: Footscray Park.

Description: Process linear systems and control and goals. Process characteristics and system parameters. Controller modes, control structures and algorithms. Process instrumentation. Distributed control systems. Networking in process control, monitoring, planning, and system management. Specification and selection of process control hardware and software.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: To be advised by the lecturer.

Assessment: Laboratory exercises, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

VEA6331 ROBOTICS AND PROGRAMMED CONTROL

Locations: Footscray Park.

Description: Overview of robotics. classification, control methods, drive mechanisms. Programming and applications of specific robots. Manipulator kinematics: Homogeneous transforms, Denavit-Hartenberg representations of jointed link systems. Analysis of various robot configurations. Euler angles. Inverse kinematic solutions. Robotic vision: Vision systems, introduction to image processing, Hough Transform methods, Stereo vision. Programmable Logic Controllers: Introduction to PLCs, programming and applications. Neural Networks: Introduction of NNs and applications to robotics.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: McKerrow, P.J., Introduction to Robotics, Addison Wesley, 1991.

Assessment: Assignments and laboratory exercises: 60%; Examination: 40%. A pass in each component of assessment is required for a subject pass.

VEA6332 ELECTRONIC CONTROL OF MOTORS

Locations: Footscray Park.

Description: Review of basic principles of electromagnetism and electric motors. Models of induction motors. Reference frame transformations. Inverters; power switches, Six Step and PWM types. Harmonics and their elimination. Scalar control techniques. Vector control techniques. Rotor flux orientation schemes, and their requirements for implementation. Current controlled inverters.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: To be advised by the lecturer.

Assessment: Tests/Assignments, 20%; Examination, 80%. A pass in each component of assessment is required for a subject pass.

VEA6341 MEASUREMENT TECHNOLOGY

Locations: Footscray Park.

Description: Application of electronics for instrumentation of real plant. Analogue devices used for signal conditioning and processing. Techniques for dealing with interference. Interfacing digital and analogue circuits. Transducers and their application.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: To be advised by the lecturer.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VEA6342 POWER DISTRIBUTION SYSTEMS

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VEA6351 POWER SYSTEMS OPERATION AND CONTROL

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VEA6352 DIGITAL SIMULATION OF PROTECTION SYSTEMS

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VEB1100 ENGINEERING DESIGN AND PRACTICE 1A

Locations: Footscray Park.

Prerequisites: Year 12 mathematics or equivalent.

Description: This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF1001 and VEF1003.

Teams of students will have an Electrical Engineering staff member as a 'coach or mentor' whilst working on these problems. 'Specialist' staff from the VEF1001 and VEF1003 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other Faculties and the will be available to provide workshops to assist students with the development of generic skills.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge of basic science and engineering fundamentals; Communicate effectively, not only with engineers but also with the community at large; Display in-depth technical competence in at least one engineering discipline; Work on problem identification, formulation and solution; Utilise a systems approach to design and operational performance; Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member; Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development; Describe the principles of sustainable design and development; Discuss professional and ethical responsibilities and display a commitment to them; Recognise the need for undertaking lifelong learning; Locate, evaluate, manage and use information effectively.

Class Contact: 10 hours per week or equivalent for one semester.

Required Reading: Bazerman, C., & Wiener, H. S. (2003). Writing skill handbook (5th ed.). New York: Houghton Miflin. Faculty of Health, Engineering and Science. (2006). Handbook of Communication Skills for first year students in the Faculty of Health, Engineering and Science (8th ed.). Victoria University.

Assessment: Students will be assessed in this unit on the basis of a portfolio, in which they are required to demonstrate the attainment of learning outcomes using:
- peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

VEB1200 ENGINEERING DESIGN AND PRACTICE 1B

Locations: Footscray Park.

Prerequisites: VEB1100 - ENGINEERING DESIGN AND PRACTICE 1A

OR equivalent.

Description: This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF1002 and VEF1004.

Teams of students will have an Electrical Engineering staff member as a 'coach or mentor' whilst working on these problems. 'Specialist' staff from the VEF1002 and VEF1004 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other Faculties will be available to provide workshops to assist students with the development of generic skills.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge of basic science and engineering fundamentals; Communicate effectively, not only with engineers but also with the community at large; Display in-depth technical competence in at least one engineering discipline; Work on problem identification, formulation and solution. Utilise a systems approach to design and operational performance; Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member; Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development; Describe the principles of sustainable design and development; Discuss professional and ethical responsibilities and display a commitment to them; Recognise the need for undertaking lifelong learning.

Class Contact: 10 hours per week or equivalent for one semester.

Required Reading: Bazerman, C., & Wiener, H. S. (2003). Writing skill handbook (5th ed.). New York: Houghton Miflin. Faculty of Health, Engineering and Science. (2006). Handbook of Communication Skills for first year students in the Faculty of Health, Engineering and Science (8th ed.). Victoria University.

Assessment: Students will be assessed in this unit on the basis of a portfolio, in which they are required to demonstrate the attainment of learning outcomes using: - self and peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

VEB2100 ENGINEERING DESIGN AND PRACTICE 2A

Locations: Footscray Park.

Prerequisites: VEB1200 - ENGINEERING DESIGN AND PRACTICE 1B

Description: This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF2001 and VEF2003.

Teams of students will have an Electrical Engineering staff member as a coach or mentor whilst working on these problems. Specialist staff from the VEF2001 and VEF2003 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from other Faculties will be available to provide workshops to assist students with the development of generic skills.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge of basic science and engineering fundamentals; Communicate effectively, not only with engineers but also with the community at large; Display in-depth technical competence in at least one engineering discipline; Work on problem identification, formulation and solution. Utilise a systems approach to design and operational performance; Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member; Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development; Describe the principles of sustainable design and development; Discuss professional and ethical responsibilities and display a commitment to them; Recognise the need for undertaking lifelong learning.

Class Contact: 10 hours per week for one semester.

Required Reading: There are no prescirbed readings for this unit. Students will be guided by the unit coodinator to material relevant to the student's design project.

Assessment: Students will be assessed in this unit on the basis of attendance and participation (10%), project demonstrations (10%), oral presentations (10%), written technical paper (10%) and report (10%) as well as a portfolio (50%). In the portfolio, students are required to demonstrate the attainment of learning outcomes using: - peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

VEB2200 ENGINEERING DESIGN AND PRACTICE 2B

Locations: Footscray Park.

Prerequisites: VEB2100 - ENGINEERING DESIGN AND PRACTICE 2A

Description: This is a practical, PBL mode, unit in which students work in teams to solve a number of problems specifically designed to integrate with the learning and content from VEF2002 and VEF2004.

Teams of students will have an Electrical Engineering staff member as a coach or mentor whilst working on these problems. Specialist staff from the VEF2002 and VEF2004 units will be available to assist students with technical aspects of the problems. Staff members from the School of Communication, Culture and Languages will be available on a weekly basis to assist with the development of communications skills. Staff members from the other schools will be available to provide workshops to assist students with the development of generic skills.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge of basic science and engineering fundamentals; Communicate effectively, not only with engineers but also with the community at large; Display in-depth technical competence in at least one engineering discipline; Work on problem identification, formulation and solution; Utilise a systems approach to design and operational performance; Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member; Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development; Describe the principles of sustainable design and development; Discuss professional and ethical responsibilities and display a commitment to them; Recognise the need for undertaking lifelong learning; Locate, evaluate, manage and use information effectively.

Class Contact: 10 hours per week or equivalent for one semester.

Required Reading: To be provided upon commencement of the unit to suit the student's design project(s).

Assessment: Students will be assessed in this unit on the basis of a portfolio, in which they are required to demonstrate the attainment of learning outcomes using: - self and peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports.

VEB3100 ENGINEERING DESIGN AND PRACTICE 3A

Locations: Footscray Park.

Prerequisites: VEB2200 - ENGINEERING DESIGN AND PRACTICE 2B

VEF2004 - SYSTEMS & APPLICATIONS 2D

OR

Description: This unit is designed to create the opportunity for students to integrate generic skills with the learning and content from the concurrent third year subjects. The PBL approach to this unit of study requires students to form a holistic consideration of problems which are not only technical in nature but also exercise the students generic skills. Students are required to demonstrate critical thinking, problem solving skills, systems thinking and professional engineering practice. The unit is delivered in PBL mode and will encourage students to become independent learners and self reflective about professional communication processes and practices.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Apply knowledge of basic science and engineering fundamentals;
- Communicate effectively, not only with engineers but also with the community at large;
- Display in-depth technical competence in at least one engineering discipline;
- Work on problem identification, formulation and solution;
- Utilise a systems approach to design and operational performance;
- Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
- Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
- Describe the principles of sustainable design and development;
- Discuss professional and ethical responsibilities and display a commitment to them;
- Recognise the need for undertaking lifelong learning;
- Locate, evaluate, manage and use information effectively.

Class Contact: 10 hours per week for one semester.

Required Reading: There are no prescribed readings for this unit. Students will be guided by the unit coodinator to material relevant to the unit.

Assessment: Students will be assessed in this unit on the basis of a portfolio, oral presentations, project demonstration, and written technical report. In the portfolio students are required to demonstrate the attainment of learning outcomes using: peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports. The weightings of the components mentioned above are: - Workshop attendance and participation: 10% Oral presentation: 10% Semester and final team product demonstration: 30% Written technical report: 30% Reflective Journal Portfolio: 20%

VEB3101 ENGINEERING PROJECT 3A

Locations: Footscray Park.

Prerequisites: Successful completion of EBES Year 2.

Description: Application of system analysis and design principles to develop a detailed specification, detailed design and test plan for a project with substantial software and/or hardware components. Development of the system is undertaken in a staged process, with deliverables and presentation at the end of each stage.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: explain the principle of system analysis and design and be able to apply this methodology to project work; produce necessary project documentation that could be used for implementation and testing of the hardware and/or software by a suitablly qualify engineering technologists or engineers.

Class Contact: 30 hours of contact comprising 12 hrs of lectures/tutorials and 24 hours of laboratory and project work.

Required Reading: Ng, Y. (Ed.). (2008). Class notes (Rev. ed.). Footscray, Australia: Victoria University, School of Electrical Engineering.

Assessment: Project work (60%); Examination (40%).

VEB3102 ENGINEERING PROJECT 3B

Locations: Footscray Park.

Prerequisites: VEB3101 - ENGINEERING PROJECT 3A

Description: Application of software, hardware techniques and research skills acquired in the course to implement and test an individual project according to a detailed specification and test plan.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to demonstrate their abilities to work independently and professionally on a substantial hardware and/or software project. Students are expected to also be able to: apply theories and techniques from various specialisations to solve complex engineering problem; implement and test a project according to a detailed specification and test plan.

Class Contact: 30 hours of Project work.

Required Reading: There is no prescribed reading for this unit. Students will be guided by the unit coodinator to material relevant to the project.

Assessment: Project work (100%).

VEB3200 ENGINEERING DESIGN AND PRACTICE 3B

Locations: Footscray Park.

Prerequisites: VEB3100 - ENGINEERING DESIGN AND PRACTICE 3A

Plus Year 3 semester 1 Stream Core Unit.

Description: This unit is designed to create the opportunity for students to integrate generic skills with the learning and content from their chosen specialisation unit. The PBL approach to this unit of study requires students to form a holistic consideration of problems which are not only technical in nature but also exercise the students generic skills. Students are required to demonstrate critical thinking, problem solving skills, systems thinking and professional engineering practice. The unit is delivered in PBL mode and will encourage students to become independent learners and self reflective about professional communication processes and practices.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Apply knowledge of basic science and engineering fundamentals; Communicate effectively, not only with engineers but also with the community at large;
- Display in-depth technical competence in at least one engineering discipline; Work on problem identification, formulation and solution;
- Utilise a systems approach to design and operational performance;
- Function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;
- Discuss the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
- Describe the principles of sustainable design and development;
- Discuss professional and ethical responsibilities and display a commitment to them;
- Recognise the need for undertaking lifelong learning; Locate, evaluate, manage and use information effectively.

Class Contact: 10 hours per week for one semester.

Required Reading: There are no prescribed readings for this unit. Students will be guided by the unit coodinator to material relevant to the unit.

Assessment: Students will be assessed in this unit on the basis of a portfolio, oral presentations, project demonstration, and written technical report. In the portfolio students are required to demonstrate the attainment of learning outcomes using:

peer evaluation and assessment, weekly team/client meetings, a reflective journal, reflective essays, expositions, audio/visual project presentations and written project reports. The weightings of the components mentioned above are: - Workshop attendance and participation: 10% Oral presentation: 10% Semester and final team product demonstration: 30% Written technical report: 30% Reflective Journal Portfolio: 20%

VEB4006 DIRECTED STUDIES IN ELECTRICAL ENGINEERING 1

Locations: Footscray Park.

Description: This unit is to provide prescribed learning outcomes tailored to the requirements of students transferring into undergraduate programs offered by the School of Electrical Engineering. The outcomes will be defined by the School on an individual, as-required, basis. The unit is intended to facilitate both articulation students and students with recognised prior learning that does not lend itself to simple mapping into the units offered in their selected program. The content will be a subset of the content of a core program unit of study, which matches both the required learning outcomes and is defined by the School to satisfy the 6 credit point weighting of this unit.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study;
- Locate the relevant underpinning theory in references available to them;
- Use that support and sppropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel sitiation to reach a solution to the problem posed.

Class Contact: 5 hours per week or equivalent for one semester.

Required Reading: To be prescribed by the School.

Assessment: A series of assignments, tests and reports as negotiated for each individual or group of students with a similar background.

VEB4012 DIRECTED STUDIES IN ELECTRICAL ENGINEERING 2

Locations: Footscray Park.

Description: This unit is to provide prescribed learning outcomes tailored to the requirements of students transferring into undergraduate programs offered by the School of Electrical Engineering. The outcomes will be defined by the School on an individual, as-required, basis. The unit is intended to facilitate both articulation students and students with recognised prior learning that does not lend itself to simple mapping into the units offered in their selected program. The content will be a subset of the content of a core program unit of study, which matches both the required learning outcomes and is defined by the School to satisfy the 12 credit point weighting of this unit.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study; Locate the relevant underpinning theory in references available to them; Use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: 10 hours per week or equivalent for one semester.

Required Reading: To be prescribed by the School.

Assessment: A series of assignments, tests and reports as negotiated for each individual or group of students with a similar background.

VEB4100 ENGINEERING DESIGN 4A

Locations: Footscray Park.

Prerequisites: Successful completion of year 3 EBEE or equivalent.

Description: In this unit, students will commence a major design problem resulting in a complete and working outcome which meets the agreed specifications and demonstrates an understanding of professional engineering standards. The project will continue in the follow-on second semester unit VEB4200. The student will define the problem, develop functional specifications (in collaboration with the project supervisors), and write a concise project contract. A feasibility study is the next stage. Possible alternative engineering solutions are conceptualised and evaluated using objective criteria functions. Cost, reliability, sustainability and environmental impacts should also be considered in choosing the best approach, which the student should be able to defend in an objective way. All progress work on the design should be documented in notebooks, and written progress reports and oral presentation will be required during the course of the problem. The final report should document the complete design process, the synthesis and analysis of the design, prototyping, experimental testing, refinement of the design, the final product and full performance testing and comparison with the specifications. Projects should where possible originate from industry, and address real problems which the industrial sponsors are confronting. Each student will work individually on a defined part of a design problem, but these parts may be components of a bigger project requirement. Supervisors: Each student will be assigned an academic staff supervisor and an industrial supervisor from the sponsor company where appropriate. In addition to formal written and oral reports, the student should maintain regular informal reporting channels to both supervisors.

Credit Points: 12

Learning Outcomes: In addition to the learning outcomes from the Years 1 to 3 Engineering Design and Practice units, on successful completion of this unit, students are expected to be able to: Undertake problem identification, formulation and solution; Explain environmental and sustainability issues in problem solution; Utilise a systems approach to complex design problems; Synthesise solutions, and use analysis to verify designs, using computing tools where appropriate; Demonstrate skills in prototyping and testing engineering projects; Manage a project, designing to specification, and meeting outcomes and reporting timelines; Manage information and documentation; Interface with and communicate with other designers who may be working on related project tasks; Write a competent feasibility study, progress reports, and a substantial final report; Deliver fluently, oral progress presentations, and a high quality final presentation supported with appropriate audio/visual aids.

Class Contact: One hour per week or equivalent for one semester comprising on average ½ hour/week in progress presentations, and ½ hour/week meeting with the project supervisor. Most of the work in this unit will occur outside formal classes.

Required Reading: Horowitz, P., & Hill, W. (1989). The art of electronics (2nd ed.). Cambridge University Press. Other reading will depend on the nature of the project undertaken.

Assessment: The written contract, written feasibility and progress reports, and oral progress presentations (50%); Prototype and experimental hardware/software demonstrating progress with the design work (30%); The overall quality of the project work (20%).

VEB4200 ENGINEERING DESIGN 4B

Locations: Footscray Park.

Prerequisites: VEB4100 - ENGINEERING DESIGN 4A

Description: In this unit, students will commence a major design problem resulting in a complete and working outcome which meets the agreed specifications and demonstrates an understanding of professional engineering standards. The student will define the problem, develop functional specifications (in collaboration with the project supervisors), and write a concise project contract. A feasibility study is the next stage. Possible alternative engineering solutions are conceptualised and evaluated using objective criteria functions. Cost, reliability, sustainability and environmental impacts should also be considered in choosing the best approach, which the student should be able to defend in an objective way. All progress work on the design should be documented in notebooks, and written progress reports and oral presentation will be required during the course of the problem. The final report should document the complete design process, the synthesis and analysis of the design, prototyping, experimental testing, refinement of the design, the final product and full performance testing and comparison with the specifications. Projects should where possible originate from industry, and address real problems which the industrial sponsors are confronting. Each student will work individually on a defined part of a design problem, but these parts may be components of a bigger project requirement. Supervisors: Each student will continue with the academic staff supervisor assigned in VEB4001, and the industrial supervisor from the sponsor company where appropriate. In addition to formal written and oral reports, the student should maintain regular informal reporting channels to both supervisors.

Credit Points: 12

Learning Outcomes: In addition to the learning outcomes from the Years 1 to 3 Engineering Design and Practice units, on successful completion of this unit, students are expected to be able to: Undertake problem identification, formulation and solution; Explain environmental and sustainability issues in problem solution; Utilise a systems approach to complex design problems; Synthesise solutions, and use analysis to verify designs, using computing tools where appropriate; Demonstrate skills in prototyping and testing engineering projects; Manage a project, designing to specification, and meeting outcomes and reporting timelines; Manage information and documentation; Interface with and communicate with other designers who may be working on related project tasks; Write a competent feasibility study, progress reports, and a substantial final report.

Class Contact: One hour per week or equivalent for one semester comprising on average ½ hour/week in progress presentations, and ½ hour/week meeting with the project supervisor. Most of the work in this unit will occur outside formal classes.

Required Reading: There are no prescribed readings for this unit. Students will be guided by the unit coodinator to material relevant to the project being undertaken.

Assessment: Written progress reports, progress oral presentations, the final oral presentation, and the final project report (50%); Successful completion of a working project design which meets the project specifications (30%); The overall quality of the design process and the project as a whole (20%).

VEC6111 COMPUTER TECHNOLOGY

Locations: Footscray Park.

Description: The subject investigates high level design techniques used in computer system hardware development. The subject examines the algorithmic state machine design mathod. Controller and architecture division. Controller design methods. Linked and partitioned state machines. Register transfer language and synthesis. Logical faults and test vector generation. Asychronous system analysis and design.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester.

Required Reading: To be advised by the lecturer.

Assessment: Final examination, 65%; tests, 35%;

VEC6112 ADVANCED MICROPROCESSORS

Locations: Footscray Park.

Prerequisites: A course in C programming.

Description: The subject will provide the student with an appreciation of operating system's functions and requirements, including real-time operation, and will examine the use of concurrent languages. The subject examines the following topics. Operating system's functions. Program scheduling. Pipeline design techniques Data and instruction stream. Parallelisms. Contention and arbitration. Message passing techniques. Lock out prevention. Mutual exclusion. Tagged memory systems; cache memory, FIFO, multi port. Multiprocessor operating systems. Process to process or mapping vs process sharing. Diagnostic and performance profiling program. Recovery procedure. Application program and operating system interaction. Throughput measurement. Multiprocessing. analysis of various multiprocessors, data flow machines and non Neumann machines. RISC Array processors Embedded systems, reala time applications.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lecture, tutorials and laboratories.

Required Reading: To be advised by the lecturer.

Assessment: Examination 100%

VEC6121 OBJECT ORIENTED SOFTWARE

Locations: Footscray Park.

Description: This subject will study the object oriented approach to software development through the analysis, design and implementtion phases of the software life cycle. Its content includes the object oriented (OO) concepts of classes, inheritance, polymorphism, encapsulations; and the use of Object Oriented languages and environments. It applies the techniques to engineering applications.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hours lecturers/tutorials and one one-hour laboratory.

Required Reading: To be advised by the lecturer

Assessment: Assignments 35%; examination 65%.

VEC6122 OPERATING SYSTEMS AND MULTIPROCESSING

Locations: Footscray Park.

Prerequisites: A course in C programming.

Description: The subject will provide the student with an appreciation of operating system's functions and requirements, including real-time operation, and will examine the use of concurrent languages. The subject examines the following topics. Operating system's functions. Program scheduling. Pipeline design techniques Data and instruction stream. Parallelisms. Contention and arbitration. Message passing techniques. Lock out prevention. Mutual exclusion. Tagged memory systems; cache memory, FIFO, multi port. Multiprocessor operating systems. Process to process or mapping vs process sharing. Diagnostic and performance profiling program. Recovery procedure. Application program and operating system interaction. Throughput measurement. Multiprocessing. analysis of various multiprocessors, data flow machines and non Neumann machines. RISC Array processors Embedded systems, reala time applications.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester.

Required Reading: To be advised by the lecturer.

Assessment: Assignment, 20%; laboratory, 15%; examination 65%.

VEC6131 COMPUTER INTERCONNECTION HARDWARE

Locations: Footscray Park.

Description: The subject develops an understanding of microprocessor interconnection schemes and of the hardware and software aspects of computer networks. The topics covered are: review of synchronous and and asynchronous design techniques; characteristics of bus lines and interface design; single-master buses; multiple-master bus; DMA circuits; synchronisation; computer to computer interconnection schemes, principle of operation standardisation and OSI model; point-to-point transfers, protocols, bidirectional links; error handling; links, concentrators and multiplexors; TDM circuits, PCM multiplexing; modern and network (e.g. token ring) interface design.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hours per week lecturers/tutorials and one one-hour laboratory.

Required Reading: To be advised by lecturer.

Assessment: Final examination 65%; assignments and laboratory work, 35%. Students must attain a satisfactory level of performance in each assessable component to obtain a subject pass.

VEC6132 DIGITAL SYSTEM MODELLING AND SIMULATION

Locations: Footscray Park.

Description: The subject will accustom the student with the computer aided design environment, and examines modelling and software techniques applicable to digital design problems. Topics to be studied include computer aided design tools, software, user interfaces; discrete event modelling and modelling languages VHAL; digital logic simulators. FPGA implementation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hours of lecture/tutorial and one one-hour laboratory.

Required Reading: To be advised by the lecturer.

Assessment: Final examination, 65%, assignments and laboratory work 35%. Students must attain a satisfactory level of performance in each assessable component to obtain a subject pass.

VEC6141 SOFTWARE ENGINEERING

Locations: Footscray Park.

Prerequisites: VES4301 - SOFTWARE ENGINEERING

Description: The subject will strengthen the student's knowledge of concepts required to produce high quality software systems within known limitations of resources using sound engineering principles and effective tools. The subject examines principles of software engineering. The topics convered are part of the software life cycle. Requirements elicitation, requirements analysis and specification. the use of formal specification languages such as 'Z'. Analysis and design methods using graphical notations e.g. UML, implementation considerations, testing strategies and construction of test cases, software engineering environments and CASE; tools.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising approximately 70% lecturers/tutorials and 30% laboratory.

Required Reading: Schach, S.R., 1999, Classical and Object-Oriented Software Engineering with UML and Java 4th edn. McGraw Hill.

Assessment: Examination, 65%; laboratory work, tests and assignments 35%. Students must satisfy examiners in each assessable component to pass the subject.

VEC6142 MANAGING SOFTWARE PROJECTS

Locations: Footscray Park.

Prerequisites: VEG5011 Software Engineering.

Description: The subject will develop and improve the skills required to successfully plan and manage software development efforts. The subject content includes: the role of specification in the product life cycle; systems analysis and design; feasibility study and development cycle; the applicability of DP techniques to technical program management; defining software requirements, documentation; preparation of good project plans, size and function point metrics and their use in estimation of time and costs; implementing management controls for design and integration; the use of standard project management techniques and software packages; team working, codes of practice, whole life costing, system support plans; hardware/software integration and testing, product support and maintenance, controlling changes to software and documentation; control of the programming support environment. The assignment and laboratory work consists of design, analysis and management of a large scale software project.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising approximately 65% lectures/tutorials and 35% laboratory.

Required Reading: To be advised by lecturer.

Assessment: Examination, 50%; assignments and project work, 50%.

VEC6151 DATABASE AND QUERY SYSTEMS

Locations: Footscray Park.

Description: The subject will further the understanding of the design implementation and applications of database systems. The subject examines introduction to database systems; different database models; examples of current systems; overviews and use of DMBS, physical data organisation, database architecture, SQI, query by example; query optimisation; design theory for relational databases, database integrity and security; implementation issues, distributed systesm.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising approximately 70% lectures/tutorials and 30% laboratory.

Required Reading: To be advised by the lecturer.

Assessment: Final examination 65%; assignments, 20%; laboratory work, 15%.

VEC6152 APPLIED KNOWLEDGE SYSTEMS

Locations: Footscray Park.

Description: The subject provides an introduction to Knowledge Based Systems. It gives an overview of expert systems, neural networks, knowledge programming and natural language systems and examines software associated with these. The subject will familiarise the students with a number of techniques for applying knowledge based systems to real world problems in the control, monitoring and planning domains, including how to select appropriate tools to analyse problems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester. This includes two hours of lecture per week, one hour of tutorial and one hour of laboratory for every two weeks.

Required Reading: To be advised by the lecturer.

Assessment: Tests/Assignments: 35%; Examination: 65%. A pass in each component of assessment is required for a subject pass.

VED4001 ENGINEERING DESIGN & PROJECTS 4A

Locations: Footscray Park.

Prerequisites: Completed year 3 of the course.

Description: The unit consolidates engineering design experience by requiring each student to undertake an individual engineering design project, selected from a list of projects on offer. Projects are sourced from industry and academia, and span both semesters. In this subject, progress to a viable halfway stage is expected. Each student is supervised by a staff member expert in the area of the project. Oral presentation skills, and report writing ability are further developed from the level attained in third year. The theory component covers the philosophy of system design, and designing for variability, emphasising the gulf between designing a working prototype, and designing for production. Worst case and Monte Carlo techniques are covered.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 48 hours per semester, consisting of 36 hours of project work and project reporting, and 12 hours of lectures. Students are expected to spend additional non-class time on project work.

Required Reading: Clive, L.D. and Little, P., 2000, Engineering Design - A Project Based Introduction, John Wiley & Sons Inc. Denny, H.W., 1983, Grounding for the Control of EMI, Dan White Consultants Inc. Morrison, R. 1977, Grounding and Shielding Techniques in Instrumentation, John Wiley. Williams, T., 1995, EMC for Product Designers, Newnes. Tuinenga, P.W., 1988, SPICE - A Guide to Circuit Simulation and Analysis Using SPICE, Prentice Hall. Mohan, T., McGregor, H., Saunders, S. and Archee, R., 1997, Communication Theory and Practice, Harcourt Brace.

Assessment: Project contract 5%, feasibility study report 10%, progress talks 5%, final presentation talk 10%, project stage A report, and project progress and quality 45%, assignments, tests 25%.

VEE3001 INTRODUCTION TO ELECTRICAL MACHINES

Locations: Other.

Prerequisites: VEF2004 Systems and Applications 2D

Description: This unit of study is intended to provide a sound knowledge of induction and synchronous machines including equivalent circuits, performance analysis based on the equivalent circuits, and operating characteristics under varying operating conditions. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented. Unit Content Introduction to induction motor and rotating field. Equivalent circuit of an induction motor. Power, torque, efficiency, power factor calculations. Induction motor starting. Speed control of induction motor. Introduction to synchronous machines. Synchronous motors and their characteristics. Synchronous generators. Loci of synchronous motor. Synchronous motor starting.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able: To develop an understanding of the structure of A.C. electrical machines and the purpose of the various components. To develop equivalent circuit models for the machines. Learn to calculate the operating characteristics of machines using the equivalent models (power, torque, efficiency, power factor etc.).To develop an understanding of staring dynamics of motors.Develop an understanding of appropriate applications of A.C. machines in industries.

Class Contact: 30 hrs of class contact: Two and an half hours per week.

Required Reading: Theodore Wildi, 2002, Electrical Machines, Drives and Power Systems, fifth Edition, Prentice Hall.

Assessment: Written examination 65% Test 20% Laboratory 15%.

VEE3002 INTRODUCTION TO ELECTRICAL POWER SYSTEMS

Locations: Other.

Prerequisites: VEF2004 Systems and Applications 2D

Description: This unit of study is intended to provide an introduction to electrical power systems. The unit will cover topics of generation, transmission, and distribution systems at introductory levels. Various types of generation systems will be introduced. Different types of transmission/distribution systems and associated gears will be introduced. Models of long, medium and short transmission lines will be introduced to assist in calculation of power, voltage, current and power factor. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: develop an understanding on power systems components. Understand the configuration and operation of a power system. Develop skills in calculating the electrical parameters in a power system. Gain knowledge in ways of controlling frequency and voltage in a power system.

Class Contact: 30 hrs of class contact. Two and an half hours per week.

Required Reading: Theodore Wildi 2002, Electrical Machines, Drives and Power Systems, fifth Edition, Prentice Hall.

Assessment: Written examination 65% Test 20% Laboratory 15%.

VEE4100 ELECTRIC ENERGY SYSTEMS ANALYSIS AND OPERATION

Locations: Footscray Park.

Description: Electricity distribution in the deregulated Australian power industry. Admittance model and Network Calculations Load flow analysis techniques, Gauss Siedel and Newton Raphson methods, uses of load flow analysis, cases studies. Economic operation of power systems. The planning, design and operation of electrical energy transmission and distribution networks: planning, design standards and performance requirements. voltage control. power quality and reliability. overvoltage protection. earthing and safety. embedded generation. power electronic systems for performance improvement.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: 30 hours comprising 24 hours of lectures/tutorial and 6 hours of laboratory.

Required Reading: Grainger J. J. and Stevenson W.D. Power System Analysis, 1994, McGraw Hill.

Assessment: Assignment and Laboratory Exercises 40%; End of semester examination 60%; A pass in each component of assessment is required for a subject pass.

VEE4200 ELECTRIC ENERGY SYSTEMS PROTECTION

Locations: Footscray Park.

Description: This subject covers the planning, design and operation of electrical protection systems for the generation, transmission and distribution electric energy: planning, design standards and performance requirements; principles and types of protection systems (overcurrent, impedance, differential, backup, fuses); application to generators, motors, transmission lines, transformers, busbars, and distribution; instrument transformer steady state and transient behaviour; electrical studies for planning and design of protection systems; power system communications for protection application.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: 30 hours of class contact comprising 24 hours of lectures/tutorial and 6 hours of laboratory.

Required Reading: Lecture notes provided.

Assessment: Assignment and Laboratory Exercises 40%; End of semester examination 60%; A pass in each component of assessment is required for a subject pass.

VEE4400 HIGH VOLTAGE ENGINEERING

Locations: Footscray Park.

Description: Electrical insulation properties and characteristics, insulator selection, insulation co-ordination in electric energy networks, sources of overvoltages, lightning impact on transmission and distribution networks, surge propagation theory, circuit interruption theory and circuit breaker operation.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Analyse and describe the various insulator technologies Analyse surge propogation and its impact on electrical networks Study circuit breaker operation.

Class Contact: 30 hours of class contact comprising 24 hours of lectures/tutorial and 6 hours of laboratory.

Required Reading: Lecture notes provided.

Assessment: Assignment and Laboratory Exercises 40%; End of semester examination 60%; A pass in each component of assessment is required for a subject pass.

VEE4500 POWER ELECTRONICS

Locations: Other.

Prerequisites: VEF2004 Systems and Applications 2D

Description: Introduction to the theory, design and analysis of conversion of electric power by means of power electronics, including AC to DC and DC to DC power converters. The fundamental knowledge of electronic speed control techniques for DC motor drives for different applications. AC-DC single-phase and three-phase power converters: Diode and SCR bridge rectifiers. DC-DC Switching Mode Power Converters, buck converters and boost converters, Buck-boost converters. Unipolar and bipolar voltage switching method. Flyback converters, push pull converters. First quadrant, two quadrant and four quadrant drive. Different electronic speed control techniques for DC motor drives.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Understand the basics and operations of power semiconductor switches. Know the building blocks of power electronics conversion. Analyse AC/DC and DC/DC power converters. Able to analyse and design different types of switching power supplies in different modes of operation. Able to demonstrate the knowledge of electronic speed control techniques for DC motor drives for different applications.

Class Contact: 30 hrs of class contact consisting of 2 hrs of Lecture/Tutorial per week and 0.5 hrs of Laboratory per week.

Required Reading: 1) Lecture notes provided. 2) N. Mohan, T. M. Undeland & W. P. Robbins, 2003, Power Electronics - Converters, Applications, and Design, John Wiley & Sons.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination, a mid-semester test and requires satisfactory performance of laboratory based components of this unit.

VEE4700 POWER SYSTEM COMMUNICATION, MONITORING AND INSTRUMENTATION

Locations: Other.

Description: Introduction to communication principles and terminologies used in power systems. Leading global organisations and their standards. Power system automation and integration concepts. Discussion on architectures, protocols as utilised in power system communication networks. Middleware technologies. Information embedded power systems. Power system security aspects, SCADA and contingency analysis Network sensitivity methods; generation dispatch Operational metering Tariffs and wholesale energy trading Future technologies and their implications for power system communications

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: To be able to recognise the role of communications in power systems and identify various communication requirements needed in power system protection and distribution networks To have a basic understanding of the use of communication media and architectures in power systems To be able to understand the value of what global organisations like IEC and EPRI bring to the development of new technologies and structures for the advancement of power systems To be able to comprehend system automation and integration concepts To be able to have a basic knowledge about the communication standards, protocols and architectures most commonly employed in power system protection and distribution networks To be able to comprehend the importance of security and contingency analysis in the operation of power system networks To be able to identify the different instrumentation used in power systems To have a basic understanding about operational metering, tariffs and wholesale energy trading.

Class Contact: 30 hours of class contact.

Required Reading: Kalam, A. and Kothari, D.P., 2008, Power System Communications, New Age International (P) Ltd, 2008.

Assessment: Students will be assessed in this unit of study based on an end of semester examination 60%, a team assignment 10%, word limit: 1000, a class test 10% and laboratory exercises 20%.

VEE4800 ALTERNATIVE ENERGY SYSTEMS

Locations: Footscray Park.

Description: The aim of this unit of study is to introduce students to unconventional energy sources such as solar, wind, biomass and fuel cells etc. and energy storage; problem facing the Electricity Supply Industries in Australia and its choices. The unit will focus on: Overview of major alternative sources and their energy content Environmental and economic advantages of using alternative energy generation technologies along with the concept of sustainability in order to provide the basis for the consideration of alternative energy systems The unit will cover: Conventional energy systems and green house effect Evaluation and feasibility studies of solar energy, wind energy, fuel cells, hydrogen generation, bio-fuel, tidal and geothermal systems Analysis and modelling of above systems Economic analysis of above systems Design of hybrid systems and integration

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Understand different alternative energy sources and their availability. Know the design and operation principles of alternative energy systems. Analyse economic and environmental impact of the alternative energy systems. Demonstrate an awareness of current applications of alternative energy systems.

Class Contact: 4 hours per week. Total 48 hours comprising lecture/tutorials/ laboratory.

Required Reading: Renewable and Efficient Electric Power Systems, Masters, G 2004, 1st edn, John Wiley & Sons, Hoboken, NJ. Renewable Energy: Power for a Sustainable Future, Boyle, G 2004, 2nd edn, Oxford University Press, Oxford.

Assessment: Students will be assessed in this unit on the basis of an end of semester examination, a mid-semester test and requires satisfactory performance of laboratory based components of this unit.

VEE6001 RESEARCH PROJECT A

Locations: Footscray Park.

Description: The student will undertake an in depth investigation of a topic (project) allocated in the student's area of specialisation under the guidance of an academic supervisor.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Conduct research on a specific project topic using all available resources; books, journals, internet, Solve problems in a scientific manner, employing problem solving techniques; Plan and manage a project using project management facilities; Microsoft Project Manager.

Class Contact: Seventy two (72) hours or equivalent for one semester comprising group seminars, group meetings and discussions with fellow researchers and project supervisors.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Progress presentations (2 seminars each of 15 min. duration) 30%; final report (Approximately 10,000 words) 50%; final presentation (30 min. duration) 20%.Presentation, Progress presentations, 30%. Report, Final report, 50%. Presentation, Final presentation, 20%.

VEE6002 RESEARCH PROJECT B

Locations: Footscray Park.

Prerequisites: VEE6001 - RESEARCH PROJECT A

Completion of at least eight units of the Masters course.

Description: Each student will continue the investigation carried out in VEE6001 to a higher level employing advanced research techniques, analysis of results, formulation of conclusion, documentation, final report writing, and presentation.

Credit Points: 24

Learning Outcomes: On successful completion of this unit students are expected to be able to:

1. Independentely conduct research on a specific project topic using all available resources; books, journals, internet.
2. Solve problems in a scientific manner, employing problem solving techniques.
3. Plan and manage a project using project management facilities; Microsoft Project Manager.
4. Write and present professional technical reports.

Class Contact: Seventy two (72) hours or equivalent for one semester comprising group seminars, group meetings and discussions with fellow researchers and project supervisors.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Progress presentation (2 seminars, each of 15 min. duration), Final report (approximately 15,000 words), Final presentation and demonstration.Presentation, Progress presentations, 20%. Report, Final Report, 50%. Presentation, Final presentation and demonstration, 30%.

VEE6050 PROJECT MANAGEMENT PROGRAM

Locations: Footscray Park.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: For each unit: Three hours per week, comprising lectures, tutorials, seminars, and group activities.

Required Reading: Project Management Institute, 2000, A Guide to Project Management Body of Knowledge, Newton Square, Pennysylvania, USA.

Assessment: For each unit: Class Test (Two Hours) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%.

VEE6052 PROJECT MANAGEMENT PROGRAM 1

Locations: Footscray Park.

Description: Project definition. Project management definition. Relationship to other management disciplines. Project phases. Project life cycle. Examples of project life cycle. Project stake holders. Organizational influences. Project management process. Initiating, planning, executing, controlling, and closing. Process iterations.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to:

1. Plan and implement a project life cycle;
2. Integrate, plan and execute a project;

Class Contact: Thirty six (36) hours for one semester comprising of lectures, tutorials, seminars and group activities.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Class Test (Two Hours) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%Test, Class Test (Two Hours), 20%. Assignment, Assignment (report not exceeding 5000 words), 20%. Examination, Final examination (Three Hours), 60%.

VEE6053 PROJECT MANAGEMENT PROGRAM 2

Locations: Footscray Park.

Prerequisites: VEE6052 - PROJECT MANAGEMENT PROGRAM 1

Description: Project plan development and execution. Integrated change control. Project scope management. Initiation, scope definition, scope planning, scope verification, and scope change control. Project time management. Activity definition, activity sequencing, activity duration estimating, schedule development, and schedule control. Project cost management. Resource planning, cost estimating, cost budgeting, and cost control. Project quality management. Quality planning, quality assurance, and quality control, Project human resource management. Organizational planning. Staff acquisition. Team building. Project procurement management. Procurement planning, procurement solicitation, source selection, contract administration, and contract closure. Project communication management. Communication planning, information distribution, performance reporting, and administrative closure. Project risk management. Risk identification, qualitative risk analysis, quantitative risk analysis, risk management planning, risk response planning, risk monitoring and control.

Credit Points: 24

Learning Outcomes: On successful completion of this unit students are expected to be able to:

1. Plan and implement a project life cycle;

2. Integrate, plan and execute a project;

3. Implement cost management, risk and human resource management planning.

Class Contact: Seventy Two (72) hours for one semester comprising of lectures, tutorials, seminars and group activities.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Class Test (Two Hours) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%Test, Class Test (Two Hours), 20%. Assignment, Assignment (report not exceeding 5000 words), 20%. Examination, Final examination (Three Hours), 60%.

VEE8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VEE8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VEE8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VEE8012 RESEARCH THESIS 2 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VEF1001 ENABLING SCIENCES 1A

Locations: Footscray Park.

Description: Basic algebra, including index, log laws, indicial and log equations, algebraic expansions; Functions, straight line, parabola, circle etc. Mod function. Domain, range, inverse functions; Trig. Functions and their graphs, period amplitude, degrees radians. Basic trig identities, Inverse Trig functions. Converting aCosx±bSinx to single Sin, Cosine terms; Limits, continuity, differentiation, rules, higher derivatives, Implicit differentiation. Tangents and Normals; Parametric differentiation, derivatives of logs and exponentials. Rates of change, maximum and minimum problems. Trig and inverse trig derivatives, logarithmic differentiation; Introduction to integration. Fundamental theorem of Integral Calculus. Substitution rule. Areas, Mean values, Root mean square; Methods of integration, partial fractions, simple integration by parts; Introduction to differential equations, separation of variables, population growth, air resistance; Complex numbers.Physical Units and Dimensions: Physical quantities, system of units and standards, dimensions, unit conversion, significant figures. Kinematics and Mechanics: Scalars and vectors, displacement, velocity and acceleration, motion in one and two dimensions, force, Newton's laws of motion, friction, work and energy, momentum and conservation laws, impulse and collisions, rotational motion, Waves: SHM, damped harmonic motion, forced oscillations and resonance, oscillatory motion, mechanical and acoustic waves, superposition and standing waves, Doppler effect, beats, sound intensity levels.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform basic differentiation and integration Calculate rates of change in maximum and minimum problems Perform integration by parts Use Newton s laws to calculate displacement, velocity and acceleration Apply the rules of conservation of energy and momentum.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: D.Hughes-Hallett, A.Gleason, W.McCallum et al. Single and Multivariate Calculus. John Wiley and Sons, Inc. New York, 2005; Giancoli, D.C. Physics for Scientists and Engineers with Modern Physics, 4th Edition, 2008, Prentice Hall

Assessment: Class tests 30% End of semester examinations 70%

VEF1002 ENABLING SCIENCES 1B

Locations: Footscray Park.

Prerequisites: VEF 1001 Enabling Sciences 1A.

Description: Descriptive statistics, data, histograms etc. Describing data, mean, median, mode, quantiles, measures of dispersion; Introduction to probability, sample space, mutually exclusive and independent events. Intro to PDFs and intro. to Normal distribution; Normal distribution, mean of n variate values, 3,2,1 sigma confidence limits. Binomial, Poisson distributions; Exponential, Hypergeometric distr. Normal approx. to Binomial and Poisson. Sample mean. Central limit theorem; Determinants, matrices, Cramer's rule, inversion; Solution of systems of algebraic equations. Row operation, Gaussian elimination, echelon form, ranks; Newton Raphson, numerical integration. Midpoint, Trapezoidal and Simpsons rules; Introduction to series and some convergence tests; Simple power series and the Maclaurin series; Partial differentiation, algebraic, trig, exp, and log functions. Rules; Partial differentiation, conditions for max/min. Simple problems; Intro to second order constant coefficient, homogeneous D.s. Three types of solutions via the auxiliary equation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Have an understanding of statistics including the Normal, exponential, Poisson and Hyper geometric distributions. Have an understanding of Electric and magnetic fields and calculate the forces acting on charged particles Understanding of wave/particle duality and the Bohr model of the atom.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: D.Hughes-Hallett, A.Gleason, W.McCallum et al. Single and Multivariate calculus. John Wiley and Sons, Inc. New York, 2005; Giancoli, D.C. Physics for Scientists and Engineers with Modern Physics, 4th Edition, 2000, Prentice Hall.

Assessment: Class tests 30%. End of semester examinations 70%.

VEF1003 ELECTRICAL FUNDAMENTALS 1A

Locations: Footscray Park.

Description: Circuit Theory and Electronics: Basic concepts of electricity. KVL and KCL. Analysis of DC circuits using Nodal Voltage Method. Independent DC sources, ideal and practical. Resistors. Power of a signal and amplifiers. Dependent sources. Introduction to the operational amplifier and some application circuits. Resistive transducers. Volt-ampere characteristics. Thevenin and Norton's Theorems. Capacitors. Transient responses of RC series circuits. Ideal diode. Simple rectifier circuits and power supplies. Number Systems and Codes: Base conversions, representation of data in the binary and hexadecimal systems, binary arithmetic, signed and unsigned values.Computer Programming: An overview of a typical computer system. The program creation process; editing, compiling and debugging. Data types, correct choice of type and their range. The use of variable, assignment, arithmetic and logical operations. Flow control using loops; if, while and switch statements. An Introduction to arrays.Digital Electronics: Logic gates, truth tables and Boolean algebra. Equation formation in Sum of Products and Product of Sums forms. Graphical methods of equation minimization including Venn diagrams and the Karnaugh map. Circuit implementation using universal gate sets.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: To have a basic understanding of the concepts, units and interrelationship between electric charge, voltage and power. To understand and be competent in the application of Kirchhoff’s Laws for circuit analysis. To be competent in the application of the Nodal Voltage Method, and the concept of equivalence (including Thevenin’s and Norton’s Theorems) to the solution of linear DC circuit analysis. To understand the different types of gain, and input and output resistance of an amplifier. To be able to analyse the following ideal operational amplifier circuit applications: inverting and non-inverting amplifier, buffer, inverting summer, comparator, and difference amplifier. To understand some of the uses of these circuits. To understand how a dependent source may be used to model the finite voltage gain and finite input resistance of a real operational amplifier. To understand that the operational amplifier voltage range is limited by the DC supply rails, and to appreciate that its gain is dependent upon the signal frequency. To understand the differences between ideal linear and real resistors To understand from a components Volt-ampere characteristic whether or not the device can sink or source power, is linear or non-linear, is bilateral or non-bilateral. To be able to use Volt-ampere characteristics to find the voltage, current or power of a component connected to a Thevenin Equivalent Circuit. To understand the definition and units of capacitance. To know the physical nature of stray capacitance and of capacitors To be able to solve CR charge/discharge transient analysis problems. To appreciate some applications of this type of analysis. To understand how a capacitor acts as an energy storage component. To have a basic understanding of a TRU power supply, including ripple voltage calculations. Write truth tables, construct logic expressions, and minimize expressions using Boolean algebra or Karnaugh map. Design and construct combinational logic circuits for simple applications. Write C++ program to solve simple problems that may include use of selection and repetition structures, create single dimensional arrays and store and manipulate data.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: Ives, R Introduction to Electrical and Electronic Engineering, Victoria University; Savitch, W. Problem Solving with C++, 4th edition, 2004, Addison-Wesley.

Assessment: Class tests,30% End of semester examination 70%.

VEF1004 ELECTRICAL FUNDAMENTALS 1B

Locations: Footscray Park.

Prerequisites: VEF1003 Electrical Fundamentals 1A or equivalent.

Description: Circuit Theory and Electronics: Principle of Superposition. DC characteristics of real operational amplifiers. AC Circuit theory and some practical AC circuits. Phasors and complex impedance. Introduction to magnetism. Self-inductance. Transient & RC RL circuit responses. Resonance. Passive filters & bandwidth. AC characteristics of real operational amplifiers. Power in AC circuitsComputer Programming: Functions and function parameters. Text files and text strings. An introduction to data structures and classes.Digital Electronics: Latches and flip-flops, types, triggering, synchronous and asynchronous signals. Asynchronous counter design using flip-flop chains and manufacturer's devices. Multi-mode synchronous counter and state machine design. Electrical characteristics of logic devices.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: To be able to apply the Principle of Superposition to circuit analysis, and be aware of those circuits where it is not applicable To be able to convert data sheet characteristics of an IC amplifier into a network model. To be able to use the Principle of Superposition to examine the significance of these characteristics in linear applications of the amplifier To be able to analyse linear AC circuits To be able to calculate the RMS value of periodic waveforms To have gained an introductory understanding of electromagnetism sufficient to underpin the solution of circuits containing self-inductors To know the definition of resonance. To understand the behaviour of AC circuits both at resonance, and at frequencies either side of the resonant frequency To be able to convert freely between impedance and admittance, as required by given problems To be able to calculate the attenuation vs frequency response of first order passive filters To be able to calculate the various measures of power associated with AC power circuits To understand how given limitations of real operational amplifiers may manifest themselves in AC circuit applications Design and construct sequential logic digital circuits using D and J-K flip-flops. Use state diagrams and state tables for design. Write C++ programs using user defined functions and pointers and user defined data structures. Write/read data to/from text files.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: Ives, R Electrical and Electronic Engineering, Victoria University.

Assessment: Class tests 30%. End of semester examination 70%.

VEF2001 LINEAR SYSTEMS AND MATHEMATICS 2A

Locations: Footscray Park.

Prerequisites: VEF1002 Enabling Sciences 1B and VEF1004 Electrical Fundamentals 1B

Description: Linear Systems: Analysis of linear time-invariant systems in time-domain. Zero-input response and zero-state response. Relationship between impulse response and transfer function. Poles and zeros and their significance. Analysis of linear time-invariant systems in frequency-domain. Frequency response and Bode diagrams. Mathematics: Laplace transformation and solution of ordinary linear differential equations with constant coefficients. Introduction to Fourier series and Fourier transforms. Elementary eigenvalue-eigenvector problems and solution of a set of ordinary linear first-order differential equations with constant coefficients.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: perform time-domain analysis of linear time-invariant systems using Laplace transforms, perform frequency-domain analysis of linear time-invariant systems using Fourier series and Fourier transforms, apply linear algebra to find trajectories of linear systems modelled as a system of first-order linear ordinary differential equations with constant coefficients, employ simple MatLab commands and Simulink to analyse linear time-invariant systems.

Class Contact: Linear Systems component: Three hours of lecture and problem solving per week for twelve weeks, for one semester. Total 36 hours.Mathematics component: Two hours of lectures and problem solving per week for twelve weeks, for one semester. Total 24 hours.

Required Reading: Linear Systems component: Alexander, C.K. and M.N.O. Sadiku, Fundamental of Electric Circuits, McGraw-Hill, 2004. Strum, R.D. and D.E. Kirk, Contemporary Linear Systems using MatLab. Brooks/Cole, 2000.Mathematics component: Kreyszig, E., Advanced Engineering Mathematics, John Wiley, 2006.

Assessment: This subject is designed to complement our Engineering Design subjects and as such will have significant formative assessment components. In addition there will be summative assessment in the form of multiple "skills audits" to account for 30% and end of semester examinations accounting for 70% of the total marks. The end of semester examinations include a three-hour Linear Systems Component Examination (accounting for 35% of the total marks) and a three-hour Mathematics Component Examination (accounting for 35% of the total marks).

VEF2002 SYSTEMS AND MATHEMATICS 2B

Locations: Footscray Park.

Prerequisites: VEF 2001 Linear Systems and Mathematics 2A

Description: Communication Systems: Communication systems and networks. Circuit switching, Cellular telephony systems and Internet. Communication signal analysis using Fourier series, Fourier transforms and convolution. Spectral standards and bandwidth calculations. Waveform distortion. Nyquist sampling theorem. Digital modulations: PCM, DPCM, DM.Control Systems: Feedback problems and their solutions. Low sensitivity design. Dynamic characteristics and closed-loop stability, algebraic stability tests. Introduction to PID controllers.Probability and Statistics: Probability theory. Random variables. Discrete distributions. Expected value, moment, and variance. Joint distribution. Conditional distribution. Normal distribution. Function of random variables. Maximum likelihood estimation. Confidence intervals and hypothesis testing. Random processes. Correlation, covarianace, and power spectrum.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: state and differentiate the purposes and requirements of communication systems and control systems, perform elementary time-domain and frequency-domain analyses of simple communication systems and control systems, employ simple MatLab commands and Simulink to analyse simple communication systems and control systems.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: Systems component: Nise, N.S. Control Systems Engineering, John Wiley, 2003.Lathi, B.P. Modern Digital and Analog Communication Systems, Oxford University Press, 1998.Probability and Statistics component: Kreyszig, E., Advanced Engineering Mathematics, John Wiley, 2006.

Assessment: This subject is designed to complement our Engineering Design subjects and as such will have significant formative assessment components. In addition there will be summative assessment in the form of multiple "skills audits" to account for 30% and end of semester examinations accounting for 70% of the total marks. The end of semester examinations include a three-hour Systems Component Examination (accounting for 40% of the total marks) and a three-hour Probability and Statistics Component Examination (accounting for 30% of the total marks).

VEF2003 SYSTEMS AND APPLICATIONS 2C

Locations: Footscray Park.

Prerequisites: VEF1004 - ELECTRICAL FUNDAMENTALS 1B

Description: Content Analog Systems: PN diodes, electrical characteristics, applications. Zener diodes. Bipolar transistors, characteristics, small signal model analysis and design. MOSFET devices, characteristics, configurations and use in amplifier design. Voltage regulators, series and shunt types. Digital Systems: Data path elements including encoders, decoders, comparators, multiplexers, demultiplexers, multi-mode synchronous counters registers, shift-registers, arithmetic circuits and ROMs. Applications of data path elements. Data path element function, description in VHDL and synthesis onto programmable logic devices. Computer Programming: Pointers and the use of pointers in data storage, manipulation and data structures. The creation and use of classes. Binary files and random file input/output. An introduction to image processing using bitmap image files. Microprocessor Systems: The architectural structure of a simple 8-bit microprocessor/microcontroller. Program and data organization, programmers model, register sets, instruction set and addressing modes. Assembly language programming. Interfacing via external ports; timers, interrupts and special function peripherals.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: - Design and implement combinational and sequential data processing elements using VHDL with PLDs and manufacturers components. Analyse an engineering problem that requires a computational solution; construct suitable classes and functions for an algorithmic solution. Code and test the solution. Create the hardware and software requirements for an engineering task requiring a small microprocessor based system. Design, build and test the system including the hardware and software components. Analyse and design simpler rectifier based power supplies and small signal amplifiers.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: Roth, C.H. Fundamentals of Logic Design, 5th edition, Thomson Learning, 2004. Sedra, A. and Smith, K, Microelectronic Circuits, 5th edition, Oxford University Press, 2004Savitch. W. Problem Solving wit C++, 4th Edn, 2004, Addison -Wesley Class Lecture Notes 2007.

Assessment: This subject is designed to complement our Engineering Design subjects and as such will have significant formative assessment components. In addition there will be summative assessment in the form of multiple "skills audits" to account for 30% and two 3 hour end of semester examinations accounting for 70% (35%+35%) of the total marks.

VEF2004 SYSTEMS & APPLICATIONS 2D

Locations: Footscray Park.

Prerequisites: VEF2003 - SYSTEMS AND APPLICATIONS 2C

Description: Analog Systems: Differential amplifiers, models of operation, gain, CMMR; design for performance characteristic. Frequency response of amplifiers; an introduction to wide-band and high frequency amplifier design. Oscillators, RC, LC, phase shift, integrator and crystal types. Data converters; dual-slope, successive approximation and flash type. Switching regulators and power supplies. Digital Systems: Synchronous state machine analysis and design. Moore and Mealy machines. State optimization and reduction techniques. Races and hazards; effects and elimination. An introduction to the algorithmic state machine; gate level synthesis and implementation in VHDL. Simple PLD architectures; macro cells, clocking and output options, limitations. Mechanical and Electromagnetic Fundamentals: Magnetic field, Faraday s Law and Lenz s Law, self and mutual inductors Transformers : Single phase transformer. The ideal and realistic transformer equivalent circuits, parameter estimation. Transformer performance: efficiency and voltage regulation. DC shunt motors.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Analyse a range of circuit types and assess the circuit performance. Design circuits to meet performance criteria and select suitable components for circuit realization. Implement optimal state machines for a range of electronic engineering applications. Apply a system level approach to digital design using the algorithmic state-machine design paradigm. Be able to appreciate fundamentals of mechanical and electromagnetic energy conversion. Be able to analyse simple power systems containing DC machinesand transformers.

Class Contact: 60 hours of lectures/tutorials per semester.

Required Reading: Roth, C.H. Fundamentals of Logic Design, 5th edition, Thomson Learning, 2004.Sedra, A. and Smith, K. Microelectronic Circuits, 5th edition, Oxford University Press, 2004Chapman, S. J. Electric Machinery and Power System Fundamentals, McGraw Hill 2002.Class Lecture Notes 2009.

Assessment: This subject is designed to complement our Engineering design subjects and as such will have significant formative assessment components. In addition there will be summative assessment in the form of multiple "skills audits" to account for 30% and two 3 hour end of semester examinations accounting for 70% (35%+35%) of the total marks.

VEG3001 ANALOGUE ELECTRONICS A

Locations: Other.

Prerequisites: VEF2003 Systems and Applications 2C

Description: This unit of study covers analogue electronic circuits analysis and design techniques commonly used in engineering systems. The unit is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The subject includes the theory and implementation of feedback techniques for circuit stability. Differential amplifiers with active loads and multistage amplifiers. The design requirements of biquadratic filters, output stage/power amplifiers of an electronic systems. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: To have experience in performing analysis of most common circuits used in electronic systems. To have experience in performing design calculation of discrete electronic circuits used in different electronic systems. To learn feedback techniques required to insure stabilise function of electronic circuits. To learn some techniques required for frequency compensation of electronic circuits. To be able to use Multisim/Pspice, to analyse the behaviour of any electronic circuits and system. To be able to perform rapid prototyping of a specified electronic circuit.

Class Contact: 2.5 hours per week consisting of lectures/tutorials and laboratory.

Required Reading: Sedra A & Smith K. Microelectronic Circuits, 5th edition, Oxford University Press, 2004. Also extra materials to be provided upon commencement of subject, and dependent upon demands generated by any concurrent Engineering Design exercises.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination 65%, mid-semester test 15% and satisfactory performance of laboratory based exercises 20%

VEG3002 ANALOGUE ELECTRONICS B

Locations: Other.

Prerequisites: VEG3001 Analogue Electronics A.

Description: This unit of study covers analogue electronic Integrated Circuits functions and applications in electrical engineering systems. The unit is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied PBL unit. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent PBL exercises. On successful completion of this unit, students are expected to be able to: Perform analysis of most common circuits used in electronic systems Perform design calculation of discrete electronic circuits used in different electronic systems; Use feedback techniques required to insure stabilise function of electronic circuits; Use techniques required for frequency compensation of electronic circuits; Use Multisim/Pspice, to analyse the behaviour of any electronic circuits and system; Perform rapid prototyping of a specified electronic circuit.

Class Contact: 30 hours of class contact per semester. 2 hours of Lecture/Tutorial and 0.5 hours of laboratory exercises per week.

Required Reading: Sedra A & Smith K. Microelectronic Circuits, 5th edition, Oxford University Press, 2004.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination(65%), mid-semester test(15%) and satisfactory performance of laboratory based exercises(20%). Evaluation of CGA in unit(as %): Level 1(%) Level 2(%) Level 3(%) Problem Solving 10 30 10 Using Information 10 30 10 Communication Oral 0 0 0 Communication Written 0 0 0 Professional - Autonomous 0 0 0 Professional - Collaborative 0 0 0 Social & Cultural Diversity 0 0 0

VEG4100 DIGITAL SIGNAL PROCESSING A

Locations: Footscray Park.

Prerequisites: VEF2001 Linear Systems and Mathematics 2A

Description: Introduction Continuous-time and discrete-time signals. The sampling theorem. Impulse sampling and the zero-order hold. The z-transform.Analysis of discrete-time systems Unit-pulse response. Causal linear shift-invariant systems. Ordinary convolution. Bounded-input bounded output stability. Difference equation and transfer pulse transfer function. Unit-delay operator and realization structures of causal linear shift-invariant systems. A stability test. The frequency response function The discrete-time Fourier transform pairs. Mapping between the s-plane and the z-plane. Infinite duration Impulse Response filters Butterworth and Chebyshev filters. Frequency scaling and transformations. Transformation of analog filters into IIR filters. Matched z-transform, impulse-invariance, and bilinear transformations. Finite duration Impulse Response filters Linear phase response. Filter design with window functions. Frequency sampling filters. The Discrete-Time Fourier transform Relationship between DFT and DTFT. The Fast Fourier transform. Computation of frequency spectra, zero padding. Cyclic convolutions and its application in filter realization.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: perform time and frequency domain analysis of discrete-time linear signal processing systems, design simple FIR and IIR filters, perform spectral analysis on sampled signals with DFT via FFT.

Class Contact: 30 hours class contact comprising 24 hours of lectures/tutorial and 6 hours of laboratory.

Required Reading: E.C. Ifeachor and B.W. Jervis, Digital Signal Processing - A Practical Approach, Prentice Hall, 2002.

Assessment: Laboratory assessment 30%; End of semester examination 70%.

VEG4101 PROFESSIONAL PRACTICE 4A

Locations: Footscray Park.

Prerequisites: VEB3200 - ENGINEERING DESIGN AND PRACTICE 3B

Description: Professional Engineering Ethics. Engineers Australia Code of Ethics, IEEE Code of Ethics. Standards, codes of practice, and statutory requirements for the profession. Social responsibility. Environmental and sustainability considerations in engineering design and management. The role of the engineering institutions. Lifelong professional development, networking, contributing to the community. Basic business principles. Accounting, book keeping methods. Depreciation. Taxation. Understanding company reports. Career choices: (i) working for a salary small company or large company Developing a long term career plan. Career choices: (ii) starting your own business consulting, trading, manufacturing. Innovation and enterprise. (Note: This topic will be developed in more detail in VEG4202). Writing an effective resume and job application. Winning at the job interview. Interview training. Mock job application, mock job interview, with oral and video evaluation and feedback.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the interactions between engineering systems and their social, cultural, environmental, economic and political context; Discuss the role of engineering in society; Display a commitment to professional and ethical responsibilites; Explain the need for lifelong learning and professional development; Interact with people in other disciplines and professions to broaden knowledge, and to achieve multidisciplinary outcomes with a properly integrated engineering contribution; Describe general business principles currently in operation; Describe the process of applying for jobs and the process of selection.

Class Contact: Sixty (60) hours or equivalent for one semester comprising formal and informal class work.

Required Reading: There are no prescribed readings for this unit. Students will be guided by the unit coodinator to material relevant to the unit.

Assessment: A series of assignments (class exercises and projects), tests and examination (100%).

VEG4202 PROFESSIONAL PRACTICE 4B

Locations: Footscray Park.

Prerequisites: VEB3200 - ENGINEERING DESIGN AND PRACTICE 3B

VEG4101 - PROFESSIONAL PRACTICE 4A

Description: Starting a business. Assistance from government agencies (for example: www.business.gov.au) Marketing principles, market research. Advertising. Writing a business plan. Registration & licences. Obtaining finance. Sources of venture capital. Importing and exporting. Regulatory and commercial considerations. Using agents and distributors. Cost estimating. Time estimating and management. Tendering. Meeting mandatory conditions in tenders. Risk management. Insurance. Contracts. Project Management techniques. Leadership and managing staff. Leadership styles. Program Evaluation and Review Technique (PERT) and the Critical Path Method (CPM) techniques. Gantt charts for scheduling. Monitoring and controlling the project. Intellectual property. Copyright. Patents. Searching patents, obtaining a patent. Licensing. Franchising. Safety in the workplace. Legislated health and safety requirements. Workcover insurance. Standards and codes of practice. Product compliance requirements (for example: Australian Standards - electrical safety standards, EMC compliance requirements). Quality control.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the current commercial, legal and regulatory environment in which the professional engineer works; Describe the legal and regulatory requirements for starting a business; Describe how to prepare a business plan; Explain the financial system, the way financial institutions operate, and the requirements for successfully securing funding; Explain how to participate in the tendering process, and manage risk in tendering; Discuss intellectual property issues, and methods of protecting intellectual property; Explain how to use project management techniques as applied to an engineering undertaking; Discuss the importance of workplace safety, and its regulatory and insurance aspects.

Class Contact: Sixty (60) hours or equivalent for one semester comprising formal and informal class work.

Required Reading: There are no prescribed readings for this unit. Students will be guided by the unit coodinator to material relevant to the unit.

Assessment: A series of assignments (class exercises and projects), tests and examination (100%).

VEH3001 DIGITAL SYSTEM DESIGN A

Locations: Other.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: Design simple and complex asynchronous state machines and implement them on PLDs. Apply a sound technical design approach, manage the design complexity in an efficient manner and implement the solution with modern software development tools and devices.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Design and implement a digital system containing of the order of 20,000 logic gate elements. Apply a sound technical design approach, manage the design complexity in an efficient manner and implement the solution with modern software development tools and devices.

Class Contact: 30 hours of class contact. 2.5 hours per week - 2 hours lecture/ tutorial and 0.5 hours laboratory work integrated with VEB3002 as experimental workshop.

Required Reading: Roth, C.H. Fundamentals of Logic Design, 5th edition, Thomson Learning, 2005.

Assessment: End of semester examination 70%, a mid-semester test and assignments 20% and laboratory 10%.

VEH3002 DIGITAL SYSTEM DESIGN B

Locations: Other.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: Need for Asynchronous FSMs. Models of Asynchronous FSMs. Analysis of Asynchronous Circuits. Timing problems - critical and non-critical races, cycles, static and essential hazards. Design of Asynchronous Machines - hazard-free, one-hot designs. One-hot Asynchronous Sequencers.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Design simple and complex asynchronous state machines and implement them on PLDs. Apply a sound technical design approach, manage the design complexity in an efficient manner and implement the solution with modern software development tools and devices.

Class Contact: 30 hours of class contact. 2.5 hours per week - 2 hours lecture/tutorial and 0.5 hours laboratory work.

Required Reading: Tinder, R.F. Engineering Digital Design, 2nd Edition Academic Press, 2005.

Assessment: End of semester examination 70%, a mid-semester test and assignments 20% and laboratory 10%.

VEH3003 EMBEDDED COMPUTER SYSTEMS DESIGN

Locations: Other.

Prerequisites: VEF2003 - SYSTEMS AND APPLICATIONS 2C

Description: This unit of study provides an introduction to microprocessor embedded systems design and to provide support for students requiring knowledge of embedded systems in a concurrently studied Engineering Design unit. The aim of the unit is to extend students knowledge of microprocessor systems into embedded applications using a high level language. Hardware and software system aspects are considered along with means of managing system complexity. In addition to lectures and tutorials the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, it is expected that students will be able to : design, build and implement an embedded system using a modern microcontroller, code in a high level language that interfaces to appropriate signal acquisition and actuating devices and meets performance requirements in terms of functionality (logical and timing) and cost.

Class Contact: 30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of laboratory work per week.

Required Reading: Microchip Corporation. Complete Mid-range Reference Manual; 2004 Microchip Corporation. Complete PIC18C Reference Manual; 2006

Assessment: End of semester examination (80%). Mid-semester test laboratory (20%

VEH3004 REAL TIME AND MULTITASKING COMPUTER SYSTEMS

Locations: Other.

Prerequisites: VEH3003 - EMBEDDED COMPUTER SYSTEMS DESIGN

Description: This unit of study provides an introduction to real time multitasking systems through the use of a real time kernel and to provide support for students requiring knowledge of embedded systems in a concurrently studied Engineering Design unit. The aim of the unit is to extend student s knowledge of computer systems into time critical and very complex applications using a structured design approach and the use of a real time kernel. Hardware and software system aspects are considered along with means of managing system complexity. In addition to lectures and tutorials the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: analyse a complex embedded computer control task and formulate a multitasking solution, and implement the solution using a high level language, supported by a commercial real time kernel.

Class Contact: 30 hours of class contact. 2.5 hours per week - 2 hours lecture/tutorial and 0.5 hours laboratory work.

Required Reading: Pumpkin Inc; SALVO Reference Manual; 2005. Microchip

Corporation. Complete PIC18C Reference Manual; 2006.

Assessment: End of semester examination 80% and a mid-semester test and laboratory 20%.

VEH4001 COMPUTER SYSTEMS ON AN ASIC

Locations: Other.

Prerequisites: VEH3004 - REAL TIME AND MULTITASKING COMPUTER SYSTEMS

Description: This unit of study integrates the entire computer engineering (hardware and software) knowledge from earlier years of study. The aim of the unit is for the students to learn how to bring together one (or more) microprocessors, memory blocks (containing a C++ real time program), I/O blocks and the student s designed special purpose devices onto a single VLSI device. Managing the design of complex systems, the manufacturing pathway to mass production and economic considerations are also included. The unit also provides support for students requiring knowledge of this area of digital systems in a concurrently studied Engineering Design unit. Consequently, the syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Design and implement a single chip digital system containing multiple microprocessors and dedicated hardware operating multiple tasks in a real-time manner. Other outcomes will be in the management of design complexity for 1 million+ gate designs, economic and manufacturing considerations.

Class Contact: 30 hours of class contact consisting of 2.5 hours per week - 2 hours lecture/tutorial and 0.5 hours laboratory work per week.

Required Reading: Provided notes to support lecture program. Labrosse, J. J. MicroC/OS II The Real Time Kernal, 2nd edition, CMP,200

2.

Assessment: End of semester examination 80%, a mid-semester test and laboratory 20%.

VEH6001 HDL AND HIGH LEVEL SYNTHESIS

Locations: Other.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: Hardware modelling and design flow, Features requirements of Hardware Languages (structural and behavioural), Abstract Models, Compilation and Optimisation Techniques. Hardware Description Language VHDL and/or Verilog. Architectural - Level Synthesis and Optimisation Modelling, the Fundamental architectural synthesis problems, Area and performance estimation, Data path and Control Unit Synthesis, Synthesis of Pipelined Circuits. Synthesis Techniques, Logic synthesis and optimisation, FPGAs synthesis, folding and partitioning, Multi-level logic synthesis techniques; Structured layout styles, Local and global transformations. State machine synthesis techniques. High level synthesis techniques: Strategies for high level synthesis, Scheduling and allocation operations. High-level optimisations. Realisation using FPGAs and CPLDs. Coding standards. Industry Standard EDA Tools.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises and project.

Required Reading: Chang, K.C., 1999, Digital Systems Design with VHDL and Synthesis, IEEE. Appropriate IEEE/IEE Journal Papers.

Assessment: Assignment and laboratory exercises, 20%; project, 50%; and final examination, 30%.

VEH6002 IC DESIGN

Locations: Other.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: Overview of MOS and sub-micron technology, scaling and signal integrity, IC design techniques. CMOS cell design: device-level design constraints, gate design, pas transistor circuits, sequential circuits, mask level design. Layout considerations, design rules and mask level design. Circuit optimisation techniques. ASIC and custom design, synchronous system design. Timing issues in VLSI circuit design. Design of VLSI system sub-systems: Arithmetic and logic processing elements, adders, counters, I/Os, buffers, data path design and layout, etc. Chip floor planning. Basic analog building blocks. Design tradeoffs-cost, power and performance. Testability and yield.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising one hour per week lectures and three hours per week of laboratory exercises and project.

Required Reading: Rabaey, J.M., 1996, Digital Integrated Circuits - A Design Perspective, Prentice Hall. Appropriate IEEE/IEE Journal papers.

Assessment: Assignment and laboratory exercises, 30%; project, 50%; and final examination, 20%.

VEH6003 EDA TOOLS AND DESIGN METHODOLOGY

Locations: Other.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: EDA design flow environment. Tool integration. Embedded development tools. Back-end IC design flow and tools. Front-end IC design flow and tools. Hardware/software co-design and co-verification. Functional design and verification. Mixed signal design flow. Simulation and verification. Test bench design. Prototyping.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising one hour per week lectures and three hours per week of laboratory/workshop and project.

Required Reading: Current available text book- students to be advised.

Assessment: Assignment and laboratory exercises, 60%; research project, 40%.

VEH6004 DIGITAL SYSTEM DESIGN

Locations: Footscray Park.

Prerequisites: VEH6001 - HDL AND HIGH LEVEL SYNTHESIS

OR equivalent.

Description: Review of combinational and sequential circuit analysis and design using PLDs, ALUs, FPGAs and ROM. Functional decomposition and symmetric functions. Iterative circuits. Algorithmic state machine design approach. Register Transfer Language (RTL) design techniques. Asynchronous systems: micro-pipelines, asynchronous microprocessor. RISC architectures and the influence on VLSI technology. Parallel processing structures. VLSI processor arrays. Content addressable and associate memories. Systolic and wavefront arrays. Application driven architecture. Self-timed logic. Advanced Micro based design.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit of study the students are expected to have: Gained an appreciation of and apply industry standards to digital system design methodologies Gained knowledge of and applied VHDL coding styles for synthesis, data structure and state machines and advanced timing issues in high speed digital systems Developed skills in the use of EDA design for digital system design

Class Contact: Four hours per week for one semester comprising of lectures and laboratory exercises.

Required Reading: Chang, K.C., 1999, Digital Systems Design with VHDL and Synthesis.

Assessment: Assignment and laboratory exercises, 30%; project, 40%; and final examination, 30%.

VEH6006 EMERGING TOPICS IN IC DESIGN

Locations: Other.

Prerequisites: Nil.

Description: New technologies such as: Silicon carbide high-power devices, Quantum based devices, quantum wells and quantum dots Nanometer MOSFETSs, Wide bandgap materials and devices, Plasma-wave electronics, Ferroelectric devices. Overview of new process technologies. Deep sub-micron technology and noise. Ultra-high-speed devices, including microwave and optical devices. New Systems-Level Architectures, such as: Nanowire arrays, Neuromorphic architectures, Reconfigurable architectures, Wafer-scale systems, Memory systems. New EDA tools and future technology projections. EMC: regulations, measurement and testing, Design issues related to EMC.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week lectures and two hours per week of workshops and seminars.

Required Reading: Dimitrijev, S., 2000, Understanding Semiconductor Devices, Oxford University Press. Appropriate Journal Papers.

Assessment: Assignments, 30%; seminars, 40%; and research project, 30%.

VEH6007 ADVANCED VLSI DESIGN

Locations: Other.

Prerequisites: VEH6002 - IC DESIGN

OR equivalent.

Description: Overview of design flow, requirement specification, configuration management issues. Design and simulation using industry standard EDA tools. Use full-custom design tools to generate circuit layout, design rule checking, design verification and simulation. Input/output ports. Layout generators, parameterised cells, PLA generator, Silicon compilation, Data path compiler, Placement and routing. Clock distribution techniques. Layout analysis including design rules, DRC, circuit extraction, etc. Equivalence checking. Simulation: logic simulation, delay modelling, fault simulation. Mixed analog/digital system specification, integration issues. VHDL - AMS. System-level specification, validation and analysis. Reusable IP blocks. System-on-a-chip (SOC) design issues including software, hardware and IP blocks. Design verification and SOC testing. Test bench design.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising one hour per week lectures and three hours per week of laboratory exercises and project.

Required Reading: Silveira, L.M., Devadas, S. and Reis, R., 1999, VLSI: Systems on a Chip, Kluwer. Appropriate IEEE/IEE Journal Papers.

Assessment: Assignment and laboratory exercises, 30%; project, 50%; and final examination, 20%.

VEH6008 VLSI DIGITAL SIGNAL PROCESSING SYSTEMS

Locations: Other.

Prerequisites: VEG4100 - DIGITAL SIGNAL PROCESSING A

Description: Overview of DSP: FFT, DFT, Z-transform and sampling theory. FIR and IIR filter design and implementation. Interpolation, decimation and multi-rate systems. Adaptive filtering and applications. DSP software building blocks, nonlinearity and choice of sampling rate. DSP hardware: architecture, processing blocks (multipliers, ALU, MAC, barrel shifters). Pipelining and parallel processing, power consumption and reduction. Folding and unfolding applications: sampling period reduction, designing digit-serial hardware, time-multiplexed design. Systolic array design. Algorithmic strength reduction. Advanced DSP software and hardware. DSP system design.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises and project.

Required Reading: Keshab, K.P., 1999, VLSI Digital Signal Processing Systems: Design and Implementation, Jacaranda Wiley. Appropriate IEEE/IEE Journal Papers.

Assessment: Assignment and laboratory exercises, 30%; project, 40%; and final examination, 30%.

VEH6009 RELIABILITY AND TESTABILITY IN IC DESIGN

Locations: Footscray Park.

Prerequisites: VEH6001 - HDL AND HIGH LEVEL SYNTHESIS

VEH6003 - EDA TOOLS AND DESIGN METHODOLOGY

Description: Reliability: parallel and serial reliability, failure rates. Reliability as affected by smaller dimensions and faster devices, thermal considerations. Redundancy and fault tolerance. Design for device reliability. Functional and formal verification and fault modelling. Hardware/software co-design, co-verification and co-simulation. Timing and power analysis. Design for testability and ATPG and fault coverage tools Layout issues for testability. Testing methodologies (In-circuit, Built in self test), Boundary Scan Testing. Memory testing, BIST of RAMs, RAM interconnection testing, Scan based testing of multimegabit memories, external and internal testing of megabit DRAMs. Comprehensive testing of multistage interconnection networks. Embedded system testing. Board-level interconnect testing. Test bench design.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit of study, students are expected to have: Developed an appreciation of reliability issues related to microelectronic devices and integrated circuits Developed an understanding of circuit testability issues and design for testability. Developed and applied knowledge in fault modelling and testing methodologies Developed an appreciation for system level testing Developed skills in the use of EDA design for test tools including automatic test pattern generation.

Class Contact: Four hours per week for one semester comprising lectures and laboratory exercises.

Required Reading: Lala, P.K., 1997, Digital Circuit Testing and Testability, Academic Press.

Assessment: Assignment and laboratory exercises, 60%; and final examination, 40%.

VEH6010 INTRODUCTION TO MICROSYSTEM TECHNOLOGY

Locations: Other.

Description: MOS and MEMS processes. Bulk and surface silicon micromachining. LIGA techniques. Analog and digital interfacing circuits and sensors. EDA tools for MEM design and implementation. MEMS device modelling. Packaging issues. Replication processes. Hybrid design methodology and techniques.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises.

Required Reading: Maluf, N., 2000, An Introduction to Microelectromechanical Systems Engineering, Artech. Appropriate Journal Papers.

Assessment: Assignments, 20%; laboratory exercises, 30%; project, 30 and final examination, 20%.

VEH6011 INTRODUCTION TO SEMICONDUCTOR DEVICE FABRICATION

Locations: Other.

Description: Fundamental principles of fabrication processes, physical and chemical models for crystal growth, oxidisation, ion implantation, etching, deposition, lithography and metallisation. Emphasis is on practical aspects of silicon device fabrication, including wafer cleaning, photolithography, etching, oxidation, diffusion, ion implantation, chemical vapour deposition, physical sputtering and wafer testing. Imperfections in semiconductors, crystal growth, solid solubility, alloying and diffusion, ion implantation, oxide masking, and epitaxy. Practical and fundamental limits to the evolution of the technology of MOS and bipolar devices. How are integrated circuits fabricated and what future changes are likely The implications for device performance caused by material properties and fabrication techniques. Fabrication techniques for bipolar and MOS-devices, and the electrical performance of devices based on these techniques. Comparison of fabrication technologies for silicon and gallium arsenide devices. Processes and fabrication equipment to be studied will include oxidation/diffusion, CVD reactors, photolithography, plasma etching, vacuum evaporator, ion implantation, etc. Introduction to computer modelling of processing steps such as etching., lithography, diffusion, implantation (eg SUPREME).

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises.

Required Reading: Levinshtein, M. and Shur, M., 1997, Semiconductor Technology: Processing ad Novel Fabrication Techniques, John Wiley. Appropriate Journal Papers.

Assessment: Assignments, 20%; laboratory exercises, 30%; and final examination, 50%.

VEH6013 PROJECT MANAGEMENT AND ENTREPRENEURSHIP

Locations: Other.

Description: Quality standards and compliance issues. Managing QA. Human Resources issues. Occupational Health and Safety requirements. Overview of project management strategy, project life cycle, scope, integration, scheduling, risks, budget, etc. Creativity and innovations. Business plans. IP issues and commercialisation process. Entrepreneurial organisation and strategy. Venture capital and marketing. Case studies.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester. Assessment Assignments, 20%; seminar presentations, 10%; project, 30%; and final examination, 40%.

Required Reading: Current available text book - students to be advised. Appropriate journal papers.

Assessment: To be advised.

VEH6014 RF AND MIXED SIGNAL DESIGN

Locations: Other.

Prerequisites: VEG3001 - ANALOGUE ELECTRONICS A

Description: Basic concepts of wireless communication systems design. Transceiver architectures. VLSI design issues and layout techniques in wireless transceiver design. Radio circuits, LNAs, oscillators, mixers, limiters, phase detectors, frequency synthesisers, PLLs and power amplifiers. Low voltage low power design techniques and design flow for analog and mixed signal circuits and systems. OpAmps, comparators, A-to-D and D-to-A conversion circuits. Noise analysis and design tradeoffs - cost, power and performance. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week lectures and two hours per week of laboratory exercises and project.

Required Reading: Farag, E.N. and Elmasry, M.I., 1999, Mixed Signal VLSI Wireless Design: Circuits and Systems, Kluwer. Appropriate IEEE/IEE Journal papers.

Assessment: Assignment and laboratory exercises, 30%; project, 50%; and final examination, 20%.

VEH6016 VERILOG HDL

Locations: Footscray Park.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: The role of HDL in design, Top-down introduction to Verilog, Verilog for description of logic circuits, Verilog language constructs, behavioural modelling, logic level modelling, concurrent process and switch level modelling. Timing analysis, synthesis and test benches.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hours per week for one semester, comprising of two hour lecture and two hours of tutorial/laboratory and project work.

Required Reading: Thomas, D.E and Moorby, P.R., 1998, The Verilog Hardware Description Language, Kluwer.

Assessment: Assignments and laboratory exercises, 20%; project, 30%; final examination, 50%.

VEH6017 DIGITAL SYSTEM DESIGN WITH VERILOG HDL

Locations: Footscray Park.

Prerequisites: VEH6001 - HDL AND HIGH LEVEL SYNTHESIS

VEH6016 - VERILOG HDL

Description: Introduction to Verilog and digital systems design for VLSI, combinational and sequential circuits, design verification, algorithmic state machine design, finite state machine specifications in Verilog, hierarchical modelling concepts, synchronous and asynchronous systems, pipelined architectures, processor architectures, clocks timing and clock distribution, synthesis and advanced concepts in brief.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hours per week for one semester, comprising of two hour lecture and two hours of tutorial/laboratory and project work.

Required Reading: Palnikar, S. & Goel P., 2003, Verilog HDL: A Guide to Digital Design and Synthesis, Prentice Hall PTR.

Assessment: Assignments and laboratory exercises, 35%; project, 33%; final examination, 30%.

VEH6018 ANALOG & MIXED SIGNAL DESIGN

Locations: Footscray Park.

Description: The design of CMOS analog and mixed-signal integrated circuits is covered. Design concepts of high speed low power amplifiers, filters, sample and hold circuits, comparators, digital to analog and analog to digital converters are fully analysed. Noise and performance analysis and design tradeoffs - cost, power and performance. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hours per week for one semester, comprising of one hour lecture and three hours of laboratory and project work.

Required Reading: Razavi, B., 2001, Design of analog CMOS integrated circuits, McGraw Hill International Edition.

Assessment: Assignments and laboratory exercises, 20%; project, 50%; final examination, 30%.

VEH6020 MINOR PROJECT

Locations: Other.

Prerequisites: VEH6001 - HDL AND HIGH LEVEL SYNTHESIS

VEH6002 - IC DESIGN

VEH6003 - EDA TOOLS AND DESIGN METHODOLOGY

OR equivalent.

Description: It is expected that the majority of industry-based students will undertake projects as part of their normal employment, where relevant opportunities exist and suitable resources and supervision can be guaranteed. A project can be structured to be the equivalent of two units of study. Projects would b expected to demonstrate a good working knowledge in chip design and implementation. Students must demonstrate their ability to integrate and draw upon their coursework studies relevant to the project. A dissertation of no less than 10000 words must be submitted and will be examined by one examiner selected by the examining panel for this module. Commercial in-confidence programs can be undertaken, with appropriate restrictions on publication and choice of examiners. Intellectual property of projects initiated by a company and undertaken in that company will remain with the company. All other projects will be subject to the Intellectual Property policy of the relevant university partner.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Eight hours per week for one semester.

Required Reading: Current available text - students to be advised. Appropriate IEEE/IEE Journal materials.

Assessment: Assessment will be based on project progress and demonstration, 20%; Final project demo 30%; final report, 40% and an oral poster presentation, 10%.

VEH6030 MAJOR PROJECT

Locations: Other.

Prerequisites: VEH6001 - HDL AND HIGH LEVEL SYNTHESIS

VEH6002 - IC DESIGN

VEH6003 - EDA TOOLS AND DESIGN METHODOLOGY

OR equivalent.

Description: It is expected that the majority of industry-based students will undertake projects as part of their normal employment, where relevant opportunities exist and suitable resources and supervision can be guaranteed. Collaboration with international partners will also be encouraged. A project can be structured to be the equivalent of four units of study. Projects would be expected to demonstrate mastery in chip design and implementation at a level considered no less than that of an experienced practitioner in the field. Students must demonstrate their ability to integrate and draw upon their coursework studies relevant to the project. A dissertation of no less than 15000 words must be submitted and will be examined by two examiners selected by the examining panel for this module. Commercial in-confidence programs can be undertaken, with appropriate restrictions on publication and choice of examiners. Intellectual property of projects initiated by a company and undertaken in that company will remain with the company. All other projects will be subject to the Intellectual Property policy of the relevant university partner.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: Sixteen hours per week for one semester. Assessment Assessment will be based on project progress and demonstration, 20%; Final project demo 30%; final report, 40% and an oral poster presentation, 10%.

Required Reading: Current available text - students to be advised. Appropriate IEEE/ IEE Journal materials.

Assessment: To be advised.

VEH6101 ASIC DESIGN TECHNIQUES

Locations: Footscray Park.

Description: Introduction and project overview: Use of Mentor Graphics and Summit IC Design tools. System design: Behavioural simulations. RTL design. ASM design. Development of gate level designs. Autoplacement and autorouting. Back-annotation. and resimulation. Program gate array and test.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising one hour per week of lecture and three hours per week of tutorial/laboratory.

Required Reading: Selected papers from IEEE/IEE Journal. To be advised by the lecturer.

Assessment: Assignments 20%; Research Project 80%.

VEH6102 CUSTOM IC DESIGN B

Locations: Footscray Park.

Prerequisites: VEH6121 Basic IC Design or equivelent

Description: The students will use modern integrated CAD software to accomplish schematic capture, simulation, layout, extraction, place and route and design verification. Mixed analog/digital system specification. Design and simulate circuit using schematic capture tools and HSPICE. Use of Mentor Graphics. Full-custom design tools to generate circuit layout, design rule checking, design verification and simulation. Input/output pads. Layout generators. Layout analysis. Placement and routing. Testing.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising one hour per week of lecture and three hours per week of project.

Required Reading: Selected papers from IEEE/IEE Journal. To be advised by the lecturer.

Assessment: Assignments, 20%; Project, 80%.

VEH6111 DIGITAL CIRCUIT DESIGN

Locations: Footscray Park.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: ASM design approach, Synthesis by programmable devices. Asynchronous systems: Micropipelines, Asynchronous microprocessor. RISC architectures and the influence on VLSI technology. Parallel processing structures. Artificial neural networks. VLSI processor arrays. Content addressable and associated memories. Systolic and wavefront arrays. Application driven architecture.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week of lecture and two hours per week of tutorial/laboratory.

Required Reading: Mano, M.M. and Kime, C.R., 1997, Logic and Computer Design Fundamentals, Prentice Hall.

Assessment: Assignments and laboratory exercises 30%, Project 40%; final examination 30%.

VEH6121 BASIC IC DESIGN/DEVICES

Locations: Footscray Park.

Prerequisites: VEH6111 - DIGITAL CIRCUIT DESIGN

Description: Bipolar and CMOS structures. Logic design: Introduction to CMOS circuit design: Switch level analysis of NMOS and CMOS structures., CMOS logic gates using static and dynamic logic, Precharging techniques, latch up, pass transistor/ transmission gate logic. PLA logic: static and dynamic design. Memory. Design of subsystems using sequential logic.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week of lecture and two hours per week of tutorial/laboratory.

Required Reading: Weste, N. and Eshragian, K., 1993, Principles of CMOS VLSI Design, Addison Wesley.

Assessment: Test, assignments and laboratory exercises 40%, final examination 60%.

VEH6122 CUSTOM IC DESIGN A

Locations: Footscray Park.

Prerequisites: VEH6121 Basic IC Design/Devices or equivalent

Description: CMOS cell design: device-level design constraints, Circuit optimisation techniques, gate matrix method. Review of tools for low-level cell design: Mentor Graphics circuit design and verification tools, HSPICE and PSPICE simulation tools. Basic analog building blocks. Timing issues in VLSI circuit design. Design of VLSI system sub-systems: Arithmetic and logic processing elements, adders, counters, etc, data path design and layout. Chip floorplanning.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising one hour per week of lecture and three hours per week of research project.

Required Reading: Gopalan, K., 1996, Introduction to Digital Microelectronic Circuits, IRWIN.

Assessment: Assignments, 40%; project, 60%.

VEH6142 EMERGING TECHNOLOGIES

Locations: Footscray Park.

Description: Yield of integrated circuits: Random distribution of defects, continuous and discrete distributions of defect density. Reliability: Failure rate, MTBF, accelerated testing. Fault tolerance: Static and dynamic redundancy. Processing and qualification of high reliability circuits, Group III-IV ICs and optoelectronics. GaAs IC design techniques. Advanced silicon VLSI technology. Advanced processing methods: Deep UV lithography, direct E-beam writing, X-ray lithography, Ion beam writing, silicon MBE, advanced etching techniques.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising of one hour per week of lecture and three hours per week of research project.

Required Reading: Selected papers from IEEE/IEE Journals. To be advised by the lecturer.

Assessment: Assignments, 40%; final project, 60%.

VEH6152 MICROPROCESSOR DESIGN TECHNIQUES

Locations: Footscray Park.

Prerequisites: VEH6111 Digital Circuit Design

Description: 68020 programming model, data organisation, addressing modes and instructions sets. Exception processing, stack frames, parameter passing and procedure calls. Software development for embedded systems. External bus behaviour and design of decoders, Stack and BERR circuitry using PLDs. Interfacing memory and peripheral devices. Embedded microcontroller devices - architecture, features, peripherals and programming. Coprocessor interface and memory management.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours per week of lecture and two hours per week of tutorial/laboratory.

Required Reading: Selected papers from IEEE/IEE Journals. To be advised by the lecturer.

Assessment: Test, assignments and laboratory exercises 40%, final examination 60%.

VEM2012 ELECTRICAL ENGINEERING

Locations: Footscray Park.

Prerequisites: REP1002 - ENGINEERING PHYSICS 1B

Description: Fundamentals of electrical circuit theory, DC circuits, Series/parallel circuits, Introduction to AC circuits. Basic operation, performance characteristics and selection of motors and generators. Introduction to electronics. Digital value representation, number systems, binary arithmetic operations. Boolean algebra, Boolean expression of digital circuits, Karnaugh Map simplification, combinational digital circuit design, Nand/Nor design. Circuit design using MSI components, decoders and multiplexers. Latches, flip-flops and concepts and sequential digital circuits. Binary counter and other modulus counter design. Typical circuits for analog to digital and digital to analog conversion. Devices for microprocessor interface.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to:

1. Apply skills to solve DC and AC circuits for required electrical quantity;
2. Identify electrical motors and generators and be able to select a motor for a particular application;
3. Design and test combinational and sequential digital circuits including binary counters.

Class Contact: 60 hours of lectures, tutorials and laboratory work.

Required Reading: Principles and applications of electrical engineering. Rizzoni, G (2000). McGraw Hill. DigitalSystems - principles and application Tocci, R.J. & Widmer, W.D. (1998). (6th ed.). Prentice-Hall.

Assessment: Laboratory Work, Laboratory Report 1, 5%. Laboratory Work, Laboratory Report 2, 5%. Laboratory Work, Laboratory Report 2, 5%. Assignment, Computer based, 10%. Test, Mid-semester test, 10%. Presentation, Tutorial presentation, 5%.

VEM3001 CUSTOM IC DESIGN & EDA TOOLS

Locations: Other.

Prerequisites: VEF2004 Systems and Applications 2D

Description: The design of basic CMOS integrated circuits is covered, including overview of MOS technology, complex complementary CMOS design, combinational design techniques including dynamic and domino logic, CMOS Latchup and circuit protection. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools for custom design. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Gained knowledge of basic custom integrated circuits design Gained knowledge of custom integrated circuit design flow and circuit design Carried out significant tasks designed to improve desired generic skills and attributes. Gained knowledge of industry standard electronic design automation tools. Gained knowledge of electronic design automation tools for custom IC designs.

Class Contact: 2.5 hours per week consisting of lectures/tutorials and laboratory.

Required Reading: Rabaey, J. M., 2002, Digital Integrated Circuits, 2nd Edition, Prentice Hall. Chang, H., Cooke, L., Hunt, M., Martin, G., McNelly, A. and Todd, L, 1999, Surviving the SOC Revolution. A Guide to Platform-Based Design, Kluwer Academic.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination 50%, a project 35% and satisfactory performance of laboratory based exercises 15%.

VEM3002 APPLICATION SPECIFIC IC DESIGN

Locations: Other.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: The design of Application Specific integrated circuits (ASIC) is covered, including introduction, ASIC VLSI design cycle, fundamental approach and design aspects, full and semi-custom design methodology, IBM ASIC design flow place and route, ESD failure, and ESD protection. Students will also develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools for ASIC design. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Gained knowledge of Application Specific Integrated Circuits design. Gained knowledge of ASIC integrated circuit design flow and circuit design. Carried out significant tasks designed to improve desired generic skills and attributes.

Class Contact: 2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

Required Reading: Chinnery, D., Keutzer, K., Keutzer, K. W., Closing the Gap Between Asic & Custom: Tools and Techniques for High-Performance Asic Design, Kluwer Academic Publishers, 200

2.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination 50%, a project 35% and satisfactory performance of laboratory based components of this unit 15%

VEM4001 ADVANCED CUSTOM IC DESIGN

Locations: Footscray Park.

Prerequisites: Nil.

Description: Overview of MOS and sub-micron technology, scaling and signal integrity, IC design techniques. CMOS cell design: device-level design constraints, gate design, pas transistor circuits, sequential circuits, mask level design. Layout considerations, design rules and mask level design. Circuit optimisation techniques. Timing issues in VLSI circuit design. Design of VLSI system sub-systems: Arithmetic and logic processing elements, adders, counters, I/Os, buffers, data path design and layout, etc. Chip floor planning. Design tradeoffs-cost, power and performance. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit of study will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Gained knowledge of basic integrated circuits design. Gained knowledge of integrated circuit design flow and circuit design. Carried out significant tasks designed to improve desired generic skills and attributes.

Class Contact: 2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

Required Reading: Rabaey, J. M., 2002, Digital Integrated Circuits, 2nd Edition, Prentice Hall.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination 50%, a project 35% and satisfactory performance of laboratory based components of this unit 15%.

VEM4002 HETEROGENEOUS SYSTEMS

Locations: Footscray Park.

Prerequisites: VEM3002 - APPLICATION SPECIFIC IC DESIGN

Description: Overview of current trends in semiconductor technology, fundamental physical and economic constrains, technology roadmap for semiconductors, challenges and needs for nano-electronics, organic and molecular microelectronics, system implementation issues, development of mixed signal and RF systems, MEMS, wireless sensor networks, ambient technology. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit of study will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Gained knowledge of current trends in semiconductor technology. Gained knowledge of simulation and design of heterogeneous systems. Carried out significant tasks designed to improve desired generic skills and attributes.

Class Contact: 2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

Required Reading: Luryi, et al., Future Trends in Microelectronics, 200

4.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination 50%, a project 35% and satisfactory performance of laboratory based components of this unit 15%.

VEM4012 DESIGN FOR TESTABILITY

Locations: Footscray Park.

Prerequisites: VEH3001 - DIGITAL SYSTEM DESIGN A

Description: Techniques to improve the testability of microelectronics circuits and systems are covered. Design for test concepts, ad-hoc and structured, which improve the circuit to allow efficient testing after manufacturing are fully analysed. This includes device reliability, memory reliability, test issues, controllability and observability, built in self test, scan chain synthesis, boundary scan, automatic test pattern generation, and system on chip test issues. Students will develop hands-on experience in design for test using industry standard EDA tools. The unit of study is designed to provide support for students requiring knowledge of electronic circuits design in a concurrently studied Engineering Design unit. The specific aims of this unit of study are to help students develop competence in and comprehension of the principles of reliability and design for test of microelectronics circuits and systems, learn the fundamentals of various ad-hoc and structures design for test techniques for digital microelectronic circuits and to develop practical skills with industry standard tools, methods and techniques through practical application. The unit will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit of study will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Gained an appreciation of reliability issues related to microelectronic devices and integrated circuits. Gained an understanding of circuit testability issues and design for testability. Gained knowledge in fault modelling and testing methodologies. Gained an appreciation for system level testing. Developed skills in the use of EDA design for test tools.

Class Contact: 2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

Required Reading: Lala, P.K., Digital Circuit Testing and Testability, Academic Press, 1997.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination 60%, satisfactory performance of laboratory based exercises and project work 40%.

VEM4100 ANALOG AND MIXED SIGNAL DESIGN

Locations: Footscray Park.

Prerequisites: VEF2004 - SYSTEMS & APPLICATIONS 2D

VEM3001 - CUSTOM IC DESIGN & EDA TOOLS

Description: The design of CMOS analog and mixed-signal integrated circuits is covered. Design concepts of high speed low power amplifiers, filters, sample and hold circuits, comparators, digital to analog and analog to digital converters are fully analysed. Students will develop hands-on experience in design, simulation, verification and implementation using industry standard EDA tools.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: have good understanding off most common integrated circuit design, and D/A and D/A converters. Hands-on experience using industry standard Software design tools.

Class Contact: 2.5 hours per week consisting of lectures/tutorials and laboratory exercises.

Required Reading: Behzad Razavi, 'Design of analog CMOS integrated circuits', McGraw hill International Edition, 200

1.

Assessment: Laboratory exercises: 20%; Project: 20%; Final Examination: 60%.

VEP3000 PHOTONICS A

Locations: Footscray Park.

Prerequisites: VEF1002 - ENABLING SCIENCES 1B

OR ENF1202 Engineering Physics 2

Description: Lens systems: thick lens design using matrix methods. Aberrations: spherical aberration, coma, astigmatism, field curvature and distortion. Ray intercept plots. Methods for reducing aberrations. Optical fibres: Overview of optical fibres and their properties. Attenuation in silica optical fibres. Modes in slab waveguides and optical fibres. Dispersion and distortion in optical fibres. Light sources and detectors for optical fibre systems. Noise in detector systems. Fibre optic communication system design. Optical amplifiers, WDM systems, Bragg gratings. Fibre optic sensors. Optical fibre fabrication. Emerging trends.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours per semester comprising 48 hours of lectures/tutorial and 12 hours of laboratory.

Required Reading: Hecht, E., 2002, Optics, 4th edn, Addison Wesley, USA; Palais, J.C. 2005, Fibre Optic Communications, 5th edn, Prentice-Hall: N.J.

Assessment: Assignments conducted throughout the semester 20%; Laboratory performance 20%; End of semester examination 60%.

VEP3001 PHOTONICS

Locations: Footscray Park.

Prerequisites: VEF1002 - ENABLING SCIENCES 1B

Description: This unit provides an introduction to photonics and optoelectronics, and also support for students requiring knowledge of the creation, transmission and detection and manipulation of light (photons) in a concurrently studied PBL unit. In this unit students will be presented with a description of the nature of light, the generation of light (light sources and their properties such as lasers, light emitting diodes), the transmission of light (optical fibres and waveguides, optical amplifiers), the detection. The primary delivery means of the syllabus will be by lecture, supported by laboratory demonstrations.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent PBL exercises. On successful completion of this unit, students are expected to be able to: To have a basic understanding of the properties of light and behaviour as light particles (photons). To understand the properties of lasers and optical amplification To understand the properties of semiconductor photonics. To understand properties of optical fibres and waveguides and how they transmit light. To understand how optical fibre systems are designed.

Class Contact: 30 hours of class contact per semester. 2 hours of lecture/tutorial and 0.5 hours of laboratory exercises per week.

Required Reading: Palais, J.C., Fibre Optic Communications, 5th edn, 2004, Prentice Hall: N.J.

Assessment: End of semester examination 65%, two assignments 15% and requires satisfactory performance of laboratory based components of this subject 20

VEP3002 PHOTONICS 2

Locations: Footscray Park.

Prerequisites: VEF1001 - ENABLING SCIENCES 1A

VEF1002 - ENABLING SCIENCES 1B

Description: In this unit students will be presented with a wave description of light starting with Maxwell s equations Maxwell's equations for waveguides, boundary conditions and eigenvalue equations, planar dielectric waveguides and their modes, step index optical fibres, graded index optical fibres. Optical fibre sensors: Introduction and basic concepts, materials interactions in optical fibre sensors, polarisation, Jones' vectors and matrices, interferometers, fibre Bragg gratings. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent PBL exercises. Upon successful completion of this unit of study, the students are expected: To understand the wave nature of light and its interactions with optical materials. To understand the waveguiding properties of slab waveguides and optical fibres. To understand how photonics is used in sensing.

Class Contact: 30 hours of class contact per semester. 2 hours of Lecture/Tutorial and 0.5 hours of laboratory exercises per week.

Required Reading: Buck, J.A., Fundamentals of Optical Fibres, 1995, John Wiley & Sons, New York.

Assessment: Students will be assessed in this unit of study on the basis of an end of semester examination(65%), two assignments(15%) and satisfactory performance of laboratory based exercises(20%). Evaluation of CGA in unit(as %): Level 1(%) Level 2(%) Level 3(%) Problem Solving 10 20 20 Using Information 10 20 20

Communication Oral 0 0 0 Communication Written 0 0 0 Professional - Autonomous 0 0 0 Professional - Collaborative 0 0 0 Social & Cultural Diversity 0 0 0

VEP4000 PHOTONICS B

Locations: Footscray Park.

Prerequisites: VEP3001 - PHOTONICS

VEP3002 - PHOTONICS 2

Description: Lasers: Interaction of radiation with matter; absorption, spontaneous emission and stimulated emission. Population inversion, net gain. Introductory ideas of optical cavities, threshold. Time behaviour of laser output, burst-mode and Q-switched pulses. General requirements for CW output. Rate equations. Overview of laser materials and pumping methods. Examples of lasers. Short pulse and tunable laser techniques. Laser applications. Laser safety and laser hazards.Optical fibre waveguides and related devices: rigorous treatment of Maxwell's Equations for waveguides, boundary conditions and eigenvalue equations, planar dielectric waveguides and their modes, cylindrical dielectric waveguides and their modes, LP mode description, Gaussian approximation, dispersion in multimode and single mode fibres, normal mode theory of single mode fibre couplers. Design and operation of communication systems including those using dense wavelength division multiplexing. Optical Fibre Sensors: Introduction and basic concepts, materials interactions in optical fibre sensors, fibre optic components, special optical fibres for sensors, interferometric sensors, fibre-optic gyroscope, intensity and wavelength-based sensors, multiplexed and distributed sensors, applications of fibre sensors, e.g. smart structures.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 60 hours per semester comprising 48 hours of lectures/tutorial and 12 hours of laboratory.

Required Reading: Verdeyen, J.T. 1995, Laser Electronics, 3rd edn, Prentice-Hall International, USA; Buck, J. A., 1995, Fundamentals of Optical Fibres, John Wiley & Sons, New York.

Assessment: Assignments conducted throughout the semester 20%; Laboratory performance 20%; End of semester examination 60%.

VES1001 INTRODUCTION TO SPORTS ENGINEERING

Locations: Footscray Park.

Description: This unit is based on a series of challenges designed to introduce students to systematic problem solving methods and to explore various aspects of sports engineering. The problems and challenges will be designed to address fundamental issues related to sports engineering including exposure to human motion detection & recording, human performance assessment, equipment and facilities design and sports related instrumentation and measurement. The unit is designed to encourage students to discover and investigate various facets of sports engineering. The unit will also include an introduction to oral and written communications.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply fundamental knowledge of mathematics and science to systematically solving sports engineering problems;
2. Find, organise and apply information related to engineering problems;
3. Communicate effectively with others orally and in writing;
4. Work individually and collaboratively, as both a team member and leader, to complete tasks and evaluate own and others performance using prescribed methods;
5. Demonstrate awareness of social and cultural perspectives that impact on learning and working in a team;
6. Evaluate the effectiveness of their solutions.

Class Contact: Sixty (60) hours for one semester comprising workshops, lectures, laboratory activities and field experiments.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Report, Three team reports (2000 words equivalent each), 40%. Presentation, Individual oral presentation, 20%. Portfolio, Individual portfolio, 40%.

VES2102 OPERATING SYSTEMS AND TOOLS

Locations: Footscray Park.

Prerequisites: VEF1004 - ELECTRICAL FUNDAMENTALS 1B

Description: Operating System Basics: Kernel, Processes, Device Drivers, Shells: Commands and Arguments, Shell Scripts, File Systems: Directory structure, File Attributes, Permissions, Ownerships. System Security and Integrity: Backup and Restore. Access Controls. System Installation and Configurations. PERL and applications.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: write shell scipts to automate routine system management task; use PERL to perform more complex system routines; describe clearly the components and functions of a modern day OS; perform routine operating system management task.

Class Contact: 30 hours of contact comprising 20 hours of lectures/tutorials and 10 hours of laboratory sessions.

Required Reading: Ng, Y. (Ed.). (2008). Class notes (Rev. ed.). Footscray, Australia: Victoria University, School of Electrical Engineering.

Assessment: Laboratory Assignments (30%); Tests (10%); Examination (60%).

VES2201 DESIGN & ERGONOMICS

Locations: Footscray Park.

Prerequisites: ENF1204 - INTRODUCTION TO ENGINEERING DESIGN

VAM2121 - MECHANICS OF ENGINEERING MATERIALS

Description: This unit is based on engineering projects (one minor and one major) to introduce students to the design of sporting apparatus and associated structures. It revolves around the production of project design calculations and reports The theoretical aspects are based on load - capacity relationships of mechanical elements which are brought out in the following design principles: Design uncertainties and reliability, theories of static failure, low and high cycle fatigue failure, linear and torsional impact failure, deflection failure, anthropometry, human factors and ergonomic design. Use of relevant design software such as computer-aided design and solid modelling will be introduced.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate an understanding of the concepts for static and dynamic actions;
2. Apply concepts in the determination of design loads to an introductory level;
3. Show ability within the context of the subject areas, to formulate and solve basic design problems;
4. Critically evaluate the sensibility of design outcomes;
5. Show a basic understanding of ergonomic design;
6. Present design outcomes both written and orally in a professional manner;
7. Demonstrate the ability to work both autonomously and as a member of a design team;
8. Demonstrate knowledge of how professional design engineers work.

Class Contact: Sixty (60) hours for one semester comprising team workshops, including supporting lectures and labs.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Test, Skills audits (three at 30 mins each), 30%. Report, One major design team report (7000 words equivalent), 50%. Presentation, Oral presentation, 20%.

VES3101 INTRODUCTION TO COMPUTER NETWORKS A

Locations: Footscray Park.

Prerequisites: VEF2003 - SYSTEMS AND APPLICATIONS 2C

VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: This unit of study is designed to provide students with a good understanding of the hardware and techniques that underpin a modern computer network. The unit will also provide support for Engineering Design unit that has a computer network focus. This unit will cover: Basic concepts of computer communication. Data and signals, Frequency Spectrum and bandwidth, Data encoding, Framing and synchronisation. Modulation of data, Modems. Physical layer interfaces. Transmission of data, Transmission media, Multiplexing. Error detection and correction. Data link control, Data link protocols. Local area networks. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: Have a good understanding of the basic principles and techniques used in computer data communication. Have a good foundation for further learning in Computer networking

Class Contact: 30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

Required Reading: Forouzan. B., Fagan. S. C., Data Communication and Networking, McGraw Hill, 2006.

Assessment: Written Examination (40%): Class Tests (30%): (Two 1 hour tests to be held during the semester teaching period.) Laboratory Assignments (30%): (Five laboratory assignments, each 6%). Evaluation of CGA in unit(as %): Level1(%) Level2(%) Level3(%)

VES3102 INTRODUCTION TO COMPUTER NETWORKS B

Locations: Footscray Park.

Prerequisites: VEF2002 - SYSTEMS AND MATHEMATICS 2B

VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: This unit of study is designed to provide students with a good understanding of computer networking protocols and the management of computer networks. The unit will also provide support for Engineering Design unit that has a computer network focus. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. This unit will cover: Network Models: OSI, TCP/IP; Network Layer - IP addressing, subnetting, netmask, IP protocols, ARP, ICMP, IP routing; Transport Layer - TCP, UDP protocols, flow control, error control, BSD sockets; Application Layer: DNS, HTTP. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students will be able: To have a good understanding of principle and practice of computer networking protocols. To design and manage a computer network.

Class Contact: 30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

Required Reading: Tanenbaum, A., Computer Networks., 4th Ed, Prentice Hall, 2003.

Assessment: Written Examination 40%, Class Tests 20%, Laboratory Assignments 40% (Five laboratory assignments, each 8% weighting).

VES3104 NETWORK SOFTWARE AND INTERNET PROGRAMMING

Locations: Footscray Park.

Prerequisites: VES2102 - OPERATING SYSTEMS AND TOOLS

VES3102 - INTRODUCTION TO COMPUTER NETWORKS B

Description: Network Software : Webserver, Webproxy, Firewall, Remote Access Server, Webadmin, Internet Programming: HTML, Javascript and applications.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: describe the operations and functionalities of webserver, webproxy, firewall and remote access server; install, configure and manage these network servers; implement interactive web pages using Javascript.

Class Contact: 30 hours of contact comprising 15 hours of lectures/tutorials and 15 hours of laboratory sessions.

Required Reading: Ng, Y. (Ed.). (2008). Class notes (Rev. ed.). Footscray, Australia: Victoria University, School of Electrical Engineering.

Assessment: Laboratory Assignments (30%); Tests (10%); Examination (60%).

VES3111 MECHATRONICS & SENSORS 1

Locations: Footscray Park.

Prerequisites: ENE2202 - ELECTRONIC SYSTEMS

Description: This unit is designed to build upon the basic Sports Engineering sensor concepts learned in VES1001. Study sensors characteristics and performance. Selection of suitable sensors for human activities. More advanced problems and challenges will be set to facilitate and demonstrate the utility of sensors in real-world sports. Related measurement and control systems will be investigated. Students will be encouraged to experiment with and devise practical sensors, measurement and control systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Show an understanding of the merits and limitations of sensors and control systems;
2. Demonstrate knowledge of sources of the appropriate sensors and transducers;
3. Demonstrate the ability to read and understand sensor and transducer technical characteristics;
4. Apply their knowledge to the design of more advanced measurements systems.

Class Contact: Sixty (60) hours for one semester comprising lectures, workshops, laboratory activities and field experiments.

Required Reading: Introduction to sports biomechanics: analysing human movement patterns, Bartlett, R 2007, 2nd edn, Routledge.

Assessment: Test, Mid-semester test (1.5 hour), 20%. Portfolio, Individual portfolio presentation and team report (5000 words equivalent), 30%. Examination, Final (three hours), 50%.

VES3131 COMPUTER AIDED ENGINEERING DESIGN

Locations: Footscray Park.

Prerequisites: VES2201 - DESIGN & ERGONOMICS

VAM2121 - MECHANICS OF ENGINEERING MATERIALS

Description: This unit is based on three engineering projects that will each be based on a specific aspect of computer-aided mechanical design:

1. The modelling of solids. This will involve the generation of three-dimensional drawings using a suitable solids modelling software tools. The computer files will be used to compute various 3D properties of the design such as volume, centre of gravity, radius of gyration etc. This component will be based on the learning outcomes from VAM2201 Design and Ergonomics.
2. The estimation of stresses and deflections using finite element modelling and analysis. Students will analyse the engineering performance of their design using suitable Finite Element Analysis software tool. This will be supported by the fundamental theory of finite element analysis with respect to computing stresses and deflections. This component will be based on the learning outcomes from VAM2121 Mechanics of Engineering Materials.
3. Computer-aided kinematic and kinetic analysis of rigid-body systems and mechanisms using suitable software tools. Students will generate solutions for a variety of systems and mechanism. This component will be based on the learning outcomes from VAM3071 Dynamics.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Generate designs using modern computer-aided engineering tools;
2. Predict and evaluate the mechanical performance of their design using a range of computer-aided engineering tools to compute geometric characteristics, stress and deflection properties and kinetic and kinematic performance for rigid body systems;
3. Show the ability within the context of the subject areas, to formulate and solve basic design problems;
4. Critically evaluate the sensibility of design outcomes;
5. Present design outcomes both written and orally in a professional manner;
6. Demonstrate the ability to work both autonomously and as a member of a design team;
7. Demonstrate a sound knowledge of the role of computer-aided engineering design.

Class Contact: Sixty (60) hours for one semester comprising team workshops, including supporting lectures and labs.

Required Reading: Fundamentals of computer-aided engineering, Benny Raphael and Ian F C Smith 2003, Wiley.

Assessment: Portfolio, Design project 1 - Solid Modelling, 30%. Portfolio, Design project 2 - Finite element analysis, 30%. Portfolio, Design project 3 - Kinematic/ kinetic analysis, 30%. Presentation, Oral presentation, 10%.

VES3141 SPORTS DYNAMICS

Locations: Footscray Park.

Prerequisites: ENF1201 - ENGINEERING MATHEMATICS 2

ENF1202 - ENGINEERING PHYSICS 2

Description: This unit of study aims to give students an understanding of principles of engineering dynamics including particle dynamics and rigid body dynamics (kinematics and kinetics) in two and three dimensional space, as well as to develop problem solving, computing and design skills in the areas of mechanism design and analysis. It covers the following topics. Introduction to dynamics, Kinematics of particles - rectilinear and plane curvilinear motion co-ordinates systems, 3-D curvilinear motion and relative motion. Plane kinematics of rigid bodies - rectilinear and plane curvilinear motion, relative velocity, instantaneous centre of zero velocity, relative acceleration, space curvilinear motion. Kinetics of particles - Newton's law, work and energy, impulse and momentum. Plane kinetics of rigid bodies - moments and products of inertia, Newton's law, work and energy, impulse and momentum. Three-dimensional dynamics of rigid bodies - kinematics, kinetics, gyroscopic motion.

Credit Points: 12

Learning Outcomes: Upon successful completion of this unit, students will have:

1. Developed an understanding of processes and key issues related to particle dynamics and rigid body dynamics in two and three-dimensional space;
2. Demonstrated an ability to solve a wide range of problems and carry out design tasks using kinematics of particles, plane kinematics of rigid bodies, kinetics of particles, plane kinetics of rigid bodies and three-dimensional kinematics and kinetics of rigid bodies;
3. Completed work designed to improve a number of generic skills including problem identification/formulation/solution, effective oral and written communication, experimental techniques, computer skills and the ability to use a systematic approach to design, and a capacity to undertake life-long learning.

Class Contact: Sixty (60) hours per semester comprising lectures, tutorials and workshops.

Required Reading: Engineering Mechanics Vol. 2 DYNAMICS Meriam J.L. and Kraige L.G (2002) 5 John Wiley and Sons Engineering Mechanics, DYNAMICS Riley W.F. and Sturges L.D. (1996) 2 John Wiley and Sons

Assessment: Assignment, Three assignments (1000 words equivalent each), 20%. Examination, Final exam (three hours), 50%. Report, Report (4000 words equivalent), 30%.

VES3202 MECHATRONICS & SENSORS 2

Locations: Footscray Park.

Prerequisites: VES3111 - MECHATRONICS & SENSORS 1

Description: This unit is designed to expand and build upon the knowledge gained in VES3111. Students will be studying sensors used in human motion monitoring and human bio-sensing. The design aspect of the unit will be based on specific projects allocated as group work. The students will be working on allocated project, designed to enhance their knowledge of more advanced sensing and control systems in sport engineering applications. The students will be required to research and apply sensor applications for the assigned projects and use state of the art technology.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Research the state of the art in sensor technology;
2. Show an understanding of and select sensors suitable for human motion monitoring and human bio-sensing;
3. Show an understanding of and form a technical design brief from a general lay description of the project;

4. Complete a performance appraisal of the project outcome;

5. Demonstrate the ability to work collaboratively with colleagues and produce tangible results.

Class Contact: Sixty (60) hours for one semester comprising lectures, workshops, laboratory and fieldwork.

Required Reading: Reading material will be negotiated in consultation with the supervisor and will be appropriate to the topic under investigation.

Assessment: Test, Mid-semester test (1.5 hours), 20%. Portfolio, Individual portfolio presentation and team report (5000 words equivalent), 40%. Examination, Final exam (three hours), 40%.

VES3212 SPORTS ENGINEERING PROJECT

Locations: Footscray Park.

Prerequisites: VES3131 - COMPUTER AIDED ENGINEERING DESIGN

Description: This unit is designed to consolidate engineering research, investigation or design experience by requiring each student to undertake an individual engineering project, selected from a list of projects offered or proposed by the student and approved by an academic. Projects are sourced from industry and academia. Each student is supervised by a staff member with expertise in the area of the project. Oral presentation skill, and report writing are further developed from the previous years. The project must include a strong engineering theme relevant to sports engineering which may cover the broad spectrum of the topics studied in this course. Industry projects must be assessed by the subject coordinator and have an academic and industry supervisor.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Conduct research on a specific project topic using all available resources including books, internet journals, etc.;

2. Solve problems in a scientific manner and select the necessary components;

3. Plan and manage a project using project management facilities such as Microsoft project manager.

Class Contact: Sixty (60) hours for one semester comprising student projects. Students will undertake projects while managing their own time under academic supervision.

Required Reading: Smart sensors and sensing technology, Mukhopadhyay, 2008, Springer. Introduction to sports biomechanics/analyzing human movement patterns 2, Barlett, 2007, Routledge. The measurement, instrumentation and sensors handbook, Boca Raton, Webster, 1999, CRC Press.

Assessment: Presentation, Progress presentation, 20%. Report, Final report (15,000 words equivalent), 50%. Project, Evaluation (judged) quality of project product or outcome, 30%.

VES3232 SPORTS ENGINEERING MANAGEMENT

Locations: Footscray Park.

Description: Role and responsibilities of engineering managers in the industry. Principles of engineering management. General management principles and engineers as managers. Introduction to network planning, critical path analysis, resource allocation and the management of a development project. Feasibility studies and project evaluation. Economic analysis of engineering projects. Financial modelling of engineering systems. Strategies for plant selection. Planning and scheduling techniques for engineering projects. Tools for project control. Planning techniques for repetitive construction or production. Optimising resources and trend monitoring. Management of the development process using a computer package.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Prepare a plan, prepare network logic diagrams, determine critical paths and optimise project resources;

2. Apply the time value of money concepts for the economic evaluation of engineering systems or projects;

3. Apply general management principles for the successful delivery and management of engineering projects;

4. Use commercially available software, such as Microsoft Project and Microsoft Excel, as time management and economic analysis tools.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and computer laboratories.

Required Reading: Engineering Economy Leland Blank & Anthony Tarquin, 2007 Antill's Engineering Management Antill J.M., 1999 3rd ed. Wiley Project Management: Planning and Control Techniques Rory Burke, 2005

Assessment: Test, Class tests (three at 30 mins each), 20%. Report, Major report (15,000 words equivalent), 60%. Assignment, two at 1500 words equivalent each, 20%.

VES4101 COMPUTER SYSTEMS A

Locations: Footscray Park.

Prerequisites: VEF2003 - SYSTEMS AND APPLICATIONS 2C

VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: This unit is designed to provide students with a good understanding of Operating Systems principles and the practical abilities to interact with modern OSs, both at the user's and programmer's levels. The unit will also provide support for Engineering Design unit that has a computer/OS focus. This unit will cover: Process: thread, process synchronisation, semaphore, thread library, consumer-producer problem, dead locks, resource allocation, scheduling. Files systems : directory structures, access control, implementation. Memory Management : memory allocation, protection, virtual memory. Grid : principles and applications. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: have a basic understanding of the structure and operations of a modern computer system. be able to access operating system facilities and resources by using a high level language such as C. be able to develop multithreaded applications for a modern OS such as Unix have a basic understanding of principle of GRID computing environment.

Class Contact: 30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

Required Reading: Silberschatz. A., Operating Concepts, 7th Edition, Wiley, 2005.

Assessment: Written Examination 40%, Class Tests 20%, Laboratory Assignments (Five laboratory assignments, each 8% weighting) 40%.

VES4102 COMPUTER SYSTEMS B

Locations: Footscray Park.

Prerequisites: VEF2003 - SYSTEMS AND APPLICATIONS 2C

VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: This unit of study is designed to provide students with a good understanding of graphical user interfaces design and implementation in application programming. The unit will also provide support for Engineering Design unit that has a programming user interface need. This unit will cover: Introduction to graphical user interfaces (GUI). Application of object oriented techniques to the production of windows-based programs. Window interface design, placement, and implementation. Development of class libraries. Platform independent window toolkit. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to: have a good understanding of principle and application of object oriented paradigm to user interface design. be able use window GUI class libraries to implement user interfaces in application programs.

Class Contact: 30 hours of class contact. 2 hours of Lecture/Tutorial and 0.5 hours of laboratory exercises per week.

Required Reading: Deitel.H, Java How to Program, 7/e, Prentice Hall, 200

7.

Assessment: End of semester examination 40% Class Tests 20% Laboratory Assignments (Five laboratory assignments, each 8% weighting): 40

VES4301 SOFTWARE ENGINEERING

Locations: Footscray Park.

Prerequisites: VEF2003 - SYSTEMS AND APPLICATIONS 2C

VEF2004 - SYSTEMS & APPLICATIONS 2D

Description: The unit's aim is to introduce students to the principle, technique and practice of the current software engineering process. The unit will also provide support for Engineering Design unit that has software engineering focus. This subject will cover: Introduction to the engineering of quality software. The software development lifecycle model. System analysis, software requirements definition, specification, elicitation, analysis and modelling. Process specifications and data dictionary production. Software design process, principles and production. The testing process, planning and strategies. CASE tools and software engineering environments. Software project planning and estimating. The syllabus will be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises.

Credit Points: 6

Learning Outcomes: The Learning outcomes of this unit of study will depend upon the lectures presented, as required to support concurrent Engineering Design exercises. On successful completion of this unit, students are expected to be able to apply best practice software engineering process to the specification, design, construction, delivery and maintenance of software.

Class Contact: 30 hours of class contact per semester. 2 hours of Lecture/Tutorial and 0.5 hours of Laboratory exercises per week.

Required Reading: Schach. S, Classical and Object-Oriented Software Engineering, 7/e, McGraw Hill, 2006.

Assessment: End of semester examination : 40% Class Tests : 20% Laboratory Assignments (Five laboratory assignments, each 8%): 40%

VET3100 ANALOG AND DIGITAL COMMUNICATIONS

Locations: Footscray Park.

Prerequisites: VEF2002 - SYSTEMS AND MATHEMATICS 2B

Description: This unit of study provides an introduction to Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain signals and their characteristics as depicted in time and frequency domains; Discuss the information bearing nature of signals and the bandwidth considerations; Explain the principles behind frequency translation and its depiction as various types of modulation; Explain the signal transition in linear and non-linear systems, and the recognition of such systems in terms of filters and other components; Describe the types of noise present in telecommunication systems and the characterization of thermal noise; Perform the statistical analysis of random signals and the characterization of such signals in terms of correlation and power spectral density functions; Explain the concept of signal to noise ratio and its influence in faithful reception of analog and digital signals; Outline the assessment of performance in digital communication systems in terms of bit error probability; Explain the basis of line coding and application of line coding in baseband digital communication systems; Discuss the baseband recovery of bandpass communication systems and the impact of the type of modulation in such systems. The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Class Contact: 30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.

Required Reading: Lathi, B. P. (2001). Modern digital and analog communication systems (3rd ed.). Oxford University Press.

Assessment: Continuous assessment in laboratory work (6 hours per semester) (20%); mid-semester written test (20%); end-of-semester examination (60%).

VET3200 DIGITAL MODULATION AND CODING

Locations: Footscray Park.

Prerequisites: VET3100 - ANALOG AND DIGITAL COMMUNICATIONS

Description: This unit of study provides continuation of the Communication Systems Engineering stream covering the remaining areas of the main stream Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent PBL exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the principles of digital communication systems and components; Describe the optimum signal detection using matched filter receiver in additive white Gaussian noise; Explain the baseband transmission techniques; Discuss the effects of bandwidth limitation, intersymbol interference, Nyquist signalling and channel equalization; Describe the bandpass transmission techniques; Describe the BPSK, QPSK, and QAM modulation systems and coherent detection of those systems; Explain the carrier and clock synchronization techniques; Explain the channel coding including linear block codes, convolutional codes, Viterbi decoding; Explain information theory, source coding, and data compression; Explain coded modulation systems, trellis coding, and decoding; The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Class Contact: 30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.

Required Reading: Kurzweil, J. (2000). An introduction to digital communications. John Wiley. Proakis, J. G., & Salehi, M. (2002). Contemporary communication systems using MATLAB. Belmont, CA: Thomson Brooks/Cole.

Assessment: Continuous assessment in laboratory work (6 hours per semester) (20%); mid-semester written test (20%); end-of-semester examination (60%).

VET4101 FIELD AND WAVES IN TELECOMMUNICATIONS

Locations: Footscray Park.

Prerequisites: VEF2002 - SYSTEMS AND MATHEMATICS 2B

Description: This unit of study provides an introduction to Field and Wave in Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial, the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the space and material media that are capable of carrying signals used in Telecommunication systems; Describe the physical composition of such media, their characteristics and modes of operation; Discuss the limitations of such media with regard to frequency, bandwidth, and power; Explain the phenomena of propagation of electromagnetic waves in space and material media including coaxial cables and waveguides; Discuss the theoretical basis for electromagnetic wave propagation including the derivation and application of Maxwell s equations; Explain the Smith chart and its application in the design of high frequency circuits and systems; Explain free space propagation and practical propagation models. The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent Engineering Design exercises.

Class Contact: 30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.

Required Reading: Cheng, D. K. (1999). Field and wave electromagnetics (2nd ed.). Addison Wesley.

Assessment: Continuous assessment in laboratory work (6 hours per semester) (20%); mid-semester written test (20%); end-of-semester examination (60%).

VET4202 DATA COMMUNICATIONS

Locations: Footscray Park.

Prerequisites: VET3100 - ANALOG AND DIGITAL COMMUNICATIONS

Description: This unit of study provides continuation of the Communication Systems Engineering stream covering the remaining areas of the main stream Telecommunication Engineering. The unit is designed to provide the theoretical basis for the understanding of the engineering aspects of the design, construction, and operation of the existing and emerging Telecommunication systems. It also provides the support for students requiring basic knowledge of Telecommunication Engineering in order to handle concurrently studied Engineering Design projects that involve various aspects of Telecommunication Engineering. This has required the syllabus to be presented as a collection of lectures, the emphasis and sequence of which may be varied to accommodate the demands of any concurrent Engineering Design exercises. In addition to delivery by lecture and tutorial the unit will incorporate laboratory exercises and demonstrations of the concepts and techniques presented.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the basic principles involved in data communication systems; Explain the data network architecture, operation, and performance analysis Evaluate the protocols employed in data networks; Explain the particular aspects of local area and wide area networks; Discuss wireless networks, their operation, and interfacing with network backbone; Explain the analytical techniques employed in data network performance estimation; Explain the basic queuing theory and its application to data networks; Describe data network switching and switching systems; 9. Discuss the principles involved in data network design and the heuristic algorithms employed; 10.Explain cost effective designs of local and wide area networks. The Learning Outcomes of this unit of study will also depend upon the material presented, as required to support the concurrent PBL exercises.

Class Contact: 30 hours of class contact for one semester comprising 2 hours of lecture/tutorials and 0.5 hours of laboratory work per week.

Required Reading: Forouzan, A. B. (2003). TCP/IP protocol suite. McGraw-Hill. Spohn, D. L. (2002). Data network design. McGraw-Hill.

Assessment: Continuous assessment in laboratory work (6 hours per semester) (20%); mid-semester written test (20%); end-of-semester examination (60%).

VET4300 DIGITAL COMMUNICATIONS

Locations: Footscray Park.

Prerequisites: VET3200 - DIGITAL MODULATION AND CODING

Description: Overview of Digital modulations: QPSK, OQPSK, DQPSK, MSK, GMSK, QAM. Vector space representation of digital signals, Correlation receiver, Matched filter receiver, Karhunen-Loeve representation of noise, Maximum likelihood sequence estimation (MLSE) detector, Performance in AWGN channels, Trellis coded modulation. Modem techniques: Classic PLL, Maximum likelihood carrier phase estimation, Maximum likelihood timing recovery, Adaptive equalization and echo cancellations, the LMS algorithm, decision feedback equalization.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: design common digital modulators and receivers, perform performance analysis of digital communication systems in AWGN channels, design simple equalizers and synchronizers.

Class Contact: 36 hours per semester comprising 24 hours of lecture/tutorial and 12 hours of laboratory work.

Required Reading: Haykin, S. Communication Systems, 4th Edition, 2001, John Wiley & Sons; Kurzweil, J, An Introduction to Digital Communications, 2000, John Wiley & Sons.

Assessment: Assignments and class tests 30%; End of semester examination 70%.

VET4400 DIGITAL SIGNAL PROCESSING IN TELECOMMUNICATIONS 2

Locations: Footscray Park.

Prerequisites: VEG4100 Digital Signal Processing A

Description: Multi-rate signal processing: Decimation and interpolation. Applications. Multistage implementation. DSP building blocks: filter banks, correlators and matched filters.Oscillators and phase locked loops. Applications of DFT/FFT. Fast convolution and correlation. Deconvolution. Spectral analysis. Adaptive algorithms and their applications. DSP implementation: hardware and software tools.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: apply multi-rate signal processing, apply fast convolution, apply parameter estimation algorithms in the form of subsystems in telecommunication

Class Contact: 36 hours per semester comprising 24 hours of lecture/tutorial and 12 hours of laboratory work.

Required Reading: Ifeachor, E.C., Jerwis, B.W. Digital Signal Processing - A Practical Approach, 2nd Edition, 2002, Pearson Prentice Hall.

Assessment: Assignments and class test 30%; End of semester examination 70%.

VET4600 WIRELESS COMMUNICATIONS

Locations: Footscray Park.

Prerequisites: VET3200 - DIGITAL MODULATION AND CODING

VET4101 - FIELD AND WAVES IN TELECOMMUNICATIONS

Description: Free space propagation, Reflection, Mean path loss, Local propagation loss, Rayleigh fading, Rician fading. Time selective channel, Frequency selective channel, Power delay profile, Coherent bandwidth, Channel estimation and tracking methods.Receiver diversity: Selective combining, Maximal-ratio combining, Equal gain combining. Transmitter diversity: Space time coded modulations, MIMO systems, Space division multiple access.CDMA: Direct sequence modulation, Gold Codes, Walsh-Hadamard sequence, RAKE receiver, Near-far problem, Power control, WCDMA, OFDM.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: perform performance analysis of wireless communication systems with appropriate fading models, apply diversity techniques to overcome system impairment due to multi-path fading, understand the advantages and disadvantages of modern techniques like WCDMA and OFDM.

Class Contact: 36 hours per semester comprising 24 hours of lecture/tutorial and 12 hours of laboratory works.

Required Reading: Haykin, S., Moher, M. Modern Wireless Communications, 2004, Pearson Prentice Hall; Rappaport, T. Wireless Communications, Principles and Practice, 2nd Edition, 2002, Prentice Hall.

Assessment: Assignments and class tests 30%; End of semester examination 70%.

VET6500 RESEARCH PROJECT

Locations: Footscray Park.

Prerequisites: VET6510, VET6520

Description: Each student will undertake an individual research under the guidance of an academic staff on a suitable topic, over the duration of a semester. Lectures, seminars, and regular meetings will be held collectively to expose students to research related matters such as Research Methodology, Literature Reviews, Feasibility Studies, Experiment Design, Modelling and Simulation Techniques and Tools, Results Validation and Decision Making, Report Writing, Structured Documentation, and Scientific Presentation.

Credit Pointsss) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%.

VET6511 DATA NETWORK ANALYSIS AND DESIGN

Locations: Footscray Park.

Description: Overview of data networks. Network topologies. Physical layer interface. Synchronous and asynchronous systems. Link layer protocols. HDLC, frame relay and ATM. Error control procedures. Transmission efficiency. Types of switching. Virtual circuits. Network and transport layer protocols. X.24, IP and TCP. Point to point and multipoint systems. Access protocols. Token ring, token bus and ethernet. LANs. Bridges, routers, and gateways. Simple queuing models for data networks. Little's theorem. Networks of queues. Routing and flow control in data networks. Network congestion. Capacity assignment. Topological design of data networks. Minimum spanning tress. Heuristic algorithms. Network reliability.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Required Reading: Bertsekas, D and Gallager, R., Data Networks, 2nd edn, Prentice-Hall. Tanenbaum, A., Computer Networks, 3rd edn, Prentice-Hall.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6520 DIGITAL COMMUNICATION PRINCIPLES

Locations: Footscray Park.

Prerequisites: VET6510 - COMMUNICATION THEORY

Description: Overview of digital modulation techniques: FSK, QPSK, QAM, CPM, OFDM; their spectral analysis and BER performance calculation in AWGN. Maximum-Likelihood Sequence Estimation (MLSE) detector and MAP detector for linear modulations.Carrier and Symbol Synchronization techniques. Decision-Directed Phase Locked Loop (PLL) and Non-Decision-Directed PLLs. Maximum-Likelihood Timing Estimation. Joint estimation of carrier phase and symbol timing.Convolutional codes. Transfer function. Optimum decoding using Viterbi Algorithm. Error probability for soft-decision decoding of convolutional codes. Coded modulation; Trellis Coded Modulation (TCM). Space-Time Coding for MIMO systems.Channel equalization. Blind equalizations based on maximum likelihood (ML) criteria, stochastic gradient algorithm, and higher order signal statistics.Multi-user Communications. Direct sequence CDMA. Frequency hoping CDMA. RAKE receivers.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week, comprising lectures, tutorials and seminars.

Required Reading: Proakis, J.G., 2002, Digital Communications, 4th edition, McGraw-Hill International.

Assessment: Class test (Two Hours) 20%; Assignment (report not exceeding 5000 words) 20%; Final examination (Three Hours) 60%.

VET6521 DIGITAL SWITCHING AND SIGNALLING SYSTEMS

Locations: Footscray Park.

Description: Historical development of telecommunication switching systems. Switching system limitations. Single and multistage switches. Limited availability switches. Digital switching principles. Time and space switching matrices. Modern generation of electronic exchanges. Network hierarchy. Routing operations. Local and national networks. Tandem networks. Modern PABX systems. Voice and data traffic integration. Concept of ISDN. Signalling systems in telecommunication networks. CCS No. 7 signalling system.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Required Reading: To be advised by the lecturer.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6522 TELECOMMUNICATION TARIFF STRUCTURES AND TELETRAFFIC ENGINEERING

Locations: Footscray Park.

Description: Basic telecommunication tariff structures and their formulation. Engineering, Economic, Social, and Political considerations in tariff policy setting. Global operation and international agreements. Local, interstate and international call accounting. Inter-carrier call accounting. Network operator, service provider and customer partnerships. Service differentiation between voice, data and ISDN connections. Tariff policies in broadband, interactive multimedia and Internet connections. Tariff regimes in cellular mobile systems. Teletraffic engineering principles. Queuing theory. Loss Systems Delay systems. Availability. Dynamic equivalence. Erlang's formulas. Network dimensioning. Dynamic routing. Minimum network design. Network traffic management techniques. Network management.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Required Reading: To be advised by the lecturer.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6531 WIRELESS COMMUNICATION SUBSYSTEMS

Locations: Footscray Park.

Description: This unit will provide a theoretical and practical understanding of wireless communication systems and the subsystems involved in them. It provides an overview of existing wireless systems with special reference to its hardware implementation. Subject content will include the following: Noise and Distortion, Duplexing methods, Propagation modeling at UHF. Path loss, free space and plane earth models. Okumura's model. Radio link design, Shadowing, Rayleigh multipath fading, fade duration and level crossing rate. Delay spread, coherence bandwidth. Antennas. Antenna gain and phased array antennas, Diversity systems. Multiple antenna systems, MIMO, Interference cancellation. Modulation and coding for the mobile channel.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Select appropriate radio hardware components to meet a specified dynamic range (noise and third order distortion) specification for wireless equipment. Identify the difference between different duplexing methods and know the performance trade-offs between them Perform basic path loss estimation and radio link design, using hand calculations or specialised prediction software. Describe the basic causes of radio frequency fading and identify the most appropriate diversity countermeasure to this fading. Distinguish between different MIMO modes of operation.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials. A further thirty-six (36) hours of self directed learning comprising assignments, projects and laboratory work.

Required Reading: Wireless Communications. Molisch, Andreas F. (2005). Chichester: Wiley. Wireless Communications. Rappaport T,S. (2007). (2nd ed.). New Jersey: Prentice-Hall. Modern Wireless Communications. Haykin, S, & Moher, M. (2004). New Jersey: Prentice-Hall.

Assessment: A pass in each component of assessment is required to obtain a pass in this unit.Examination, Final examination (2 hours), 60%. Laboratory Work, 2 laboratory reports on design software (10% each), 20%. Test, Short tests (approximately 6 to 8 tests), 20%.

VET6541 MULTIMEDIA AND INTERNET TECHNOLOGY

Locations: Footscray Park.

Description: Characteristics and requirements of multimedia telecommunication services. Media integration. Multimedia communications supporting technologies. Digital audio, image, and video compression principles. techniques, and standards. Super high definition images. Image capture systems. Image processing and image coding algorithms. End-to-end quality of service guarantee and management for audio and video communications. Network support of multimedia communications. Multimedia transport protocols. End system architectures. Multimedia servers. Networked multimedia synchronisation requirements and mechanisms. Multimedia workstations and servers. Information super highways. Internet. HTML. Java and objected oriented programming.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Required Reading: Lu, G., 1996, Communication and Computing for Distributed Multimedia Systems, Artech House.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6542 MOBILE AND PERSONAL COMMUNICATION SYSTEMS

Locations: Footscray Park.

Description: Overview of cellular systems. Capacity calculation. Cell site engineering. Cell splitting and sectoring. FDMA, TDMA and CDMA systems. Simplex, Half Duplex and Full Duplex, DSSS and Frequency Hopping. Spectral efficiency considerations. Air link interface. Radio resource management. Mobility management. Handover. Cellular traffic. Cellular networking. Micro and macro cellular systems. GSM, WCDMA, LTE systems. Mobile data networks. The wireless enterprise. PMR. Simulcast, Trunking. Standardisation. Security issues. Regulatory environment. Emerging and Future Standards.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Perform basic cell planning for a wireless communications system.
2. Evaluate wireless system performance in terms of quality of service and grade of service.
3. Operate radio cell planning software tools.
4. Describe the operation of the key wireless standards, GSM, WCDMA and LTE.
5. Describe the operation and identify strengths and weaknesses of popular wireless multiple access techniques.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials. A further thirty-six (36) hours of self directed learning comprising assignments, projects and laboratory work.

Required Reading: LTE for UMTS, OFDMA and SC-FDMA Based Radio Access. Holma, H., & Toskala, A. (2009). ISBN 978-0-470-99401-6. Chichester: Wiley. WCDMA for UMTS - HSPA Evolution and LTE. Holma, H., & Toskala, A. (2007). (4th ed.). Chichester: Wiley. Wireless Communications. Molisch, Andreas F. (2005). ISBN 13 978-0-480-84888-3. Chichester: Wiley.

Assessment: A pass in each component of assessment is required to obtain a pass in this unit.Examination, Final examination (2 hours), 60%. Test, Class tests (approximately 6 to 8), 20%. Laboratory Work, 2 Laboratory reports using EDX software (10% each), 20%.

VET6550 MINOR PROJECT

Locations: Footscray Park.

Prerequisites: VET6520 - DIGITAL COMMUNICATION PRINCIPLES

Description: Each student will undertake an individual research on a topic allocated to him or her under the supervision of an academic staff over the duration of a semester. Regular meetings will be held between the students and their supervisors in the form of seminars where students will report their progress in the form of formal presentations. In addition, informal meetings between students and their supervisors will take place as and when required. In the process, the student will be exposed to research related matters such as Research Methodology, Literature Reviews, Feasibility Studies, Experiment Design, Modelling and Simulation Techniques and Tools, Results Analysis and Validation, Report Documentation and Presentation.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Six hours per week for one semester, comprising three hours per week group seminar, and three hours per week (on average) individual meetings, discussions, etc. with respective supervisors.

Required Reading: To be advised by the supervisor of the project.

Assessment: Regular seminar presentations (3 seminars, each of 20 min duration), 30%. Final report (Approximately 12,000 words) 50%. Final presentation (of 30 min. duration), 20%

VET6552 COMPUTER NETWORKS AND NETWORKING SOFTWARE

Locations: Footscray Park.

Description: Computer systems architecture and organisation. Communication controllers. Ports and buffers configuration and management. Computer networking principles. Network operating systems. Computer communication protocol architecture, their design, verification and implementation. Internetworking. Network layer protocols. Ip. Internet addressing and route management. Address resolution protocols. Transport service primitives. Connection establishment and release. Connection management. Time management. Network performance issues. Internetwork transport protocols. TCP and UDP. Port numbers. Domain naming systems. Interior and exterior gateways. Network management protocols. Electronic mail. Simple mail transfer protocols. File transfer protocol. Network file systems. Terminal emulation. Telnet.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Required Reading: Pabrai, U.O., 1995, UNIX Internetworking, Artech House.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VET6562 DIGITAL SIGNAL PROCESSING

Locations: Footscray Park.

Prerequisites: VEF2002 - SYSTEMS AND MATHEMATICS 2B

Description: The subject will provide a theoretical and practical understanding of digital signal processing techniques. Particular emphasis is placed on its applications to telecommunication circuit design and implementation. The subject examines the following topics. Aliasing. Quantisation. Signal reconstruction distortion. Dynamic ranges. Round-off errors. IIR digital filter design. Bilinear transformation and impulse invariant methods. FIR digital filter design. Windowing. Frequency sampling. Minimum phase and linear phase filter design. Effect of sampling rate variation. Decimation and interpolation. Adaptive filtering. LMS algorithm and its application. SO implementations of modulators, oscillators, limiters, phase shifters and other circuits. Design of modems, voice coders, image processors, and antenna beam formers.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two hour lecture and one hour tutorial/laboratory.

Required Reading: To be advised by lecturer.

Assessment: Tests/Assignments: 40%; Examination: 60%. A pass in each component of assessment is required for a subject pass.

VMC5672 NUMERICAL TECHNIQUES AND PROGRAMMING

Locations: Footscray Park.

Description: Computer arithmetic and errors. Linear algebra, matrix decomposition, solution of linear equations, eigenvalue problems. Non-linear equations. Curve fitting, splines. Partial differential equations, parabolic, elliptic and hyperbolic equations. Implementation by computer programming.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours weekly (one lecture, two tutorials/computer based laboratory) for 12 week.

Required Reading: Press et al, 2002, Numerical recipes in C++: The art of scientific computing, Cambridge University Press. Schilling and Harris, 2000, Applied numerical methods for engineers, Brooks/Cole. Jordan and Smith, 1999, Nonlinear ordinary differential equations, Oxford.

Assessment: Final assessment, 50% (Five assignments on computer implementation of numerical algorithms, each of 2500-5000 words 10% each). Final Examination, three hours, (50% of final assessment). Students must attain a mark of at least 50% in each component to pass this subject.

VMC5771 COMPUTER AIDED ENGINEERING

Locations: Footscray Park.

Description: Solid modelling: bottom-up modelling, top-down modelling. Key points, lines, areas, volumes Solid Modelling primitives. Boolean operations. Solid modelling from imported CAD files. Rigid body motion analysis: virtual prototyping processes Model hierarchy, objects, measures, constraints, parts, joints, forces. Markers, construction points, sensors. Finite Element Analysis: formulation of element. Meshing techniques. Static Stress Analysis. Post Processing and graphic presentation of results. Integrated workbench, animation and simulation of engineering problems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours weekly for 12 weeks, comprising of one lecture and two tutorials.

Required Reading: Zeid, 2004, Mastering CAD/CAM, McGraw-Hill. Fung and Tong, 2001, Classical and Computational Solid Mechanics, World Scientific. Zienkiewicz and Taylor, 2000, Finite Element Method, Vol 1-3, McGraw-Hill.

Assessment: Three assignments, 60% (each of 20% based on analytical and computational works and report of 5000-7500 words); three-hour final examination, 40% (open book). Students must attain a mark of at least 50% in each component to pass this subject.

VME5782 SPECIALIST ELECTIVE

Locations: Footscray Park.

Prerequisites: VMW5771 Research Techniques.

Description: One of the following topics, subject to staff availability: VMM5782Composite materials design, VMF5882 Flow measurement techniques, VMS5772 Optimization, VMV5772 Transportation and packaging dynamics.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours weekly comprising of lectures, tutorials and laboratory for 12 weeks.

Required Reading: As recommended by the lecturers.

Assessment: As specified by the Lecturer of the Specialist Elective chosen.

VMF5881 ADVANCED FLUID-THERMO DYNAMICS

Locations: Footscray Park.

Description: Viscous flow, laminar boundary layers, wall-bounded shear flows, flow stability, flow separation, free shear flows. Turbulence models, Navier-Stokes and Reynolds equations, general conservation equations, modelling of production, diffusion, and dissipations in turbulent flows. Heat transfer, modelling of heat transfers from conduction, convection and radiation, application in modelling the smoke spread in buildings and internal combustion.Combustion, combustion equations, premixed laminar flames, gaseous diffusion flames, turbulent flames.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students should be able to: Understand and be able to apply the various turbulence models to solve practical fluid related engineering problems. Understand and be able to calculate the heat transfers from conduction, convection and radiation. Understand the combustion phenomena in internal combustion engines and in fire spread in buildings.

Class Contact: Three hours weekly of lectures, tutorials, and laboratory for 12 weeks.

Required Reading: Cengel and Turner, Fundamentals of Thermal-Fluid Sciences, McGraw-Hill, 2004Pope, Turbulent Flows, Cambridge University Press, 2000.Cebeci, An Engineering Approach to the Calculation of Aerodynamic Flows: Laminar, Turbulent & Transitional Boundary Layer Methods, Inviscid Methods & Stability/Transition Methods, Springer-Verlag, 1999Schlichting et al, Boundary Layer Theory, Springer-Verlag, 1999

Assessment: Two assignments (20%)(each of 10%, 2500-5000 words), one one-hour test (10%), laboratory (20%), and Final three-hour examination (50%)

VMP5872 RESEARCH PROJECT

Locations: Footscray Park.

Prerequisites: VMW5771 - RESEARCH TECHNIQUES

Description: Methods of formulating research problem, literature survey. Techniques of poster presentation, final report, research seminar. Carrying out a research project oh choice: acquiring data, processing data. Presenting findings in seminar, by poster presentation and writing research report.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Lectures, tutorials and project presentation in the form of poster and seminars, three hours per week for 12 weeks.

Required Reading: Evans, 1995, How to write a better thesis or report, Melbourne University Press.

Assessment: Project presentation, 40% (Project proposal 10%, poster presentation 10%, seminar presentation 20%); Final Report, 60%. Students must attain a mark of at least 50% in each component to pass this subject.

VMR8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VMR8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VMR8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VMR8012 RESEARCH THESIS 2 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VMT5882 COMPUTATIONAL FLUID DYNAMICS

Locations: Footscray Park.

Description: The numerical schemes used for CFD, their accuracy and stability limit. Turbulence models: eddy viscosity concept, k- model, RNG models; turbulence models near the wall. Boundary and initial conditions specification, wall boundary, open boundary, inlet and exit; How to divide the computation domain into small regions; Grid generation and near wall requirement; CFD simulations for smoke spread during a fire in building, air-conditioning system, air flow inside an engine manifold and exhaust system. Basic concept of LES and DNS, their applications and limitations.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures, tutorials, and computer-based laboratory per week for 12 weeks.

Required Reading: Chung, 2002, Computational Fluid Dynamics, Cambridge University Press. Fletcher, C.A.J., 1988, Computational Techniques for Fluid Dynamics, Springer-Verlag. Patankar, S.V., 1980, Numerical Heat Transfer and Fluid Flow, Hemisphere.

Assessment: Two assignments, 20% (each of 10%, 2500-5000 words); one one-hour test, 10%; laboratory, 20%; final three-hour examination, 50%. Students must attain a mark of at least 50% in each component to pass this subject.

VMV5781 ADVANCED DYNAMICS AND VIBRATIONS

Locations: Footscray Park.

Description: Vibration of linear multi degree of freedom (MDOF) system, discrete systems, Lagrange equations and Hamilton's principles, continuous systems. Vibration of undamped and damped, free and forced vibration. Stiffness matrix, mass matrix and damping matrix. Damping mechanisms. Numerical methods in solving dynamics problems, Rayleigh's method, Eigenvalue problems. Random Vibration Analysis. Non-linear systems, Duffing's method.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours weekly of lectures and tutorials, laboratory for 12 weeks.

Required Reading: Rao, 2004, Mechanical Vibrations, Pearson Prentice Hall. Newland, 1989, Mechanical Vibration Analysis and Computations, Longman.

Assessment: Three assignments, 30% (each of 10% based on analytical and numerical analysis and a report of 2000-3000 words); laboratory, 20%; one three-hour open book examination, 50%. Students must attain a mark of at least 50% in each component to pass this subject.

VMV5782 COMPUTATIONAL DYNAMICS

Locations: Footscray Park.

Prerequisites: VMV5781 Advanced Dynamics and Vibration.

Description: Finite element method in vibration. Response analysis in harmonic, transient and random vibration. Implicit and explicit computational techniques. Frequency analysis, non stationary signals and transient analysis. Non-linear systems. Vibration testing and experimental modal analysis, frequency response functions, receptance, mobility, accelerance. Spatial-modal-response models of mechanical systems. Structural modification.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for 12 weeks, comprising of lectures, tutorials, experimental laboratory and computer-based laboratory.

Required Reading: He and Fu, 2001, Modal Analysis, Butterworth-Heinemann. Bendat and Piersol, 2000, Random Data: Measurement and Analysis, Wiley. Newland, 1996, Introduction to Random, Spectral and Wavelet Analysis, Addison-Wesley.

Assessment: Three assignment, 20% (each of 10% and 2500-5000 words); laboratory, 20%; one three-hour final examination, 50%. Students must attain a mark of at least 50% in each component to pass this subject.

VMW5682 MANUFACTURING MATERIALS

Locations: Footscray Park.

Description: Advanced topics in the following areas: Fabrication processes in casting, cutting and solid shaping and their relationship to polymeric, ceramic and metallic materials. Selection of materials for clean manufacturing.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Lectures, tutorials and seminars, three hours/week for 12 weeks.

Required Reading: DeGarmo, P.E., Black, T.J., and Kohser A.R., 2002, Materials and processes in Manufacturing, Wiley. Rojter, J., 2004, Manufacturing Materials, Victoria University.

Assessment: Three assignments, 60% each of 4000-5,000 words; two two-hour tests, 40%.

VMW5771 RESEARCH TECHNIQUES

Locations: Footscray Park.

Description: An overview of the history of engineering and scientific research. An introduction to the philosophy of science and the ideas of Popper, Kuhn, Feyerabend and others. Design and Analysis of Experiment. Error and uncertainty. Statistical Data Analysis. Taguchi method for design and experiments.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week of lectures, tutorials and laboratory-based assignments for twelve weeks.

Required Reading: Montgomery, D.C., 2001, Design and Analysis of Experiments, Wiley. Roy, 2001, Design of Experiments using the Taguchi Approach, Interscience.

Assessment: Four assignments, 40% (each of 10%, of 2500-5000 words); final three-hour examination, 60%. Students must attain a mark of at least 50% in each component to pass this subject.

VMY5682 EXPERIMENTAL TECHNIQUES AND SIGNAL PROCESSING

Locations: Footscray Park.

Description: Engineering measurement theory and fundamentals; Instrumentation for mechanical processes; Signal conditioning and dynamic response of measurement systems; Data acquisition systems; Frequency filters. Interfacing with computers. Signal theory; Time domain analysis; Synchronous averaging, probability distribution estimates and statistical parameters; Frequency domain analysis: Fast Fourier Transform (FFT); Shock Response Spectrum; Frequency response functions, coherence, signal-to-noise ratio; Non-stationary signals; Non-Gaussian signals.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two-hour lecture weekly. One-hour laboratory session/tutorial fortnightly.

Required Reading: Boashah, 2003, Time frequency signal analysis and processing, Elsevier. Bendat and Piersol, 2000, Random data, Analysis and measurement procedures, Wiley. Randall, 1987, Frequency analysis, Bruel & Kjaer.

Assessment: Five assignments (50%) based on laboratory exercises. Final three-hour examination (50%). Students must attain a mark of at least 50% in each component to pass this subject.

VPM5000 INTERMODAL FREIGHT MARKETS - DYNAMICS AND STRUCTURE

Locations: Werribee.

Description: This subject is concerned with the way in which rapidly restructuring logistics and freight handling systems are impacting on the efficiency and effectiveness of service providers in integrated and intermodal freight markets. It focuses particularly on developing concepts, skills and techniques that will assist transport professionals and managers in intermodal freight handling firms not only to understand the economic and competitive drivers in the market place but also how to define their corporate 'product' and the way in which they do business. The subject meshes principles with practice and is developed within a framework or a detailed understanding of the Australian freight industry and its operations and practice, and it is informed also by extensive experience in Southeast Asian and Pacific Rim countries, in the United States and in Europe.

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: Forty five hours of block mode teaching.

Required Reading: Course Handbook provided to each student.

Assessment: Case study and seminar presentation, 10%; Syndicate group project, 40%; Research report, 50%.

VPM5001 INTEGRATING INTERMODAL FREIGHT SYSTEMS

Locations: Werribee.

Prerequisites: VPM5000 - INTERMODAL FREIGHT MARKETS - DYNAMICS AND STRUCTURE

Description: This subject focuses on the need to create seamlessness in transport services and operations that span complex networks involving different modes and many interface points - depots, terminals, warehouses, ports, for example. It recognises that intermodal efficiency may not be easily achieved; and that action may be required on many fronts - including operational capacity matching, alliance formation, information and e-Business streamlining, rationalising chain structures, eliminating market structure inefficiency and harmonising policies and policy frameworks. Particular attention is paid to capacity measurement, provision and adjustment in freight networks; to efficiency costs and pricing frameworks; to ways and means of achieving efficient chain and supply chain structures; and to overcoming policy and regulatory constraints. This subject draws heavily not only on the Australian freight industry but also on international experience.

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: Forty five hours of block mode teaching.

Required Reading: Course Handbook provided to each student.

Assessment: Case study and seminar presentation, 10%; Syndicate group project, 40%; Research report, 50%.

VPM5002 DEFINING STRATEGIES FOR INTERMODAL FREIGHT SYSTEMS

Locations: Werribee.

Description: This subject builds on the concepts, skills and techniques developed in VPM5000 and VPM5001. In those subjects students examined the nature of the intermodal freight market and the role of the intermodal service provider in it; and the ways and means of managing to achieve seamless and efficient operations. In this subject the guiding questions are strategic ones and focus on positioning the firm for the future. More particularly, the subject develops a strong understanding of the notion of strategy and of an adequate conceptual framework within which to define strategies. It also outlines some quite specific attributes of strategy for intermodal firms and for the effective achievement of integrated freight networks. This subject draws heavily not only on the Australian freight industry but also on international experience.

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: Forty five hours of block mode teaching.

Required Reading: Hamel, G. and Prahalad, C.K., 1994, Competing for the Future, Harvard Business School Boston. Course Handbook provided to each student.

Assessment: Case study and seminar presentation, 10%; Syndicate group project, 40%; Research report, 50%.

VPM5003 ADVANCED CHAIN SYSTEMS MANAGEMENT

Locations: Werribee.

Description: This subject focuses on managing firms in chain systems to achieve fully integrated, rather than highly segmented and atomistic chains. It is concerned with ways and meand of trading off system efficiency and costs in such a way as to deliver maximum customer value under varying economic and policy scenarios. This unit will ad further to the students' understanding of process mapping, the design of static and dynamic KPIs and dynamic modelling solutions for efficient chains.

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: Teaching for each unit is over a five day block.

Required Reading: Current available text book - student to be advised.

Assessment: A seminar paper, 10%; Group syndicate work, 40%; Research report, 50%.

VPM5004 FINANICAL AND INVESTMENT PLANNING IN CHAIN SYSTEMS MANAGEMENT

Locations: Werribee.

Description: Third party service providers, like other firms, must understand the relationship between the costs of investments and the use of capital and the benefits of investment. The timing of investments, cost/price relationships and the risks associated with investment are of exceptional importance to business success. This unit focuses on these issues and introduces students to concepts, financial modelling and technique for developing investment scenarios.

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: Teaching for each unit is over a five day block.

Required Reading: Current available text book - student to be advised.

Assessment: A seminar paper, 10%; Group syndicate work, 40%; Research report, 50%.

VPM5005 STRATEGY, STRATEGIC OPTIONS AND BUSINESS SUCCESS IN CHAIN SYSTEMS MANAGEMENT

Locations: Werribee.

Description: Rapid and continuing changes in complex intermodal and chain systems are resulting in significantly increased competitive pressures for third party service provider firms. What strategic options are available to stakeholder firms And on what basis can the traditional 'transport provider' firms achieve sustained business success This unit examines in depth the basis for business success and examines particularly the notions of market andsupply chain power and draws on current research into real-world examples to provide guidance for stakeholder firms.

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: Teaching for each unit is over a five day block.

Required Reading: Current available text book - student to be advised.

Assessment: A seminar paper, 10%; Group syndicate work, 40%; Research report, 50%.

VPM5006 BLK FRGHT MRKT AND SUPPLY CHAIN: DYN AND STR

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPM5007 MANAGING BULK SUPPLY CHAINS

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPM5008 DEFINING STRATEGIES FOR BULK FREIGHT SYS

Credit Points: 16

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPM6000 MINOR THESIS

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPP5600 PRINCIPLES OF PROJECT MANAGEMENT

Locations: Footscray Park.

Description: The unit of study (UoS) will introduce and define project management as applicable to the concept, development design and documentation, procurement and maintenance, of any facilities including buildings and infrastructure. To introduce participants to Project Management Principles and learn about working in a project team environment. The UoS examines the following topics. Introduction to Project Management: PM's role in achieving a successful project in industry and environment; definitions of the Management and Project Management. Trends in project management - historically and the current environment; managerial perspective; trend towards various modes of project delivery. Comparison of performance in public/private sectors; overview of future developments. The interrelationship between owner, developer, financial sources, designers and contractors. Role and task of functional activities of project managers: setting of project objectives; feasibility analysis; setting of budget; control of contract time and quality; risk apportionment between various parties. Design to user requirements: planning for life-cycle of the facility; management of small to medium size projects; role descriptions of project manager, architect, consultants and owners. Environmental and social constraints. Preparation EIS for building development project. Case studies illustrating the various aspects of project management.

Credit Points: 12

Learning Outcomes: It will equip professionals already in industry with advanced principles and techniques of project management to enable them to assume the role of project manager and/or become effective members of project management teams.

Class Contact: Three hours per week for one semester.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: Assignments, 20%; group project, 40%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this UoS.

VPP5610 PROJECT PLANNING AND CONTROL

Locations: Footscray Park.

Description: The unit of study (UoS) will review the development process of a project from its inception through to feasibility and go-ahead decision; detail design documentation, construction commissioning and life cycle planning; evaluate the role and function of Project Management in this process; explain the purpose and to detail the theoretical basis of various techniques used for planning and managing the process. The UoS content includes: Systems approach to project planning; basic principles and theory of systems analysis; current trends in community project planning. Overview of UoS and introduction to project. Management of a Public Interest Project. Preparation of financial feasibility of a development project: factors involved, issues to be considered at concept stage; introduction of a case study. Capital decision making for project managers; cost concepts and cost factors. Project control and cost planning at feasibility and design stage. Cost versus quality assurance. Project control during development phase; breakdown of the project for estimating, budgeting and financial control; project time planning; networks and other scheduling techniques; resource levelling; line of balance concepts. Project cost planning and control in public sector; pre-development cost control, development cost control; cost control method: data support system to cover contingency, indexation and methods of monitoring and reporting. Project team planning: duties and responsibilities of the project manager. Planning techniques for repetitive construction, multi-activity chart; principles of production engineering applied to repetitive processes in projects; special problems of repetitive projects. Principles of decision analysis; review of mathematical theory; application to decision process under uncertainty. Value engineering concepts and its application to design and development; application of value analysis in project management. Role and responsibilities of client s member on P.M. team; risk sharing at various stages of project between the parties involved in the process; role of P.M. in client awareness of risks and rewards.

Credit Points: 12

Learning Outcomes: It will equip professionals already in industry with advanced principles and techniques of project management to enable them to assume the role of project manager and/or become effective members of project management teams.

Class Contact: Three hours per week for one semester.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: One major group project, 40%; two individual assignments, 20%; examination, 40%. Students must attain a mark of 50% in each assessable component to pass this UoS.

VPP5620 PROJECT STAKEHOLDERS MANAGEMENT

Locations: Footscray Park.

Description: The unit of study (UoS) will develop an understanding and appreciation of management environment in Australia; evaluate current state of standard forms of contracts and its relevance to procurement of buildings by project management techniques. The UoS examines formal organisational structures; role of project manager. Evaluation of managerial thought; management process - human and organisational aspect; human behaviour in organisations; current trends in organisational structure; comparison of U.S. and Australian management scene; overview of Australian management trends in construction industry. An introductory examination of the Australian legal system. The role of Parliaments and the process of passing and the effect of legislation. The authority and the hierarchy of the Courts. General principles of contract law. An examination of the new draft form of AS4000 form of contract. A comparison of standard forms of contracts. An outline of the law relating to the principles concerning project management. Examination of the different types of project management. Formation of a contract. Terms of a contract. Avoidance. Discharge of a contract. Remedies. Quantum merit. Contractual and working relationship between various stakeholders in the project. Roles and Responsibilities of each stakeholder; risk apportionment between various stakeholders as well as determination of risks to be covered by insurances, bonds or other instruments.

Credit Points: 12

Learning Outcomes: It will equip professionals already in industry with processes and knowledge to deal with project scenarios. It will enable them to assume the role of and participating in the various functions involved in the project. The UoS will make the various stakeholders aware of their responsibilities as well as their liabilities.

Class Contact: Three hours per week for one semester.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: By assignments and projects and class participation. Assignment 1, 30%; exercises and assignments, 60%; class participation, 10%. Students must attain a mark of 50% in each assessable component to pass this UoS.

VPP5621 PROJECT RISK MANAGEMENT

Locations: Footscray Park.

Description: This unit of study (UoS) studies the fundamentals of risk management and risk management theories in relation to projects, definitions of risks and opportunities, risk management system, risk identification and classification, risk probability and impact, qualitative risk analysis techniques, quantitative risk analysis techniques, risk treatment methods, decision making, risk perception, risk communication, risk analysis software introduction, risk versus opportunity. Case studies are used to examine and develop understanding of risk management system and its implementation.

Credit Points: 12

Learning Outcomes: Upon completion of the UoS, the students should be able to understand risk and risk profile in a typical project, conduct a simple risk assessment and develop a risk management plan.

Class Contact: Three hours per week for one semester.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: Assignments, 50%; Exam, 50%.

VPP5630 RESEARCH METHODS

Locations: Other.

Description: This unit of study (UoS) aims at informing students of the range of research methods appropriate to the project management discipline and developing basic skills for carrying out research. It introduces nature of research, types of research, research problems and objectives, literature review, research design, research ethics, data collection, measurement and analysis methods, typical qualitative and quantitative methods, development of research proposal, advanced information retrieval skills, etc.

Credit Points: 12

Learning Outcomes: Upon the completion of this UoS, the students should develop an understanding of research skills, techniques and methodologies for the completion of a full research proposal.

Class Contact: Three hours per week for one semester.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: Assignment 1 (40%); Assignment 2 (Oral 20% and Report 40%)

VPP5640 PROJECT GOVERNANCE

Locations: Footscray Park.

Description: Effective project decision making is recognised as a key feature of successful projects. Ineffective decision making leads to project delay and failure. Project Governance takes participants through the logical steps required for the establishment of a project governance framework for a project or organisation. Starting with problems typical of ineffective project governance, it develops a set of principles designed to overcome these problems and builds a framework based on these principles. Understanding and developing a comprehensive guide demonstrates how to populate the framework effectively, provides the accountabilities and responsibilities of the main roles, and describes how to integrate the project governance framework into the organisation. Whether participants are a project management practitioner or a student of project management.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Establish the importance of project governance; Evaluate the causes and symptoms of ineffective project governance; Apply the principles of effective project governance and developing the project governance framework model; Assess the issues in implementing the project governance framework; Assess the governance relationship between programmes and projects; Apply the process towards an integrated project delivery framework.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, seminars and group activities.

Required Reading: Project governance. Renz, P. S. (2007). Springer E-books. Corporate governance and ethics Rezaee, Z. (2009). (2nd ed.). John Wiley & Sons.

Assessment: Unit assessment is based on the final examination and assignments.Examination, Final Examination, 50%. Assignment, Assignment 1, 25%. Assignment, Assignment 2, 25%.

VPP5716 PROJECT DEVELOPMENT ANALYSIS AND REVIEW

Locations: Footscray Park.

Description: The unit will develop skills and techniques to assess and manage projects and to appreciate the role and objectives of project managers and developers. Unit content examines management of project in the economy: An overview: typology of relationship between property, project management and property management. Feasibility and economic issues in development of project: Elements of a project development feasibility study. Parameters of project investment. Decisions including market analysis and financial evaluation techniques. Project investment criteria and considerations. Management of the development process (a client perspective): client briefing; formation of project team; design management, construction and financial management, project marketing. Financial feasibility - Case study and methods of evaluation. Law and property management - Strata titles; standard mortgage clauses; standard lease agreements. Land valuation and techniques for valuing project and property. Market survey and predictions - impact of macro-economic conditions on decisions to develop; marketing of space.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply project development processes to assess and manage projects;

2. Describe the role and objectives of developers and project managers.

Class Contact: Thirty six (36) hours for one semester comprising lectures, computer laboratory sessions, seminars and workshops.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: Assignment, Individual assignment, 15%. Project, Group project, 45%. Examination, End-of-semester examination, 40%. Students must attain a mark of 50% in each assessable component to pass this UoS.

VPP6511 FIBRE OPTIC COMMUNICATION SYSTEMS

Locations: Footscray Park.

Description: Review of basic optical theory: Optical fibres. Attenuation in silica optical fibres. Modes in slab waveguides. Modes in optic fibres. Dispersion and distortion in optical fibres. Sources for optical fibre systems. Detectors for fibre optic systems. Noise in detector systems. Fibre optic communication systems. Fibre fabrication.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours lectures/tutorials/laboratories.

Required Reading: Palais, J.C. 2005, Fibre Optic Communications, 5th edn, Prentice-Hall, NJ.

Assessment: Two assignments (each assignment report not exceeding 5000 words) 10% each; Two laboratory reports (word length of each not exceeding 2500 words) 10% each; Final examination (Two Hours) 60%.

VPP6512 ADVANCED FIBRE OPTICS

Locations: Footscray Park.

Prerequisites: VPP6511 - FIBRE OPTIC COMMUNICATION SYSTEMS

Description: Maxwell's Equations for waveguides, boundary conditions and eigenvalue equations, planar dielectric waveguides and their modes, cylindrical dielectric waveguides and their modes, LP mode description, Gaussian approximation, dispersion in multimode and single mode fibres, normal mode theory of single mode fibre couplers. Role of optical amplifiers. Use of Bragg gratings for switching and dispersion compensation. Design and operation of current systems including those using dense wavelength division multiplexing.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours lectures/tutorials.

Required Reading: Jones, W.B. 1988, Introduction to Optical Fiber Communication Systems, Holt Rinehart and Winston, New York.

Assessment: Four assignments (each assignment report not exceeding 5000 words) 10% each. Final examination (Two Hours) 60%.

VPP6521 OPTICS AND LASERS

Locations: Footscray Park.

Description: Interaction of radiation with matter; absorption, spontaneous emission and stimulated emission. Population inversion, net gain. Introductory ideas of optical cavities, threshold. Time behaviour of laser output, burst-mode and Q-switched pulses. General requirements for CW output. Rate equations. Overview of laser materials and pumping methods. Examples of gas, solid state and semiconductor lasers. Laser Oscillators. Line broadening mechanisms, inhomogeneous and homogeneous broadening, gain saturation. Laser output versus input. Laser amplifiers. Optical resonators. Short pulse techniques. Tunable laser techniques. Non-linear optics - second harmonic generation and parametric oscillation. Laser applications. Laser safety and laser hazards. Fibre lasers and optical amplifiers.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours lectures/tutorials/laboratories.

Required Reading: Verdeyen, J.T. 1995, Laser Electronics, 3rd edn, Prentice-Hall International, USA.

Assessment: Two assignments (each assignment report not exceeding 5000 words) 10% each. Two laboratory reports (word length of each not exceeding 2500 words) 10% each; Final examination (Two Hours) 60%.

VPP6522 DIGITAL COMMUNICATIONS OVER OPTICAL NETWORKS

Locations: Footscray Park.

Prerequisites: VPP6511 - FIBRE OPTIC COMMUNICATION SYSTEMS

Description: Fibre Optic transmission systems. Issues of chromatic dispersion, fibres and operational wavelengths, sources and receivers. LANs, Gigabit and 10 gigabit Ethernet, WANs, MANs, power budget. Protocols for modern communication systems - SONET/SDH: Architecture and protocols, speeds, architecture layers, network elements, rings, switching, restoration, and diversity. WDM and DWDM: special fibres, erbium-doped fibre amplifier (EDFA), tunable laser diode at 1550 nm. Practical issues in Optical Networking, non linearities, Raman amplifiers. Future trends.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours lectures/tutorials/laboratories exercises.

Required Reading: Goralski, W. 2001, Optical Networking & WDM, SPIE, Bellingham WA

Assessment: Two assignments (each assignment report not exceeding 5000 words) 10% each. Two laboratory reports (word length of each not exceeding 2500 words) 10% each; Final examination (Two Hours) 60%.

VPP6531 QUANTUM OPTICS

Locations: Footscray Park.

Description: Photoelectric effect and spontaneous emission. de Broglie Waves: wave-particle duality, Heisenberg's Uncertainty Principle, properties of matter waves. Schroedinger Wave Equation: wave functions, expectation values, eigenfunctions, zero potential, potential steps and barriers, tunnelling, particle in a box, simple harmonic oscillator. One electron atoms: eigenfunctions and eigenvalues, probability densities, orbital angular momentum, electron spin, orbital and spin magnetic dipole moments, spin-orbit interaction, total angular momentum. Multielectron atoms and the Periodic Table of the Elements. The interaction of radiation with matter including angular momentum and selection rules. Spectroscopy of optical materials.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours lectures/tutorials/laboratories exercises.

Required Reading: Taylor, J.R., Zafiratos, C.D. and Dubson, M.A. 2003, Modern Physics for Scientists and Engineers, 2nd edn, Prentice Hall, NJ.

Assessment: Two assignments (each assignment report not exceeding 5000 words) 10% each. Two laboratory reports (word length of each not exceeding 2500 words) 10% each; Final examination (Two Hours) 60%.

VPP6532 OPTICAL FIBRE SENSORS

Locations: Footscray Park.

Prerequisites: VPP6511 FIBRE OPTIC COMMUNICATION SYSTEMS

Description: Introduction and basic concepts, materials interactions in optical fibre sensors, fibre optic components, special optical fibres for sensors, interferometric sensors, fibre-optic gyroscope, intensity and wavelength-based sensors, multiplexed and distributed sensors. Fibre Bragg gratings for strain or temperature measurement. Applications of fibre sensors, e.g. smart structures.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours lectures/tutorials/laboratories exercises.

Required Reading: Grattan, K.T.V. and Meggitt, B.T. 1995-1999, Optical Fiber Sensor Technology Volumes 1-4, Chapman & Hall, London and Kluwer Academic, Dordrecht, Netherlands.

Assessment: Two assignments (each assignment report not exceeding 5000 words) 10% each. Two laboratory reports (word length of each not exceeding 2500 words) 10% each; Final examination (Two Hours), 60%.

VPP6541 OPTICAL MATERIALS

Locations: Footscray Park.

Description: General Properties. Propagation of E/M waves in dielectric media; models of the refractive index; dispersion, absorption and the refractive index; frequency dependence; scattering; cross-sections. Properties of Lens Materials Commonly used materials in the ultra-violet, visible and infrared regions; transmittance, dispersion and the refractive index; environmental properties; examples. Solid State Laser Materials Host materials: crystalline materials, semiconductors, active ions; colour centres. Non-linear Materials Electro-optic effect; magneto-optic effect. Thin Film Materials Substrates. Optical damage mechanisms; self-focusing; damage thresholds; specification of cosmetic surface quality of optical components.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours lectures/tutorials.

Required Reading: Pedrotti, F.L. and Pedrotti L.S. 199

3. Introduction to Optics, 2nd edn, Prentice Hall, NJ

Assessment: Four assignments (each assignment report not exceeding 5000 words) 10% each.Final examination (Two Hours) 60%.

VPP6542 DATA ACQUISITION

Locations: Footscray Park.

Description: In this subject, students will learn advanced features of modern data acquisition and computer interfacing software, such as LabView. Students will be assigned projects that will involve the automation of an experiment, both in terms of the hardware and software requirements.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 36 hours including 24 hours of laboratory classes, 12 hours of lectures/tutorials.

Required Reading: Essick, C., 1998, Advanced Labview Labs, Prentice-Hall NJ.

Assessment: Two assignments (each assignment report not exceeding 5000 words) 10% each. Laboratory project (report not exceeding 10,000 words) 80%.

VPP8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPP8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPP8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VPP8012 RESEARCH THESIS 2 PART TIME

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPP8050 PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 12CP)

Locations: Footscray Park.

Prerequisites: VPP5630 Research Methods or concurrently with it.

Description: The unit of study (UoS) enables students to: identify a project problem and critically review relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the project undertaken, both clearly and accurately in a written report. The report topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The report will normally be from 8000 to 15,000 words. It will detail the problem, relevant literature, analysis conducted, conclusions and recommendations. Students will be supervised by an academic member of staff and where appropriate by a supervisor from another institution or from industry.

Credit Points: 12

Learning Outcomes: Students will be able to define and solve problems and issues related to industry. Be capable of analysing and finding appropriate solutions to problems using analytical and statistical techniques.

Class Contact: A three-hour briefing is given to students at the start of the UoS. Three hours per week for two semesters.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: Assessment will be by project work and report.

VPP8060 PROJECT MANAGEMENT SPECIFIC TOPIC (PROJECT WORK - 24CP)

Locations: Footscray Park.

Prerequisites: VPP5630 Research Methods or concurrently with it.

Description: The unit of study (UoS) enables students to: identify a project problem and critically review relevant literature; determine appropriate methods to study the problem; collect, and analyse data, and generate results using suitable statistical and analytical techniques; draw conclusions, critically evaluate the process undertaken and make recommendations for future research and for practice; present the results of the project undertaken, both clearly and accurately in a written report. The report topic chosen will allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. The report will normally be from 8000 to 15,000 words. It will detail the problem, relevant literature, analysis conducted, conclusions and recommendations. Students will be supervised by an academic member of staff and where appropriate by a supervisor from another institution or from industry.

Credit Points: 24

Learning Outcomes: Students will be able to define and solve problems and issues related to industry. Be capable of analysing and finding appropriate solutions to problems using analytical and statistical techniques.

Class Contact: A three-hour briefing is given to students at the start of the UoS. Six hours per week for one semester.

Required Reading: Formal class notes will be provided to students for each UoS. These notes are reviewed and updated regularly.

Assessment: Assessment will be by project work and report.

VPT8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPT8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPT8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VPT8012 RESEARCH THESIS 2 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

CENTRE FOR ENVIRONMENTAL SAFETY AND RISK ENGINEERING

Below are details of courses offered by the Centre for Environmental Safety and Risk Engineering in 2012.

This information is also available online on the University's searchable courses database at www.vu.edu.au/courses
NOTE: Courses available to international students are marked with the (I) symbol.

Assessment

Assessment is by a combination of written projects, assignments, submissions, laboratory work and oral presentation. Distribution of marks among each aspect of assessment is determined individually for each subject.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

GRADUATE DIPLOMA IN BUILDING FIRE SAFETY AND RISK ENGINEERING

Course Code: EGQB

Campus: Werribee.

About this course: The course aims to produce professionals who are familiar with fire science and technology fundamentals, who can apply rational engineering principles and techniques to identify cost-effective fire safety system designs for buildings, and will be familiar with the content and application of fire engineering design codes.

Course Objectives: The course aims to produce professionals who are familiar with fire science and technology fundamentals, who can apply rational engineering principles and techniques to identify cost-effective fire safety system designs for buildings, and will be familiar with the content and application of fire engineering design codes.

Careers: Fire safety and risk engineer (additional requirement may be needed).

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for admission to the course an applicant must have successfully completed a degree in engineering or a degree in science or building surveying.A corresponding diploma having equivalent content of the relevant technical subjects will also be considered.Relevant industrial experience is required.Applicants must either have previously studied, or demonstrated a sound basic knowledge of the following topics: fluid dynamics, heat transfer, properties of materials and structural behaviour. Bridging subjects may be required to overcome any inadequacies.A letter of recommendation and an interview may be required.Provision will be made to enrol a limited number of students in the course who do not fully meet the required admission standards, but who have extensive relevant experience and demonstrated aptitude for high achievement. An interview will be required in this case.

COURSE STRUCTURE

The course is offered on a part-time basis and in block modules over two years. Students must complete 120 credit points. The maximum time period to complete the course is six years.

Year 1

VQB5611	RISK ASSESSMENT AND HUMAN BEHAVIOUR	12
VQB5621	FIRE GROWTH, DETECTION AND EXTINGUISHMENT	12
VQB5632	SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN	12
VQB5642	PERFORMANCE CODES METHODOLOGY AND STRUCTURE	12

Year 2

VQB5751	FIRE TECHNOLOGY MODELLING	12
VQB5761	FIRE SAFETY SYSTEMS MODELLING	12
VQB5772	FIRE SAFETY SYSTEM DESIGN	12
VQB5782	FIRE SPREAD AND FIRE SAFETY SYSTEM DESIGN PROJECT	12

MASTER OF ENGINEERING (BUILDING FIRE SAFETY AND RISK ENGINEERING) (I)

Course Code: EMQB

Campus: Werribee.

About this course: The course provides opportunities for professional people to develop advanced technical skills in a specialist discipline; develop their understanding of legislation and management relevant to their employment; develop ability to plan co-ordinate and complete complex projects; apply and extend research and reporting skills and gain specialist knowledge of a topic relevant to their employment.

Careers: Fire safety and risk engineer (additional requirement may be needed).

Course Duration: 2 years.

Admission Requirements Year 12: To qualify for admission to the course applicants are expected to have completed a Graduate Diploma in Building Fire Safety and Risk Engineering with honours average or a degree in engineering, science or building surveying.

COURSE STRUCTURE

The course is offered over four years on a part-time basis or its full-time equivalent. Students must complete 192 points. Eight approved subjects of twelve credit points, each from the Graduate Diploma in Building Fire Safety and Risk Engineering, Industrial Experience of forty eight credit points, and a minor thesis/project of forty eight credit points for one semester or twenty four credit points for two semesters.

Year 1

Semester One

VQB5611	RISK ASSESSMENT AND HUMAN BEHAVIOUR	12
VQB5621	FIRE GROWTH, DETECTION AND EXTINGUISHMENT	12

Semester Two

VQB5632	SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN	12
VQB5642	PERFORMANCE CODES METHODOLOGY AND STRUCTURE	12

Year 2

Semester One

VQT5790	INDUSTRIAL EXPERIENCE (FULL-TIME)	48

(over one semester) or

VQT5791	INDUSTRIAL EXPERIENCE (PART-TIME)	24

(per semester for two semesters)

Year 3

Semester One

VQB5751	FIRE TECHNOLOGY MODELLING	12
VQB5761	FIRE SAFETY SYSTEMS MODELLING	12
Semester Two		
VQB5772	FIRE SAFETY SYSTEM DESIGN	12
VQB5782	FIRE SPREAD AND FIRE SAFETY SYSTEM DESIGN PROJECT	12
Year 4		
VQT6050	BUILDING FIRE RESEARCH (FULL-TIME)	48
(over one semester) or		
VQT6060	BUILDING FIRE RESEARCH (PART-TIME)	24
(per semester for two semesters)		

Assessment

Assessment is by a combination of written projects, assignments, submissions, laboratory work and oral presentations and by the satisfactory completion of a thesis. Distribution of marks for each aspect of the assessment is determined individually for each subject.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been made.

MASTER OF ENGINEERING (CESARE)

Course Code: ERQR

Campus: Werribee.

About this course: The Centre for Environment Safety and Risk Engineering (CESARE) has earned a world-renowned reputation for enhancing knowledge of smoke and flame growth and propagation, numerical modelling of fire dynamics, developing innovative techniques for risk assessment of fire safety systems, developing a greatly improved smoke alarm, predicting structural behaviour in fire and understanding various aspects of human behaviour. Many of these research activities have been conducted in collaboration with Australian fire and building regulatory bodies, local industry partners and the US based Fire Protection Research Foundation. Students will acquire knowledge and research skills in one of the areas above, different forms of communication in varied formats and settings as well as professional and communication ethics. This course is suitable for students interested in pursuing a career locally or internationally.

Course Objectives: This Course is designed to enhance the students' range of knowledge in various research fields relating to building and fire safety and risk engineering and to enable a focusing of practical skills into the specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university process.

Careers: Firesafety Researcher, Fire Safety Professional, PhD, research assistant, research technician.

Course Duration: 2 years.

Admission Requirements International: An IELTS (Academic Module) result with an overall score of 6.5 (no band less than 6) and a four year bachelor degree in Engineering, Building Surveying, Computer Science, Physics or Chemistry or an equivalent combination of qualifications and experience.

Admission Requirements Mature Age: A four year bachelor degree in Engineering, Building Surveying, Computer Science, Physics or Chemistry or an equivalent combination of qualifications and experience.

Admission Requirements Other: A four year bachelor degree in Engineering, Building Surveying, Computer Science, Physics or Chemistry or an equivalent combination of qualifications and experience.

COURSE STRUCTURE

The course normally requires two years of full-time study.

Year 1, Semester 1		
VQT8001	RESEARCH THESIS 1 FULL TIME	48
Year 1, Semester 2		
VQT8002	RESEARCH THESIS 2 FULL TIME	48
Year 2, Semester 1		
VQT8001	RESEARCH THESIS 1 FULL TIME	48
Year 2, Semester 2		
VQT8002	RESEARCH THESIS 2 FULL TIME	48

GRADUATE CERTIFICATE IN PERFORMANCE-BASED BUILDING & FIRE CODES

Course Code: ETQB

Campus: Werribee.

About this course: The course aims to enable building surveyors and other allied professions to: make professional use of performance-based building codes; introduce the concepts and alternative acceptable frameworks for performance-based codes, with particular, but not exclusive, emphasis given to fire safety engineering design; provide appropriate knowledge and skills necessary for the assessment and application of performance-based and fire codes; develop a professional approach to performance-based codes and a recognition of when to assess designs which are within a persons field of expertise and when to refer designs onto a more appropriately qualified assessor; develop an appreciation of the legal, statutory and design integrity requirements and the need for compliance of the design assumptions throughout the operational life of the building.

Course Objectives: The course aims to enable building surveyors and other allied professions to: make professional use of performance-based building codes; introduce the concepts and alternative acceptable frameworks for performance-based codes, with particular, but not exclusive, emphasis given to fire safety engineering design; provide appropriate knowledge and skills necessary for the assessment and application of performance-based and fire codes; develop a professional approach to performance-based codes and a recognition of when to assess designs which are within a persons field of expertise and when to refer designs onto a more appropriately qualified assessor; develop an appreciation of the legal, statutory and design integrity requirements and the need for compliance of the design assumptions throughout the operational life of the building.

Careers: Building Surveyor with unlimited authority.

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for admission to the course an applicant must have successfully completed a diploma in Building Surveying or an equivalent qualification and at least two years of relevant professional experience.Candidates with other academic qualifications can be admitted to the course provided they can demonstrate an equivalent combination of additional relevant professional experience and qualification.A letter of recommendation and an interview may be required. Graduates of the course may be offered advanced standing in the Graduate Diploma in Building Fire Safety and Risk Engineering.

COURSE STRUCTURE

The course is offered on a part-time basis over one year, and is offered in block modules (four blocks of four days, spread throughout the year). Students must complete 60 credit points. The maximum time period in which to complete the course is three years.

VQB5611	RISK ASSESSMENT AND HUMAN BEHAVIOUR	12
VQB5621	FIRE GROWTH, DETECTION AND EXTINGUISHMENT	12
VQB5632	SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN	12
VQB5642	PERFORMANCE CODES METHODOLOGY AND STRUCTURE	12

Assessment

Assessment is by a combination of assignments and examination. Distribution of marks among each aspect of assessment is determined individually for each subject.

Guidelines on the use of electronic calculators and other electronic storage devices in examinations are provided in individual subject outlines distributed to students within the first two weeks of semester and included on final examination papers.

Electronic calculators and other electronic storage devices will not be permitted where the above provisions have not been met.

UNITS

Below are unit details for courses offered by the Centre for Environmental Safety and Risk Engineering in 2012.

IMPORTANT NOTICE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

VQB5611 RISK ASSESSMENT AND HUMAN BEHAVIOUR

Locations: Werribee.

Prerequisites: Nil

Description: The subject introduces students to basic fire engineering design concepts through presentation of a range of fire safety evaluation methods including timeline analysis and provides students with the necessary knowledge about occupant communication and response submodels and subsystems as a basis for assessing the necessary input data for a risk assessment model. The impact of fire on society - life and cost. Basic fire growth and spread, people behaviour and time effects. Fire statistics and statistical analysis. Probability, reliability, quality assurance and engineering economics. An introduction to risk management. NFPA fire safety concepts tree, NFPA 101 fault trees, event trees. Environmental psychology, human behaviour during emergencies, occupant characteristics. Fire cues and automatic cues, occupant responses. Behavioural response models, human information processing. Human performance; ergonomics, biomechanics and movement studies. Toxic gases, fractional incapacitating dose. Egress, evacuation calculations and models.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading: A very comprehensive set of course notes is provided for each subject and topic; these contain further references and reading material. Building Code of Australia, 2004, Australian Building Codes Board. Australian Building Codes Board, 2001, Fire Safety Engineering Guidelines. DiNenno P.J. (ed.) 2002, The SFPE Handbook of Fire Protection Engineering, Third edn, National Fire Protection Association, USA. Warren Centre (University of Sydney), 1989, Fire Safety and Engineering Project Report. Building Regulation Review Task Force, 1991, Draft National Buildings Fire Safety Systems Code. Drysdale, D., 1999, An Introduction to Fire Dynamics, 2nd edn, John Wiley and Sons, London

Assessment: To be advised.

VQB5621 FIRE GROWTH, DETECTION AND EXTINGUISHMENT

Locations: Werribee.

Prerequisites: Nil

Description: The subject provides students with basic information on fire technology and explains the initiation and development of fires including an understanding and facility in the application of the range of detection systems and of manual and automatic extinguishing subsystems in terms of: mechanism of extinguishment; detection performance; component modelling; response time assessment; reliability criteria, redundancy and the effect of maintenance; performance testing. The subject covers the combustion process and the fire triangle. Heat transfer mechanism, combustion of gases and vapours and fire plumes. Combustion of liquids and solids, fire toxicity and products of combustion. Fire behaviour of materials and products and fire retardants, fire test methods. Fire initiation and development. Pre and Post flashover enclosure fires. Mathematical modelling of enclosure fires (zone and field models). Management of fire initiation and development and implications to performance design. Detection and extinguishment, principles of detection and alarm. Fire detection and alarm systems, water based extinguishment. Fire engineering design for extinguishment, system reliability. Fire brigade response and operations.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading: A very comprehensive set of course notes is provided for each subject and topic; these contain further references and reading material. Building Code of Australia, 2004, Australian Building Codes Board. Australian Building Codes Board, 2001, Fire Safety Engineering Guidelines. DiNenno P.J. (ed.) 2002, The SFPE Handbook of Fire Protection Engineering, Third edn, National Fire Protection Association, USA. Warren Centre (University of Sydney), 1989, Fire Safety and Engineering Project Report. Standards Australia, 1995, AS 2118, Automatic Fire Sprinkler Systems, parts 1-1

2. Drysdale, D., 1999, An Introduction to Fire Dynamics, 2nd edn, John Wiley and Sons, London.

Assessment: To be advised.

VQB5632 SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN

Locations: Werribee.

Prerequisites: Nil

Description: The subject provides students with an understanding of the mechanisms and impediments to the spread of smoke and fire in buildings and provides a knowledge of the behaviour, analysis and design for the movement of fire in buildings. smoke movement, buoyancy, principles of smoke hazard management. Smoke spread. Smoke hazard management subsystems. Flame spread, modelling of flame spread and fire growth. Barrier system performance. Structural fire performance. External fire spread and heat radiation. Fire Safety system design principles, quantitative risk assessment. Fire Safety Risk assessment, definition of methodology. Estimation of performance parameters, expected risk to life and fire cost expectation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading: A very comprehensive set of course notes is provided for each subject and topic; these contain further references and reading material. Building Code of Australia, 2004, Australian Building Codes Board. Australian Building Codes Board, 2001, Fire Safety Engineering Guidelines. DiNenno P.J.(ed) 2002, The SFPE Handbook of Fire Protection Engineering, Third edn, National Fire Protection Association, USA. Drysdale, D.1999, An Introduction to Fire Dynamics, 2nd edn, John Wiley and Sons, London. Milke, J.A. and Klote, J.H., 1998, Smoke Management in Large Spaces in Building, Building Control Commission of Victoria and BHP Co Ltd, Melbourne.

Assessment: To be advised.

VQB5642 PERFORMANCE CODES METHODOLOGY AND STRUCTURE

Locations: Werribee.

Prerequisites: Nil

Description: The subject introduces the student to the principles, methodology and scope of performance based codes including a conceptual framework and historical background and provides the student with an understanding of the structure of performance design and approval and background and refresher material essential to an understanding of further subjects in the course.Conceptual framework of performance regulations; life safety, illness and injury, health, safety and amenity and asset protection. Historical background, ISO6241, NKB, international approaches, NZ model, equivalency concept. State legislation and the model building act (administrative framework). The Performance Based Code of Australia and Australian Standards (technical framework). Process and procedural matters; legal issues, documentation, joint and several tortfeasor liability. Integrated approvals; impact of performance regulation on other approvals. Fire Code Reform Centre (FCRC) overview and submodels. Risk management and assessment, an overview. Other PBCA performance designs. Through life performance and maintenance. Essential services recognition and documentation. Quality assurance and the building permit/inspection process.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading: A very comprehensive set of course notes is provided for each subject and topic; these contain further references and reading material. Building Code of Australia, 2004, Australian Building Codes Board. Australian Building Codes Board, 2001, Fire Safety Engineering Guidelines. References: Building Regulation Review Task Force, 1991, Micro economic reform: Fire Regulations. Mills, Oakley and McKay, 1991, The Model Building Act, legislative aims and options. Warren Centre (University of Sydney), 1989, Fire Safety and Engineering Project Report. Building Regulation Review Task Force, 1991, Draft National Buildings Fire Safety Systems Code. NKB Nordic Committee on Building Regulations, 1978, Structure for building regulations NKB report no 34. Helen Tippett, Industry Research Group, School of Architecture, Victoria University of Wellington (NZ), Building Controls in New Zealand: The Control Systems and its economic impact. Building Control Commission, 1988, BIC Working Paper No 2, Defining Building Controls. International Standards Organisation, ISO 6241-1980, Performance Standards in Buildings - Contents and Preparation. Standards Australia, Quality Assurance Series, AS 9000, 9001, 9002. Australian Uniform Building Regulations Co-ordinating Council, 1986, Building Code of Australia, first draft. Australian Uniform Building Regulations Co-ordinating Council, 1988, The Building Code of Australia, second draft. Australian Building Codes Board, 1990, The Building Code of Australia.

Assessment: To be advised.

VQB5751 FIRE TECHNOLOGY MODELLING

Locations: Werribee.

Prerequisites: VQB5621 and VQB5632

Description: The subject provides students with an understanding of the details of modelling fire growth and spread in buildings.development of the design fire; fire spread models; smoke movement models; atriums and large spaces; network modelling; computational fluid dynamics models; post-flashover compartment fire models; and model validation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Equivalent to three hours of lectures per week for thirteen weeks.

Required Reading: Selected chapters from DiNenno, P.J., 1995, SFPE Handbook of Fire Protection Engineering, 2nd edn, NFPA, Boston.

Assessment: Four written assignments, 10%, 10%, 30% and 50%. Page limits: 10% - four pages, 30% - 12 pages, 50% - 20 pages.

VQB5761 FIRE SAFETY SYSTEMS MODELLING

Locations: Werribee.

Prerequisites: VQB5611, VQB5621 and VQB5632

Description: The subject provides students with an understanding of the details of modelling of active, and passive, building fire safety subsystems, and the details of human behaviour modelling.detection and sprinkler operation predictions; modelling of barrier failure; structural fire safety; human behaviour modelling; suppression models; and a fire brigade intervention model.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Equivalent to three hours of lectures per week for thirteen weeks.

Required Reading: Selected chapters from DiNenno, P.J., 1995, SFPE Handbook of Fire Protection Engineering, 2nd edn, NFPA, Boston.

Assessment: Four written assignments, 10%, 10%, 30% and 50%. Page limits: 10% - four pages, 30% - 12 pages, 50% - 20 pages.

VQB5772 FIRE SAFETY SYSTEM DESIGN

Locations: Werribee.

Prerequisites: Fire Safety System Design: VQB5751, VQB5761 and VQB5642.

Description: The subject provides a description of various approaches used for the design of the safety in buildings, with particular emphasis placed on a fire safety system (FSS) performance model. The FSS model uses a risk assessment methodology to assess the risk to life safety and the expected losses, and to incorporate this risk assessment as part of the design procedure for the fire safety in buildings.introduction, alternative design approaches, fire engineering design code framework, risk assessment methodology, and description of a fire safety system (FSS) model and its parameters; risk to life submodel and economic submodel. Description of the various submodels comprising the FSS model-namely: fire initiation and growth submodel, smoke spread submodel, fire spread submodel, occupant communication and avoidance submodel, fire brigade submodel. In-service performance. Application of fire safety system models.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures per week for one semester.

Required Reading: A very comprehensive set of course notes is provided for each subject and topic; these contain further references and reading material. DiNenno, P.J. (ed.) 2002, The SFPE Handbook of Fire Protection Engineering, Third edn, National Fire Protection Association, USA. Draft National Building Fire Safety Systems Code, commissioned by the Building Regulations Review Task Force 1989, Fire Engineering Guidelines, Fire Code Reform Centre, March 1995, Fire Safety and Engineering, Technical Papers Books 1 and 2, The Warren Centre for Advanced Engineering, University of Sydney. Working Party on Fire Engineering. Guidelines for Chemical Process Quantitative Risk Analysis, prepared for Centre for Chemical Process Safety of the American Institute of Chemical Engineers, New York, 1989.

Assessment: Assessment will be made on the basis of assignments. Four assignments, each 25%. Supplementary assessment will not be available.

VQB5782 FIRE SPREAD AND FIRE SAFETY SYSTEM DESIGN PROJECT

Locations: Werribee.

Prerequisites: VQB5632 - SMOKE AND FIRE SPREAD, FIRE SAFETY SYSTEM DESIGN

Description: The first part of this subject provides an understanding of the mechanisms of and impediments to the spread of fire in buildings, and to provide a knowledge of the behaviour, analysis and design of the available subsystems for the management of fire spread.introduction and overview; reliability of smoke and fire management subsystems; mechanisms, timing and probability of fire spread; modelling fire spread; fire spread management subsystem; design of fire spread subsystem. In the second part of the subject Fire Safety System design project will apply knowledge gained during the course to the analysis and design of a cost-effective fire safety system for a proposed building project.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures per week for one semester.

Required Reading: A very comprehensive set of course notes is provided for each subject and topic; these contain further references and reading material. DiNenno, P.J. (ed.) 2002, The SFPE Handbook of Fire Protection Engineering, Third edn, National

Fire Protection Association, USA. Draft National Building Fire Safety Systems Code, commissioned by the Building Regulations Review Task Force 1989, Fire Engineering Guidelines Fire Code Reform Centre, March 1995, Fire Safety and Engineering, Technical Papers Booksrmally expected to have completed the Graduate Diploma in Building Fire Safety and Risk Engineering with an Honours average.

Description: The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student's ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall, where appropriate, demonstrate both the ability to develop and/or apply models to study the problem together with appropriate data selection, collection and analysis. Students will normally be supervised by an academic member of staff and by a co-supervisor external to the Centre. The external supervisor will be an academic from the University or from another institution or a practitioner.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: Regular contact will be made by arrangement with the supervisor.

Required Reading: To be advised by lecturer.

Assessment: Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology and resources required to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the Centre or the University and will not include the supervisors. Students may be asked to present themselves for oral or written examination by these examiners, at the examiner's discretion.

VQT6060 BUILDING FIRE RESEARCH (PART-TIME)

Locations: Werribee.

Prerequisites: Students are normally expected to have completed the Graduate Diploma in Building Fire Safety and Risk Engineering with an Honours average.

Description: The thesis will normally be from 15,000 to 25,000 words. It will report on independently conducted research which demonstrates the student's ability to clearly define a problem, to undertake a detailed literature search and review the literature on the topic area. The student shall, where appropriate, demonstrate both the ability to develop and/or apply models to study the problem together with appropriate data selection, collection and analysis. Students will normally be supervised by an academic member of staff and by a co-supervisor external to the Centre. The external supervisor will be an academic from the University or from another institution or a practitioner.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Regular contact will be made by arrangement with the supervisor.

Required Reading: To be advised by lecturer.

Assessment: Before commencing actual research, students must complete, to the satisfaction of the research supervisor, a paper critically reviewing the literature and providing a clear outline of the proposed research methodology and resources required to complete the thesis. The final thesis will be assessed by two examiners with expertise in the area of the research. These examiners may be internal or external to the Centre or the University and will not include the supervisors. Students may beasked to present themselves for oral or written examination by these examiners, at the examiner's discretion.

VQT8001 RESEARCH THESIS 1 FULL TIME

Description: Eligibility for entry to a Master of Science or Doctor of Philosophy program. This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

VQT8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: Eligibility for entry to a Master of Science or Doctor of Philosophy program. This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VQT8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: Eligibility for entry to a Master of Science or Doctor of Philosophy program. This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

VQT8012 RESEARCH THESIS 2 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

OFFICE OF HEALTH, ENGINEERING AND SCIENCE

Below are details of courses offered by the Office of Health, Engineering and Science in 2012.

This information is also available online on the University's searchable courses database at www.vu.edu.au/courses
NOTE: Courses available to international students are marked with the (I) symbol.

MASTER'S QUALIFYING PROGRAM

Course Code: ENMQ

Campus: St Albans.

About this course: The Faculty of Health, Engineering and Science Masters Qualifying Program is designed to facilitate entry to coursework masters degrees for a wide range of students who lack the formal qualifications or experience for direct entry into the master by coursework degree of their choice. Note that the program: Does not lead to a formal qualification of the faculty; Is suitable for a wide range of students with varying entry qualifications; Is designed to prepare students for the full range of masters degrees by coursework available in the faculty; Has flexible entry points; Will be individually designed for each student; Can have varying lengths; Satisfactory completion of the program will enable a student to enter directly in to the masters course for which the qualifying program has been designed.

Admission Requirements Year 12: A wide range of selection criteria will be applied to this program to cater for the range of prior qualifications and experiences. For International students a minimum IELTS score of 6.5 is required for entry into the program. In exceptional cases a student may be considered for admission with an IELTS score of 6.0. In these cases the program advisor will take special care to ensure that the student is meeting the English language demands of the program and, if necessary, arrange for special assistance from appropriate sources within the university.

COURSE STRUCTURE

As indicated above, the Masters Qualifying Program is individually structured for each student undertaking the program. Upon acceptance into the program each student will be assigned a program advisor who will, with the student, work out in which areas the student requires further study and develop a program to meet those needs. This will generally comprise a selection of undergraduate and/or postgraduate subjects in the general area of their preferred Masters degree but may also include English language and research method instruction. The length of the program will vary from student to student and may take one, two or three semesters depending on the 'gap' between the student's prior experiences and qualifications and the masters course they are seeking to enter.

DOCTOR OF PHILOSOPHY

Course Code: EPHC, EPLC (LOCAL STUDENTS)

Campus: Other, Various, dependent on the research field.

About this course: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.

Course Duration: 3 years.

Admission Requirements Year 12: Applicants should normally have completed either a Masters degree or a four year undergraduate degree with Honours or its equivalent at a high standard.

COURSE STRUCTURE

The course normally requires three years of full-time study or part-time equivalent.

School of Architectural, Civil and Mechanical Engineering

Civil and Building Stream

Course Code EPHC

VCC8001	RESEARCH THESIS FULL TIME	48
VCC8002	RESEARCH THESIS FULL TIME	48
VCC8011	RESEARCH THESIS (PART-TIME)	24
VCC8012	RESEARCH THESIS (PART TIME)	24

Mechanical Stream **Course Code:** EPHC

VMR8001	RESEARCH THESIS 1 FULL TIME	48
VMR8002	RESEARCH THESIS 2 FULL TIME	48
VMR8011	RESEARCH THESIS 1 PART TIME	24
VMR8012	RESEARCH THESIS 2 PART TIME	24

Australian Food Marketing Centre

Course Code: EPHC

REM8001	RESEARCH THESIS 1 FULL TIME	48
REM8002	RESEARCH THESIS 2 FULL TIME	48
REM8011	RESEARCH THESIS 1 PART TIME	24
REM8012	RESEARCH THESIS 2 PART TIME	24

School of Biomedical and Clinical Sciences

Biomedical Sciences Stream

Course Code: EPHC

RBM8001	RESEARCH THESIS 1 FULL TIME	48
RBM8002	RESEARCH THESIS 2 FULL TIME	48
RBM8011	RESEARCH THESIS 1 PART TIME	24
RBM8012	RESEARCH THESIS 2 PART TIME	24

Health Sciences Stream

Course Code: EPHC or EPLC

HHM6800	RESEARCH THESIS (FULL-TIME)	48
HHM6801	RESEARCH THESIS (PART-TIME)	24

School of Computer Science and Mathematics

Course Code: EPLC

RCM8001	RESEARCH THESIS 1 FULL TIME	48
RCM8002	RESEARCH THESIS 2 FULL TIME	48
RCM8011	RESEARCH THESIS 1 PART TIME	24

RCM8012	RESEARCH THESIS 2 PART TIME	24

Centre for Environmental Safety and Risk Engineering

Course Code: EPLC

VQT8001	RESEARCH THESIS 1 FULL TIME	48
VQT8002	RESEARCH THESIS 2 FULL TIME	48
VQT8011	RESEARCH THESIS 1 PART TIME	24
VQT8012	RESEARCH THESIS 2 PART TIME	24

School of Electrical Engineering Electrical

Electrical Engineering Stream

Course Code: EPHC

VEE8001	RESEARCH THESIS 1 FULL TIME	48
VEE8002	RESEARCH THESIS 2 FULL TIME	48
VEE8011	RESEARCH THESIS 1 PART TIME	24
VEE8012	RESEARCH THESIS 2 PART TIME	24

Physics Stream

Course Code: EPHC

RPH8001	RESEARCH THESIS 1 FULL TIME	48
RPH8002	RESEARCH THESIS 2 FULL TIME	48
RPH8011	RESEARCH THESIS 1 PART TIME	24
RPH8012	RESEARCH THESIS 2 PART TIME	24

School of Molecular Sciences Biotechnology Stream

Course Code: EPHC

RBT8001	RESEARCH THESIS 1 FULL TIME	48
RBT8002	RESEARCH THESIS - SEM 2 (FULL-TIME)	48
RBT8011	RESEARCH THESIS 1 PART TIME	24
RBT8012	RESEARCH THESIS - SEM 2 (PART-TIME)	24

Food Science Stream

Course Code: EPHC

RBF8001	RESEARCH THESIS 1 FULL TIME	48
RBF8002	RESEARCH THESIS 2 FULL TIME	48
RBF8011	RESEARCH THESIS 1 PART TIME	24
RBF8012	RESEARCH THESIS 2 PART TIME	24

Chemical Sciences Stream

Course Code: EPHC

RCS8001	RESEARCH THESIS 1 FULL TIME	48
RCS8002	RESEARCH THESIS 2 FULL TIME	48
RCS8011	RESEARCH THESIS 1 PART TIME	24
RCS8012	RESEARCH THESIS 2 PART TIME	24

School of Nursing and Midwifery

Course Code: EPHC or EPLC

HNM6800	RESEARCH THESIS (FULL-TIME)	48
HNM6801	RESEARCH THESIS (PART-TIME)	24

Packaging and Polymer Unit

Course Code: EPHC

VPP8001	RESEARCH THESIS 1 FULL TIME	48
VPP8002	RESEARCH THESIS 2 FULL TIME	48
VPP8011	RESEARCH THESIS 1 PART TIME	24
VPP8012	RESEARCH THESIS 2 PART TIME	24

Transportation Stream

Course Code: EPHC

VPT8001	RESEARCH THESIS 1 FULL TIME	48
VPT8002	RESEARCH THESIS 2 FULL TIME	48
VPT8011	RESEARCH THESIS 1 PART TIME	24
VPT8012	RESEARCH THESIS 2 PART TIME	24

MASTER OF ENGINEERING (BY RESEARCH)

Course Code: ERIT

Campus: Other, Various, dependent on the field of research.

About this course: This Course is designed to enhance the students' range of knowledge in various research fields in engineering and to enable a focusing of practical skills into the specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Course Objectives: This Course is designed to enhance the students' range of knowledge in various research fields in engineering and to enable a focusing of practical skills into the specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Careers: PhD, research assistant, research technician.

Course Duration: 2 years.

Admission Requirements Other: A four year bachelor degree in Engineering, Building Surveying, Computer Science, Physics or Chemistry or an equivalent combination of qualifications and experience.

COURSE STRUCTURE

This is a 192 credit point course.

FULL TIME

SCHOOL OF ENGINEERING AND SCIENCE

Civil & Building Engineering stream

Year 1, Semester 1

VCC8001	RESEARCH THESIS FULL TIME	48

Year 1, Semester 2

VCC8002	RESEARCH THESIS FULL TIME	48

Year 2, Semester 1

VCC8001	RESEARCH THESIS FULL TIME	48

Year 2, Semester 2

VCC8002	RESEARCH THESIS FULL TIME	48

Electrical Engineering stream

Year 1, Semester 1

VEE8001	RESEARCH THESIS 1 FULL TIME	48

Year 1, Semester 2

VEE8002	RESEARCH THESIS 2 FULL TIME	48

Year 2, Semester 1

VEE8001	RESEARCH THESIS 1 FULL TIME	48

Year 2, Semester 2

VEE8002	RESEARCH THESIS 2 FULL TIME	48

Mechanical Engineering stream

Year 1, Semester 1

VMR8001	RESEARCH THESIS 1 FULL TIME	48

Year 1, Semester 2

VMR8002	RESEARCH THESIS 2 FULL TIME	48

Year 2, Semester 1

VMR8001	RESEARCH THESIS 1 FULL TIME	48

Year 2, Semester 2

VMR8002	RESEARCH THESIS 2 FULL TIME	48

Packaging Stream

Year 1, Semester 1

VPP8001	RESEARCH THESIS 1 FULL TIME	48

Year 1, Semester 2

VPP8002	RESEARCH THESIS 2 FULL TIME	48

Year 2, Semester 1

VPP8001	RESEARCH THESIS 1 FULL TIME	48

Year 2, Semester 2

VPP8002	RESEARCH THESIS 2 FULL TIME	48

Transportation stream

Year 1, Semester 1

VPT8001	RESEARCH THESIS 1 FULL TIME	48

Year 1, Semester 2

VPT8002	RESEARCH THESIS 2 FULL TIME	48

Year 2, Semester 1

VPT8001	RESEARCH THESIS 1 FULL TIME	48

Year 2, Semester 2

VPT8002	RESEARCH THESIS 2 FULL TIME	48

Physics stream

Year 1, Semester 1

RPH8001	RESEARCH THESIS 1 FULL TIME	48

Year 1, Semester 2

RPH8002	RESEARCH THESIS 2 FULL TIME	48

Year 2, Semester 1

RPH8001	RESEARCH THESIS 1 FULL TIME	48

Year 2, Semester 2

RPH8002	RESEARCH THESIS 2 FULL TIME	48

CENTRE FOR ENVIRONMENTAL AND RISK ENGINEERING

Year 1, Semester 1

VQT8001	RESEARCH THESIS 1 FULL TIME	48

Year 1, Semester 2

VQT8002	RESEARCH THESIS 2 FULL TIME	48

Year 2, Semester 1

VQT8001	RESEARCH THESIS 1 FULL TIME	48

Year 2, Semester 2

VQT8002	RESEARCH THESIS 2 FULL TIME	48

PART TIME

SCHOOL OF ENGINEERING AND SCIENCE

Civil & Building Engineering stream

Year 1, Semester 1

VCC8011	RESEARCH THESIS (PART-TIME)	24

Year 1, Semester 2

VCC8012	RESEARCH THESIS (PART TIME)	24

Year 2, Semester 1

VCC8011	RESEARCH THESIS (PART-TIME)	24

Year 2, Semester 2

VCC8012	RESEARCH THESIS (PART TIME)	24

Year 3, Semester 1

VCC8011	RESEARCH THESIS (PART-TIME)	24

Year 3, Semester 2

VCC8012	RESEARCH THESIS (PART TIME)	24

Year 4, Semester 1

VCC8011	RESEARCH THESIS (PART-TIME)	24

Year 4, Semester 2

VCC8012	RESEARCH THESIS (PART TIME)	24

Electrical Engineering stream

Year 1, Semester 1

VEE8011	RESEARCH THESIS 1 PART TIME	24

Year 1, Semester 2

VEE8012	RESEARCH THESIS 2 PART TIME	24

Year 2, Semester 1

VEE8011	RESEARCH THESIS 1 PART TIME	24

Year 2, Semester 2

VEE8012	RESEARCH THESIS 2 PART TIME	24

Year 3, Semester 1

VEE8011	RESEARCH THESIS 1 PART TIME	24

Year 3, Semester 2

VEE8012	RESEARCH THESIS 2 PART TIME	24

Year 4, Semester 1

VEE8011 RESEARCH THESIS 1 PART TIME 24

Year 4, Semester 2

VEE8012 RESEARCH THESIS 2 PART TIME 24

Mechanical Engineering stream

Year 1, Semester 1

VMR8011 RESEARCH THESIS 1 PART TIME 24

Year 1, Semester 2

VMR8012 RESEARCH THESIS 2 PART TIME 24

Year 2, Semester 1

VMR8011 RESEARCH THESIS 1 PART TIME 24

Year 2, Semester 2

VMR8012 RESEARCH THESIS 2 PART TIME 24

Year 3, Semester 1

VMR8011 RESEARCH THESIS 1 PART TIME 24

Year 3, Semester 2

VMR8012 RESEARCH THESIS 2 PART TIME 24

Year 4, Semester 1

VMR8011 RESEARCH THESIS 1 PART TIME 24

Year 4, Semester 2

VMR8012 RESEARCH THESIS 2 PART TIME 24

Packaging Stream

Year 1, Semester 1

VPP8011 RESEARCH THESIS 1 PART TIME 24

Year 1, Semester 2

VPP8012 RESEARCH THESIS 2 PART TIME 24

Year 2, Semester 1

VPP8011 RESEARCH THESIS 1 PART TIME 24

Year 2, Semester 2

VPP8012 RESEARCH THESIS 2 PART TIME 24

Year 3, Semester 1

VPP8011 RESEARCH THESIS 1 PART TIME 24

Year 3, Semester 2

VPP8012 RESEARCH THESIS 2 PART TIME 24

Year 4, Semester 1

VPP8011 RESEARCH THESIS 1 PART TIME 24

Year 4, Semester 2

VPP8012 RESEARCH THESIS 2 PART TIME 24

Transportation stream

Year 1, Semester 2

VPT8011 RESEARCH THESIS 1 PART TIME 24

Year 2, Semester 2

VPT8012 RESEARCH THESIS 2 PART TIME 24

Year 2, Semester 1

VPT8011 RESEARCH THESIS 1 PART TIME 24

Year 2, Semester 2

VPT8012 RESEARCH THESIS 2 PART TIME 24

Year 3, Semester 1

VPT8011 RESEARCH THESIS 1 PART TIME 24

Year 3, Semester 2

VPT8012 RESEARCH THESIS 2 PART TIME 24

Year 4, Semester 1

VPT8011 RESEARCH THESIS 1 PART TIME 24

Year 4, Semester 2

VPT8012 RESEARCH THESIS 2 PART TIME 24

Physics stream

Year 1, Semester 1

RPH8011 RESEARCH THESIS 1 PART TIME 24

Year 1, Semester 2

RPH8012 RESEARCH THESIS 2 PART TIME 24

Year 2, Semester 1

RPH8011 RESEARCH THESIS 1 PART TIME 24

Year 2, Semester 2

RPH8012 RESEARCH THESIS 2 PART TIME 24

Year 3, Semester 1

RPH8011 RESEARCH THESIS 1 PART TIME 24

Year 3, Semester 2

RPH8012 RESEARCH THESIS 2 PART TIME 24

Year 4, Semester 1

RPH8011 RESEARCH THESIS 1 PART TIME 24

Year 4, Semester 2

RPH8012 RESEARCH THESIS 2 PART TIME 24

CENTRE FOR ENVIRONMENTAL AND RISK ENGINEERING

Year 1, Semester 1

VQT8011 RESEARCH THESIS 1 PART TIME 24

Year 1, Semester 2

VQT8012 RESEARCH THESIS 2 PART TIME 24

Year 2, Semester 1

VQT8011 RESEARCH THESIS 1 PART TIME 24

Year 2, Semester 2

VQT8012 RESEARCH THESIS 2 PART TIME 24

Year 3, Semester 1

VQT8011 RESEARCH THESIS 1 PART TIME 24

Year 3, Semester 2

VQT8012 RESEARCH THESIS 2 PART TIME 24

Year 4, Semester 1

VQT8011 RESEARCH THESIS 1 PART TIME 24

Year 4, Semester 2

VQT8012	RESEARCH THESIS 2 PART TIME	24

DOCTOR OF PHILOSOPHY (I)

Course Code: HPIN

Campus: Other, Various, dependent on the research field.

About this course: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.

Careers: Academic and research focused postions in the relevant fields of study.

Course Duration: 4 years.

Admission Requirements International: 1) Achieved an IELTS, or equivalent, (Academic Module) result with an overall score of 6.5 (no band less than 6) 2) Completed a Masters degree or a relevant four year undergraduate degree with Honours or its equivalent at a high standard.

COURSE STRUCTURE

This is a 384 credit point course which normally requires four years of full-time study or part-time equivalent.

SCHOOL OF ENGINEERING AND SCIENCE

Civil and Building Stream

Semester 1

VCC8001	RESEARCH THESIS FULL TIME	48
VCC8011	RESEARCH THESIS (PART-TIME)	24

Semester 2

VCC8002	RESEARCH THESIS FULL TIME	48
VCC8012	RESEARCH THESIS (PART TIME)	24

Chemical Sciences Stream

Semester 1

RCS8001	RESEARCH THESIS 1 FULL TIME	48
RCS8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCS8002	RESEARCH THESIS 2 FULL TIME	48
RCS8012	RESEARCH THESIS 2 PART TIME	24

Computer Science and Mathematics Stream

Semester 1

RCM8001	RESEARCH THESIS 1 FULL TIME	48
RCM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCM8002	RESEARCH THESIS 2 FULL TIME	48
RCM8012	RESEARCH THESIS 2 PART TIME	24

Ecology & Sustainability and Biotechnology Streams

Semester 1

RBT8001	RESEARCH THESIS 1 FULL TIME	48
RBT8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBT8002	RESEARCH THESIS - SEM 2 (FULL-TIME)	48
RBT8012	RESEARCH THESIS - SEM 2 (PART-TIME)	24

Electrical Engineering Stream

Semester 1

VEE8001	RESEARCH THESIS 1 FULL TIME	48
VEE8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

VEE8002	RESEARCH THESIS 2 FULL TIME	48
VEE8012	RESEARCH THESIS 2 PART TIME	24

Mechanical Stream

Semester 1

VMR8001	RESEARCH THESIS 1 FULL TIME	48
VMR8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

VMR8002	RESEARCH THESIS 2 FULL TIME	48
VMR8012	RESEARCH THESIS 2 PART TIME	24

Packaging and Polymer Stream

Semester 1

VPP8001	RESEARCH THESIS 1 FULL TIME	48
VPP8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

VPP8002	RESEARCH THESIS 2 FULL TIME	48
VPP8012	RESEARCH THESIS 2 PART TIME	24

Transportation Stream

Semester 1

VPP8001	RESEARCH THESIS 1 FULL TIME	48
VPP8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

VPP8002	RESEARCH THESIS 2 FULL TIME	48
VPP8012	RESEARCH THESIS 2 PART TIME	24

SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES

Australian Food Marketing Centre (as of July 2010 there will be no new intakes into this stream)

Semester 1

REM8001	RESEARCH THESIS 1 FULL TIME	48
REM8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
REM8002	RESEARCH THESIS 2 FULL TIME	48
REM8012	RESEARCH THESIS 2 PART TIME	24
Biomedical Sciences Stream		
Semester 1		
RBM8001	RESEARCH THESIS 1 FULL TIME	48
RBM8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
RBM8002	RESEARCH THESIS 2 FULL TIME	48
RBM8012	RESEARCH THESIS 2 PART TIME	24
Food Science Stream		
Semester 1		
RBF8001	RESEARCH THESIS 1 FULL TIME	48
RBF8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
RBF8002	RESEARCH THESIS 2 FULL TIME	48
RBF8012	RESEARCH THESIS 2 PART TIME	24
Health Sciences Stream		
Semester 1		
HHM6800	RESEARCH THESIS (FULL-TIME)	48
HHM6801	RESEARCH THESIS (PART-TIME)	24
Semester 2		
HHM6800	RESEARCH THESIS (FULL-TIME)	48
HHM6801	RESEARCH THESIS (PART-TIME)	24
CENTRE FOR ENVIRONMENTAL SAFETY AND RISK ENGINEERING		
Semester 1		
VQT8001	RESEARCH THESIS 1 FULL TIME	48
VQT8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
VQT8002	RESEARCH THESIS 2 FULL TIME	48
VQT8012	RESEARCH THESIS 2 PART TIME	24
CENTRE FOR TELECOMMUNICATIONS AND MICRO-ELECTRONICS		
Physics Stream		
Semester 1		
RPH8001	RESEARCH THESIS 1 FULL TIME	48
RPH8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
RPH8002	RESEARCH THESIS 2 FULL TIME	48
RPH8012	RESEARCH THESIS 2 PART TIME	24
SCHOOL OF NURSING AND MIDWIFERY		
Semester 1		
HNM6800	RESEARCH THESIS (FULL-TIME)	48
HNM6801	RESEARCH THESIS (PART-TIME)	24
Semester 2		
HNM6800	RESEARCH THESIS (FULL-TIME)	48
HNM6801	RESEARCH THESIS (PART-TIME)	24

DOCTOR OF PHILOSOPHY

Course Code: SPSC

Campus: St Albans, Footscray Park.

This course is for Continuing students only.

About this course: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields across health, engineering and science.

Careers: Academic and research focused postions in the relevant fields of study.

Course Duration: 4 years.

Admission Requirements International: 1) Achieved an IELTS, or equivalent, (Academic Module) result with an overall score of 6.5 (no band less than 6) 2) Completed a Masters degree or a relevant four year undergraduate degree with Honours or its equivalent at a high standard.

COURSE STRUCTURE

This is a 384 credit point course which normally requires four years of full-time study or part-time equivalent.

Chemical Sciences Stream		
Semester 1		
RCS8001	RESEARCH THESIS 1 FULL TIME	48
RCS8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
RCS8002	RESEARCH THESIS 2 FULL TIME	48
RCS8012	RESEARCH THESIS 2 PART TIME	24
Ecology & Sustainability and Biotechnology Streams		
Semester 1		
RBT8001	RESEARCH THESIS 1 FULL TIME	48
RBT8011	RESEARCH THESIS 1 PART TIME	24
Semester 2		
RBT8002	RESEARCH THESIS - SEM 2 (FULL-TIME)	48
RBT8012	RESEARCH THESIS - SEM 2 (PART-TIME)	24

SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES

Australian Food Marketing Centre (as of July 2010 there will be no new intakes into this stream)

Semester 1

REM8001	RESEARCH THESIS 1 FULL TIME	48
REM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

REM8002	RESEARCH THESIS 2 FULL TIME	48
REM8012	RESEARCH THESIS 2 PART TIME	24

Biomedical Sciences Stream

Semester 1

RBM8001	RESEARCH THESIS 1 FULL TIME	48
RBM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBM8002	RESEARCH THESIS 2 FULL TIME	48
RBM8012	RESEARCH THESIS 2 PART TIME	24

Food Science Stream

Semester 1

RBF8001	RESEARCH THESIS 1 FULL TIME	48
RBF8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBF8002	RESEARCH THESIS 2 FULL TIME	48
RBF8012	RESEARCH THESIS 2 PART TIME	24

Health Sciences Stream

Semester 1

HHM6800	RESEARCH THESIS (FULL-TIME)	48
HHM6801	RESEARCH THESIS (PART-TIME)	24

Semester 2

HHM6800	RESEARCH THESIS (FULL-TIME)	48
HHM6801	RESEARCH THESIS (PART-TIME)	24
HNM6800	RESEARCH THESIS (FULL-TIME)	48
HNM6801	RESEARCH THESIS (PART-TIME)	24

MASTER OF SCIENCE (RESEARCH)

Course Code: SRHC

Campus: Other, Various, dependent on the research field.

About this course: Master of Science (Research) is designed to enhance the students' range of knowledge in various research fields across health, engineering and science and to enable a focusing of practical skills into a specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Course Objectives: Master of Science (Research) is designed to enhance the students' range of knowledge in various research fields across health, engineering and science and to enable a focusing of practical skills into a specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Careers: PhD, research assistant, research technician

Course Duration: 2 years.

Admission Requirements Other: To qualify for admission to the course an applicant must have successfully completed an appropriate degree or an equivalent combination of qualifications and experience.

COURSE STRUCTURE

School of Biomedical and Health Sciences

Australian Food Marketing Centre (as of July 2010 there will be no new intakes into this stream)

Semester 1

REM8001	RESEARCH THESIS 1 FULL TIME	48
REM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

REM8002	RESEARCH THESIS 2 FULL TIME	48
REM8012	RESEARCH THESIS 2 PART TIME	24

Biomedical Sciences Stream

Semester 1

RBM8001	RESEARCH THESIS 1 FULL TIME	48
RBM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBM8002	RESEARCH THESIS 2 FULL TIME	48
RBM8012	RESEARCH THESIS 2 PART TIME	24

Food Science Stream

Semester 1

RBF8001	RESEARCH THESIS 1 FULL TIME	48
RBF8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBF8002	RESEARCH THESIS 2 FULL TIME	48
RBF8012	RESEARCH THESIS 2 PART TIME	24

School of Engineering and Science

Biotechnology Stream

Semester 1

RBT8001	RESEARCH THESIS 1 FULL TIME	48
RBT8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBT8002	RESEARCH THESIS - SEM 2 (FULL-TIME)	48
RBT8012	RESEARCH THESIS - SEM 2 (PART-TIME)	24

Chemical Sciences Stream

Semester 1

RCS8001	RESEARCH THESIS 1 FULL TIME	48
RCS8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCS8002	RESEARCH THESIS 2 FULL TIME	48

RCS8012	RESEARCH THESIS 2 PART TIME	24

Computer Science and Mathematics Stream

Semester 1

RCM8001	RESEARCH THESIS 1 FULL TIME	48
RCM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCM8002	RESEARCH THESIS 2 FULL TIME	48
RCM8012	RESEARCH THESIS 2 PART TIME	24

MASTER OF SCIENCE (RESEARCH)

Course Code: SRLC

Campus: Other, Various, dependent on the research field.

About this course: Master of Science (Research) is designed to enhance the students' range of knowledge in various research fields across health, engineering and science and to enable a focusing of practical skills into a specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Course Objectives: Master of Science (Research) is designed to enhance the students' range of knowledge in various research fields across health, engineering and science and to enable a focusing of practical skills into a specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Careers: PhD, research assistant, research technician

Course Duration: 2 years.

Admission Requirements Other: Successful completion of an appropriate degree or an equivalent combination of qualifications and experience.

COURSE STRUCTURE

The course normally requires two years of full-time study or part-time equivalent.

School of Biomedical and Health Sciences

Australian Food Marketing Centre (as of July 2010 there will be no new intakes into this stream)

Semester 1

REM8001	RESEARCH THESIS 1 FULL TIME	48
REM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

REM8002	RESEARCH THESIS 2 FULL TIME	48
REM8012	RESEARCH THESIS 2 PART TIME	24

Biomedical Sciences Stream

Semester 1

RBM8001	RESEARCH THESIS 1 FULL TIME	48
RBM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBM8002	RESEARCH THESIS 2 FULL TIME	48
RBM8012	RESEARCH THESIS 2 PART TIME	24

Food Science Stream

Semester 1

RBF8001	RESEARCH THESIS 1 FULL TIME	48
RBF8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBF8002	RESEARCH THESIS 2 FULL TIME	48
RBF8012	RESEARCH THESIS 2 PART TIME	24

School of Engineering and Science

Biotechnology Stream

Semester 1

RBT8001	RESEARCH THESIS 1 FULL TIME	48
RBT8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBT8002	RESEARCH THESIS - SEM 2 (FULL-TIME)	48
RBT8012	RESEARCH THESIS - SEM 2 (PART-TIME)	24

Chemical Sciences Stream

Semester 1

RCS8001	RESEARCH THESIS 1 FULL TIME	48
RCS8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCS8002	RESEARCH THESIS 2 FULL TIME	48
RCS8012	RESEARCH THESIS 2 PART TIME	24

Computer Science and Mathematics Stream

Semester 1

RCM8001	RESEARCH THESIS 1 FULL TIME	48
RCM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCM8002	RESEARCH THESIS 2 FULL TIME	48
RCM8012	RESEARCH THESIS 2 PART TIME	24

MASTER OF SCIENCE (RESEARCH)

Course Code: SRMS

Campus: Other.

About this course: Master of Science (Research) is designed to enhance the students' range of knowledge in various research fields across health, engineering and science and to enable a focusing of practical skills into a specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Course Objectives: Master of Science (Research) is designed to enhance the students' range of knowledge in various research fields across health, engineering and science and to enable a focusing of practical skills into a specific research area. It is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Careers: PhD, research assistant, research technician.

Course Duration: 2 years.

Admission Requirements International: An IELTS (Academic Module) result with an overall score of 6.5 (no band less than 6) and successful completion of an appropriate degree or an equivalent combination of qualifications and experience.

COURSE STRUCTURE

The course normally requires two years of full-time study or part-time equivalent.

School of Biomedical and Health Sciences

Australian Food Marketing Centre (as of July 2010 there will be no new intakes into this stream)

Semester 1

REM8001	RESEARCH THESIS 1 FULL TIME	48
REM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

REM8002	RESEARCH THESIS 2 FULL TIME	48
REM8012	RESEARCH THESIS 2 PART TIME	24

Biomedical Sciences Stream

Semester 1

RBM8001	RESEARCH THESIS 1 FULL TIME	48
RBM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBM8002	RESEARCH THESIS 2 FULL TIME	48
RBM8012	RESEARCH THESIS 2 PART TIME	24

Food Science Stream

Semester 1

RBF8001	RESEARCH THESIS 1 FULL TIME	48
RBF8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBF8002	RESEARCH THESIS 2 FULL TIME	48
RBF8012	RESEARCH THESIS 2 PART TIME	24

School of Engineering and Science

Biotechnology Stream

Semester 1

RBT8001	RESEARCH THESIS 1 FULL TIME	48
RBT8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RBT8002	RESEARCH THESIS - SEM 2 (FULL-TIME)	48
RBT8012	RESEARCH THESIS - SEM 2 (PART-TIME)	24

Chemical Sciences Stream

Semester 1

RCS8001	RESEARCH THESIS 1 FULL TIME	48
RCS8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCS8002	RESEARCH THESIS 2 FULL TIME	48
RCS8012	RESEARCH THESIS 2 PART TIME	24

Computer Science and Mathematics Stream

Semester 1

RCM8001	RESEARCH THESIS 1 FULL TIME	48
RCM8011	RESEARCH THESIS 1 PART TIME	24

Semester 2

RCM8002	RESEARCH THESIS 2 FULL TIME	48
RCM8012	RESEARCH THESIS 2 PART TIME	24

UNITS

Below are unit details for courses offered by the Office of Health, Engineering and Science in 2012.

IMPORTANT NOTICE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

HES0001 DIRECTED STUDIES 1A

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 12

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 12 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0002 DIRECTED STUDIES 1B

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 12

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 12 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0003 DIRECTED STUDIES 1C

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 6

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 6 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0004 DIRECTED STUDIES 1D

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other first year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 6

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/ laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 6 credit point, first year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other first year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0005 DIRECTED STUDIES 2A

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other second year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 12

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/ laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 12 credit point, second year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other second year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0006 DIRECTED STUDIES 2B

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other second year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 12

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/ laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 12 credit point, second year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other second year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0007 DIRECTED STUDIES 2C

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other second year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 6

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/ laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 6 credit point, second year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other second year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0008 DIRECTED STUDIES 2D

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other second year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 6

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 6 credit point, second year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other second year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0009 DIRECTED STUDIES 3A

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other third year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 12

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 12 credit point, third year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other third year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0010 DIRECTED STUDIES 3B

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other third year, 12 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 12

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 12 credit point, third year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other third year, 12 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0011 DIRECTED STUDIES 3C

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other third year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 6

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 6 credit point, third year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other third year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

HES0012 DIRECTED STUDIES 3D

Locations: Other.

Prerequisites: Satisfactory completion of appropriate prerequisite studies as determined by the course coordinator in which a student, or group of similar students, seeking to undertake this unit is enrolled

Description: A selection of topics from the discipline areas encompassed by the Faculty of Health, Engineering and Science equivalent to a other third year, 6 credit point subjects in those discipline areas offered by the Faculty of Health, Engineering and Science.

Credit Points: 6

Learning Outcomes: Upon completion of this unit, students will be able: to identify the key elements in a previously unseen problem associated with the negotiated content area of this unit of study to locate the relevant underpinning theory in references available to them to use that support and appropriate mathematical and laboratory techniques, where necessary, to apply that information to the novel situation to reach a solution to the problem posed.

Class Contact: Depending on the nature of the content areas to be covered it is anticipated that between 48 and 60 hours per semester of lecture/tutorial/seminar/ laboratory sessions will be required.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it the required reading will depend on the content area of the studies undertaken. The required reading will, in general, be the same as or similar to that for Other, 6 credit point, third year units of study offered by the Faculty of Health, Engineering and Science.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. The assessment regime will be equivalent to that for other third year, 6 credit point units of study offered by the Faculty of Health, Engineering and Science.

JCB0101 BIOLOGY 1

Locations: Footscray Park.

Prerequisites: Nil.

Description: Biological Organisation, Macromolecules and Functional Group Chemistry (structure and form), Functioning Cells and organisation, Microscopy, Animal vs Plant Cell Structure,Endomembrane System, Organelles, Mitochondria vs Chloroplasts, Mitosis/Meiosis, Membranes: Fluid Mosaic Model, Passive Movement Across Membranes, Active Movement Across Membranes, Endo/Exo cytosis, Cellular Energetics: Oxidative Respiration; Energy Releasing Pathways and energy metabolism. Cell signalling and cell junctions, Structure and Function of the animal body, tissue types, organs and organ system, regulating body temperature and homeostasis, protection support and movement, epithelial covering, skeletal system, Neural Signalling; Sensory reception, Basic brain functions and parts, muscle contraction.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 86 hours over the semester accounts for a mixture of lectures, tutorials and laboratory classes.

Required Reading: Solomon, E. P., Berg, L. R. & Tate, D.W. (2005) Biology, 7th edn. Brooks/Cole

Assessment: To be advised.

JCB0102 BIOLOGY 2

Locations: Footscray Park.

Prerequisites: JCB0101 Biology 1 or equivalent

Description: Biological Classification; Plant biology form and function; Transport in Vascular plants, Photosynthesis. Angiosperm Reproduction, plant nutrition Ecology and Ecosystems.Genes, Chromosomes & DNA: Inheritance, Chromosome Structure, DNA Synthesis P & e, Genetic Code & Gene Expression: Transcription, Translation, Regulation, Manipulating Genomes: Genetic Engineering, Recombinant DNA Technology and applications, GE in Industry. Evolution.Organisation of vertebrate nervous system, Evolution of the vertebrate brain, The Central nervous system, Neural signalling and regulation, Peripheral nervous system, Receptors and their function, Internal Transport, Internal Defence, Gas Exchange, Processing Food & Nutrition, Osmoregulation & Disposal of Metabolic Wastes, Endocrine Regulation, Reproduction.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 86 hours over the semester accounts for a mixture of lectures, tutorials and laboratory classes.

Required Reading: Biology Solomon, E. P., Berg, L. R. & Tate, D.W. (2005) 7th edn. Brooks/Cole

Assessment: Practical component is worth 15%. Problem based assignments are worth 10%. There will be three class tests worth 5% each. End of semester exam (3 hours) is worth 60%.

JCB0111 CHEMISTRY 1

Locations: Footscray Park.

Prerequisites: Nil

Description: Atomic Theory: including periodicity, electromagnetic radiation and excitation states. Quantization, line and continuous spectra. Electron arrangements and configurations Extension Studies in Dual nature of light including Einstein, de Broglie, Planck and Heisenberg Uncertainty Principle. Wave mechanical model of the atom. Effective nuclear charge.Bonding concepts Ionic, polar covalent and pure covalent bonding. Binary ionic compounds. Electronegativity and dipole moments, Hydrogen Bonding, Lewis structures, Electron and Molecular arrangements, Bond Angles, Octet and Duet rules- exceptions to these rules, VSEPR, Hybridization and the Localized Electron Model. Resonance and Formal charges Extension Studies in Covalent Bond Energies, Chemical complexes and ligands.Extension Studies in Molecular orbital theory and Bond Orders.Stoichiometry and Reactions. Atomic Masses. Mole concept, Empirical and Molecular formulas. Examining reaction types and their equation balancing. Calculations involving limiting reactions and % yields, percent compositions. Solution Chemistry including ppm, dilutions, precipitation reactions (including selective precipitation), molecular, ionic and net ionic equations, acid base reactions, conjugate acid base pairs. Intermolecular forces and dissociation. Back titrations. Spectrophotometric analysis and data acquisition from such analyses. Organic Chemistry, Nomenclature and reaction mechanisms Organic nomenclature (main functional groups). Isomerisation. Reaction types and introduction to reactivity. Extension Studies in chirality and enantioselectivity and mechanisms focussing on, alkanes, alkenes and carbonyl functional groups (eg hydrohalogenations, Aldol Condensations etc)Redox Reactions Oxidation states, half equations, redox titrations. Biological and industrial redox reactions. Extension Studies in Redox in Photography Gases Daltons, Boyles, Charles and Avogadro's laws. Ideal Gas Law. Kinetic molecular theory of gases. Effusion and diffusion. Gas stoichiometry, Extension studies in corrections for non ideal gases (real gases).Solution & Colligative Properties Solubility effects. Vapour Pressures of Solutions, Raults Rule, molality, Boiling-Point Elevation, Freezing-Point Depression and Osmotic Pressure. Extension studies in phase diagrams. Analysis - AAS and other spectrophotometric methods -standard preparation, calibration curves Extension Studies in NMR (Theory and application) proton NMR- proton environments, splitting patterns, coupling constants, electronegativity effects, functional group identification. Sample preparation.-IR (Theory and application) -functional group identification and utility in conjunction with NMR-.Errors in Analysis -examining errors in experimentation-statistical analysis

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 96 hours over the general semester accounts for a mixture of tutorials, laboratory classes and workshops. Additional 28 hours accounts for Extension Studies and their associated tutorials, problem based research projects and practicals.

Required Reading:

Assessment: Practical component is worth 15%. Extension Studies and associated exams and problem based enquiry/assignments are worth 18%. There will be three class tests worth 4% each. End of semester general exam (3 hours) is worth 55%. General exam and practical component must be passed for successful completion of subject.

JCB0112 CHEMISTRY 2

Locations: Footscray Park.

Prerequisites: JCB0111 Chemistry 1 or equivalent

Description: Thermochemistry Enthalpy and calorimetry, heat capacities, Hess's Law, Standard Enthalpies of formation. Extension Studies : Automotive Chemistry. And the combustion engine Chemical Kinetics Reaction Rates, Rate Laws (0, 1st and 2nd order) half lives. Determining the Form of the Rate Law. The Integrated Rate Laws Reaction Mechanisms. Catalysis and enzymic action. Activation states and reaction types. Arrhenius Equation. Extension Studies in PharmakokineticsEquilibria (K and Q) Calculating chemical equilibria constants. Equilibrium Stoichiometry (solving for x). Equilibrium expressions involving pressures. Le Chatelier's Principle.Acid Base Equilibria pH scale, calculating pH of strong and weak acids and bases. Acid-base properties of salts. Acid/base stoichiometry and titrations. Solving acid-base equations. Aqueous Equilibria Acid and bases containing common ion, Buffered Solutions and capacity, pH curves. Solubility equilibria and solubility product (Ksp's). Acid-Base indicators. Extension Studies in Complex ion equilibria. Electrochemistry Galvanic Cells, Standard Reduction Potential, Nernst Equation. Cell Potential, Electrical Work, and Free Energy. Dependence of Cell Potential on Concentration, Batteries, Corrosion Electrolysis, Commercial Electrolytic Processes Standard reduction Potentials and galvanic cells,Nuclear Chemistry/Archaeological Chemistry Nuclear Stability and Radioactive Decay, The Kinetics of Radioactive Decay, Nuclear Transformations. Thermodynamic Stability of the Nucleus, Nuclear Fission and Nuclear Fusion. Detection and Uses of Radioactivity, Extension Studies in Archaeological Chemistry and Stella Nucleosynthesis.Organic Chemistry and Mechanisms,Further Organic synthesis and reaction types, Carbohydrates, lipids and Protein Chemistry. Enzymatic chemical reactions focusing on enantioselectivity and optical rotation. Extension Studies is Further mechanisms, including, reactions at the alpha carbon, Electrophilic Aromatic substitution, Effects of substituents on reactivity, radical chemistry and reactions of the main functional groups. Extension Studies in Analysis.-MS (Theory and application) -mass number identification and identification of main fragments (fragmentation mechanisms) -use in conjunction with NMR and IR -GC (Theory and application) - Operation and theory regarding retention times and separation. Quantitative applications. Column types, usage and instillation, understanding programming for analysis, detector systems (FID and ECD). Head space analysis and its application in forensics. GC/MS Hands on use and determining the effects of temp, pressure, length and type of column on retention times and base line separation. Column instillation and programming of ramping programs.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 90 hours over the general semester accounts for a mixture of tutorials, laboratory classes and workshops. Additional 34 hours accounts for Extension Studies and their associated tutorials, problem based research projects and practicals.

Required Reading:

Assessment: Practical component is worth 16%. Extension Studies and associated exams and problem based enquiry/assignments are worth 20%. There will be three class tests worth 3% each. End of semester general exam (3 hours) is worth 55%. General exam and practical component must be passed for successful completion of subject.

JCM0101 INFORMATION TECHNOLOGY 1

Locations: Footscray Park.

Prerequisites: Nil.

Description: Journal Databases; Literature Searching and accessing using the Internet.Learning and utilising, WebCT, PowerPoint, Excel, Introduction to ChemDraw, DreamWeaver or alternative web development tool. Introductory Robotic Programming

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 52 hours over the semester accounts for a mixture of lectures, tutorials and computer classes.

Assessment: A combination of assignments/presentation in each of the 4 areas chosen (25% each)contributes to overall mark which accumulates to 100%.

JCM0102 INFORMATION TECHNOLOGY 2

Locations: Footscray Park.

Description: Journal Databases; Literature Searching and accessing using the Internet.Learning and utilising, WebCT, PowerPoint, Excel, Introduction to ChemDraw, DreamWeaver or alternative web development tool. Introductory Robotic Programming

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 52 hours over the semester accounts for a mixture of lectures, tutorials and computer classes.

Required Reading: GraphPad Prism or SIGMA PLOT. Chem Draw Pro, Introduction to MathWork's MATLAB, Thomson ResearchSoft 's EndNote, Macromedia Director, Robotic Programming, MDSolids, Adobe Premier or alternative media authoring program.Students must complete four units to be eligible to complete JCM010

2. Below is a guideline as to the units required for particular study pathways: Engineering: Introduction to MathWork's MATLAB, MDSolids, GraphPad Prism or SIGMA PLOT, Thomson ResearchSoft 's EndNote.Science/Health Science: Macromedia Director, GraphPad Prism or SIGMA PLOT, ChemDraw, Thomson ResearchSoft 's EndNote.

Assessment: A combination of assignments/presentation in each of the 4 areas chosen (25% each)contributes to overall mark which accumulates to 100%.

JCM0112 MATHEMATICS 1

Locations: Footscray Park.

Prerequisites: Nil.

Description: Numeracy: Advance Arithmetic and Fractions; Ratios, Percentages and Proportions; SI Units and Scientific NotationsMathematic Notation: Number Systems (Reals, Integers, etc); Domain and Range; Continuity; Functions and Relations; Basic Set Theory; Boolean AlgebraAlgebra: Basic Algebra; Binomial Expansion Theorem; Indices and Logarithms and their application to Science/EngineeringGraphing for Engineers: Linear Equations; Conic Sections; Trigonometric FunctionsGraphing for Scientists: Linear Equations; Quadratic Equations; Trigonometric FunctionsIntroductory Calculus: Limits; Differentiation; Anti-Differentiation and IntegrationApplications involving Calculus: Tangents and Normal Lines; Approximation; Curve Sketching (Cubic Functions); Maximum/Minimum Problems; Rates of ChangeStudents must complete four units to be eligible to complete JCM0112.

Below is a guideline as to the units required for particular study pathways: Engineering: Algebra, Graphing for Engineers, Introductory Calculus, Applications involving Calculus.Science/Health Science (Mathematical): Algebra, Mathematical Notation, Graphing for Scientists, Introductory Calculus.Science/Health Science (Non Mathematical): Numeracy, Mathematical Notation, Algebra, Graphing for Scientists.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 72 hours over the semester accounts for a mixture of lectures, tutorials and laboratory classes.

Required Reading: Nil.

Assessment: There will be three class tests worth 10% each. End of semester exam (3 hours) is worth 70%.

JCM0113 MATHEMATICS 2

Locations: Footscray Park.

Prerequisites: JCM0112 Mathematics 1

Description: Matrices, Simultaneous Equations, Univariate Statistics, Bivariate Statistics, Set Theory, Introduction to Probability, Combinatorics, The Normal Distribution.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 72 hours over the semester accounts for a mixture of lectures, tutorials and laboratory classes.

Required Reading: Nil.

Assessment: There will be three class tests worth 10% each. End of semester exam (3 hours) is worth 70%.

JHL0110 ENGLISH LANGUAGE & COMMUNICATIONS SKILLS A

Locations: Footscray Park.

Prerequisites: Nil

Description: Communications skills that encompass synthesis, summarising, referencing, report writing, literature review writing and essay writing are developed primarily but not exclusively through a scientific context, Presenting ideas and concepts in ways other than in the written and verbal form will be examined and developed as will aspects of science journalism and science media. Debating and communicating with and for a variety of audiences will be developed as will presentations skills for academic purposes. Students will be engaged in teaching and communicating science to Primary/Secondary school students via the Professor Science show, producing science resources for teachers, parents and students alike. Students will also be engaged in two of several possible projects that are problem based and/or community based that will further foster communication skills.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 62 hours over the semester accounts for a mixture of tutorials, workshops and computer classes.

Required Reading:

Assessment: Exam comprises 50%, Problem based/Community based Projects comprise 20%, Assignments comprise 15%, Professor Science Show comprises 15%, All aspects of the course are required to be passed.

JSP0102 PHYSICS 1

Locations: Footscray Park.

Prerequisites: Nil.

Description: Measurement: Significant Figures, Scientific Notation, Standards of measurement, Unit Conversion, Dimensional Analysis. One-Dimensional Kinematics Position, Distance and Displacement; Average Speed and Velocity; Acceleration; Motion with constant acceleration; Applications of the Equations of Motion; Free Falling Objects Vectors: Scalars; Vector Components; Adding and Subtracting vectors; Position, Displacement, Velocity, and Acceleration Vectors, Relative Motion. Two Dimensional Kinematics: Motions in Two Dimensions, Introduction to Projectile Motion, Launch angles. Newton's Laws of Motion, Force and Mass; the three laws of motion; Forces in two dimensions. Frictional Forces, Strings and Springs; Translational Equilibrium, Circular Motion, Work and Kinetic Energy: Work done by constant force, Kinetic energy and work, work done by variable forces, power. Potential Energy and Conservative forces: potential Energy and work, conservation of mechanical energy. Linear momentum and collisions: Momentum and Newton's second Law, impulse, conservation of linear momentum, inelastic collisions, elastic collisions, centre of mass. Introductory statics. Rotational energy, Moment of Inertia, Torque (to be expanded upon alongside power in second semester, physics 2)

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 92 hours over the general semester accounts for a mixture of tutorials, laboratory classes and problem based work shops.

Required Reading:

Assessment: Three small class tests are worth 5% each. End of semester exam (3 hours) is worth 50%. Problem and Project Bases Projects and associated assignments and presentations are 35%. End of semester exam and all problem based projects must be passed to secure a pass in this subject.

JSP0103 PHYSICS 2

Locations: Footscray Park.

Prerequisites: JSP0102 or equivalent

Description: Rotational Kinematics and Energy: Angular position and acceleration, rotational kinematics; connections between linear and rotational quantities, rolling motion, inertia, and conservation of energy. Rotational Dynamics and Static Equilibrium; Torque, angular acceleration and torque, centre of mass and balance; dynamic applications of torque, angular momentum, conservation of angular momentum, rotational work. Gravity: Newton's Law of Universal Gravitation. Gravitational attraction of spherical bodies: Gravitational potential energy; Energy conservation, Oscillations about equilibrium. Periodic motion; simple harmonic motion; uniform and simple harmonic motion connections, Energy conservation are oscillatory motion, damped oscillations, resonance. Waves and sound, wave types, waves on a string, harmonic wave functions, sound waves, sound intensity, Doppler effect, superposition and interference, standing waves, beats.Light and Sound: Reflection, refraction. Total internal reflection. Mirrors. Lenses and image formation. Waves on a string, sound waves, speed of sound, intensity and sound level, Doppler effect. Shock waves. Light as a wave, superposition, standing waves, interference and diffraction, polarisation.Electricity: Electrostatic charge, electric field, electric potential, dc circuits, Ohm's law, series and parallel resistors, Kirchoff's law, ac circuits, series and parallel capacitors, inductors. Continuation of statics. Fluids and Elasticity.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: 92 hours over the general semester accounts for a mixture of tutorials, laboratory classes and problem based work shops.

Required Reading:

Assessment: Three small class tests are worth 4% each. End of semester exam (3 hours) is worth 50%. Problem and Project Bases Projects and associated assignments and presentations are 38%. End of semester exam and all problem based projects must be passed to secure a pass in this subject.

REP1000 DIRECTED STUDIES IN PHYSICS

Locations: Footscray Park.

Prerequisites: There are no prerequisites for this subject but Year 11 or equivalent physics background is preferred.

Description: A selection of topics from the following: Kinematics and MechanicsThermodynamicsElectricity and MagnesismElectronicsOpticsWave Motion and SoundQuantum PhysicsNuclar Physics

Credit Points: 12

Learning Outcomes: To introduce students to the principles and techniques of physics and their applicability. It is principally designed for students who do not have a strong physics background or those who do not intend to major in physics or the allied technologies. Alternatively it can be used by students seeking a basic knowledge and understanding of physics with a view to examining whether they wish to study physics further. The detailed curriculum for an individual student, or a group of students with a common background, will depend on their prior studies in the area and the prupose to which they wish to put the subject. The detailed content will, therefore, vary but will, in general be taught at a level equivalent to a standard first year physics subject in a technological degree.

Class Contact: Equivalent to 36 hours per semester of lecture/tutorial/demonstration and laboratory experiences per semester.

Required Reading: Giancoli, D.C., Physics for Scientists and Engineers with Modern Physics 3rd Edition Prentics Hall or equivalent.

Assessment: A series of regular assignments and tests as negotiated for each individual student or group of students with a similar background. the assessment regime will be equivalent to that for a first year physics subject in a technological degree.

SCHOOL OF BIOMEDICAL AND HEALTH SCIENCES

Below are details of courses offered by the School of Biomedical and Health Sciences in 2012.

This information is also available online on the University's searchable courses database at www.vu.edu.au/courses
NOTE: Courses available to international students are marked with the (I) symbol.

ASSOCIATE DEGREE IN DERMAL THERAPIES

Course Code: HADT

About this course: The course provides a further pathway of study for graduates of the Diploma of Beauty Therapy with at least two years of industry work experience. Building on the theoretical knowledge gained at diploma level, this course gives students a more scientific understanding of some of the newer technologies in the industry. Students will gain a limited amount of clinical and practical experience.

Course Objectives: The course objectives are: to provide knowledge and skills that underpin dermal therapy at a more advanced level than those offered at the diploma level; to promote a more in-depth and scientific understanding of some of the newer technologies in the dermal industry; to extend clinical and practical experiences in contemporary dermal technologies; to provide a pathway of study for graduates of the Diploma of Beauty Therapy with at least one year of industry work experience; to produce knowledgeable and competent Associate Degree graduates who can successfully pursue challenging and interesting careers in the dermal industry; to provide an articulation pathway that links to the more advanced Bachelor of Health Science (Dermal Therapies). This four-semester online Associate Degree in Dermal Therapies will provide units of study in anatomy and physiology, psychology, research and scientific methodology, skin disorders, laser/IPL theory, and other topics in line with advances in the beauty industry. Students will be able to select from streams specialising in dermal, business, or training. The course will be supported by limited clinical and practical experiences via burst mode study in Melbourne dependant on the chosen stream.

Careers: Graduates should be able to pursue a career in the dermal industry. Depending upon the elective stream chosen, graduates may choose to focus their career path in training within the industry, management of salons or clinics, or as practitioners in laser and light procedures.

Course Duration: 2 years.

Admission Requirements Year 12: Admission Requirements for the Associate Degree in Dermal Therapies will be successful completion of the Diploma of Beauty Therapy (WRB50105) and demonstration of recent work in the industry for at least two years equivalent full-time, and current employment in the industry. It is important that all intending students have acquired explicit knowledge gained via specific units at the Diploma level prior to entry. These units include BSBMKG404A, Forecast Market and Business Needs (or equivalent), BSBSBM404A Undertake business planning (or equivalent), WRBBS514A Provide superficial lymph drainage massage (or equivalent) along with one of the following elective streams: WRBSS503B Provide permanent epilation or WRBBS510A Provide the spa program.

COURSE STRUCTURE

The course is delivered online, with support from mentoring and learning in the workplace. Students will need to attend some burst mode sessions in Melbourne at our City campuses, the number of which will be dependant on the elective stream selected. The course is 2 years full time or part time equivalent. Students are expected to be employed and working in the industry at the same time.

Year 1, Semester 1

HHD1101	INTRODUCTION TO DERMAL THERAPY STUDIES	12
BSBWOR502A	ENSURE TEAM EFFECTIVENESS	60
VPAU084	MANAGE COMPLIANCE WITH LEGAL, REGULATORY AND ETHICAL REQUIREMENTS IN AN ORGANISATIONAL ENVIRONMENT	50
BSBMKG408B	CONDUCT MARKET RESEARCH	60
BSBWOR501A	MANAGE PERSONAL WORK PRIORITIES AND PROFESSIONAL DEVELOPMENT	60
PSPGOV410A	UNDERTAKE CAREER PLANNING	30

Year 1, Semester 2

HHD1201	DERMAL HEALTH SCIENCE 1	12
HHD1202	DERMAL HEALTH SCIENCE 2	12
BSBMGT502B	MANAGE PEOPLE PERFORMANCE	70
HHD1203	DERMAL WORKPLACE PRACTICES	12
FNSACCT404B	MAKE DECISIONS WITHIN A LEGAL CONTEXT	60

Year 2, Semester 1

HHD2101	DERMAL HEALTH SCIENCE 3	12
BAO3100	THE ENTERPRISE PROJECT	12
HHD4214	NUTRITION AND DERMAL THERAPIES	6
BBB3100	BUSINESS INTEGRATED LEARNING	12
HLTEN506A	APPLY PRINCIPLES OF WOUND MANAGEMENT IN THE CLINICAL ENVIRONMENT	45

Students are to select one of the following streams

Year 2, Semester 2

Dermal stream

HHD2205	DERMAL LASER PRACTICE AND TECHNIQUES 1	12
HHD2206	DERMAL LASER PRACTICE AND TECHNIQUES 2	12
HHD2207	DERMAL LASER PRACTICE AND TECHNIQUES 3	12
HHD2208	MEDICAL PROCEDURES RELATED TO DERMAL THERAPY	12

Business Stream

BMO1192	BUSINESS COMMUNICATION	12
BMO4422	INNOVATION AND ENTREPRENEURSHIP	12
BMO2181	OPERATIONS MANAGEMENT	12
BMO2182	ENTREPRENEURIAL BUSINESS MANAGEMENT	12

Training stream

TAA40104

12 core units, 2 electives.

BACHELOR OF CHINESE MEDICINE (ACUPUNCTURE AND HERBS)

Course Code: HBAH

Campus: St Albans.

This course is for Continuing students only.

Course Objectives: The aims of the course are to: provide students with detailed training in Chinese medical theory and practice, including acupuncture and Chinese herbal medicine; provide students with comprehensive Chinese medical skills in both acupuncture and Chinese herbal medicine, incorporating adjunctive approaches such as meditation, health enhancement and CM dietary modalities; ensure that students practise from Chinese medical theory, whilst integrating western medical information as appropriate, to ensure that graduates are safe and competent in the practice of Chinese Medicine; provide students with quality clinical experiences in hospitals and complementary health clinics from Year One of the program; provide students with the option of undertaking a clinical internship placement in an appropriate hospital setting in China or other countries; and provide students with opportunities for research and higher degree in Chinese Medicine on the completion of their undergraduate degree.

Course Duration: 4 years.

Admission Requirements Year 12: To qualify for admission to the course applicants must have satisfactorily completed the Victorian Certificate of Education (VCE), or equivalent with a study score of at least 20 in Units 3 and 4 English. It is also desirable, but not essential, that applicants have completed VCE level studies in biology, chemistry, psychology, or Asian studies.Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, or work experience which would enable them to successfully undertake the course, will be considered for admission.

COURSE STRUCTURE

The course is offered on a full-time basis over four years or part-time equivalent.Course LocationThis course if offered at the St Albans campus.Clinical PlacementStudents will be required to undergo a Victorian Police Check before commencing placement subjects. Police checks need to be conducted annually throughout the program. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation. Students will be required to show evidence of a current first aid in the workplace level 2 qualification whilst enrolled in the clinical practice unit.Teaching clinics operate 50 weeks per year, and students will be required to attend clinical sessions on a rotation basis including outside of semester hours to maintain a public service and provide continuity of patient care.

All students will study both Acupuncture and Chinese Herbal Medicine throughout the four years of this integrated program.

Year Three

Semester One

HHT3100	CHINESE MEDICAL MICRO-SYSTEMS	6
HHT3103	CHINESE MEDICINE CLINICAL PRACTICE 3	16
HHT3104	MAJOR CLASSICS - SHANG HAN LUN & WENG BING 1	8
HHT3106	INTERNAL MEDICINE 1	6
HHT3108	CHINESE MEDICINE THERAPEUTIC APPLICATIONS 1	6
RBM3921	WESTERN MEDICAL DIAGNOSIS AND INTERVENTIONS 1	6

Semester Two

HHT3003	COUNSELLING SKILLS FOR CHINESE MEDICAL PRACTICE	8
HHT3105	MAJOR CLASSICS-SHANG HAN LUN WENG BING 2	6
HHT3203	CHINESE MEDICINE CLINICAL PRACTICE 4	16
HHT3207	INTERNAL MEDICINE 2	6
HHT3111	CHINESE MEDICINE THERAPEUTIC APPLICATIONS 2	6
RBM3922	WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 2	6

Year Four

Semester One

HHT4002	RESEARCH METHODS FOR CHINESE MEDICINE	6
HHT4108	CHINESE MEDICINE TRAUMATOLOGY	6
HHT4100	CASE CONFERENCING AND CLINICAL ISSUES 1	6
HHT4101	CHINESE MEDICINE OBSTETRICS AND GYNAECOLOGY	6
HHT4103	CHINESE MEDICINE CLINICAL INTERNSHIP 1	16
RBM4923	WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 3	8

Semester Two

HHT4004	PROFESSIONAL ISSUES FOR CHINESE MEDICAL PRACTICE	6
HHT4200	CASE CONFERENCING AND CLINICAL ISSUES 2	6
HHT4201	CHINESE MEDICINE PAEDIATRICS	6
HHT4203	CHINESE MEDICINE DERMATOLOGY	6
HHT4204	CHINESE MEDICINE CLINICAL INTERNSHIP TWO	16
RBM4924	WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 4	8

Graduation Requirements

In order to be awarded a Bachelor of Chinese Medicine (Acupuncture and Herbs) degree, students must pass all components of assessment and satisfactorily complete all theoretical and clinical hurdle requirements to proficiency standards as specified in Ferrigno, P. (Compiler). (2005). School of Health Sciences Chinese Medicine Clinical Logbook [CD and manual]. Melbourne: Victoria University of Technology, School of Health Sciences, CM Unit; and Mathieson, L. (Producer). (2005). School of Health Sciences Chinese Medicine Clinical Practice demo CD [CD]. Melbourne: Victoria University of Technology, School of Health Sciences, CM Unit. Students should presume that the content in those references constitutes Required Reading throughout the entire Chinese Medicine degree.

Professional Recognition

It is expected that graduates will meet the requirements of the Chinese Medicine Registration Board of Victoria and be eligible for membership of the major professional associations.

BACHELOR OF HEALTH SCIENCE (NATURAL MEDICINE)

Course Code: HBMN

Campus: Other, This is an on-line course.

This course is for Continuing students only.

Course Objectives: The aims of the course are to:

- augment skills and knowledge of health practice in relation to critical reflection and research;
- provide an education which further develops the individual s personal, professional and intellectual growth;
- enable graduates to broaden their understanding of the physical, socio-economic and psychological factors impacting upon health; and
- enable graduates to articulate into higher degree pathways.

Careers: This course is currently being phased out and was approved prior to commencment of CAMS. Hence, it is not necessary to complete this field.

Course Duration: 1 year.

Admission Requirements Other: To qualify for admission to the course, applicants must have a diplpma or Advanced Diploma in natural medicine, complementary therapies, or equivalent in a related area. In addition to this, applicants would normally be expected to be practising in the field of natural medicine, complementary therapies or an equivalent related field.

COURSE STRUCTURE

This course is currently being phased out and was approved prior to commencment of CAMS. Hence, it is not necessary to complete this field.

Year One - Semester One

HHN0011	Philosophical Concepts in Natural Medicine	12
HHN0012	Ethical and Legal Issues	12
HHN0013	Research Skills	12
HHN0014	Developing Pharmacological Understanding in Natural Medicine Practice	12

Year One - Semester Two

HHN0021	Counselling Skills for Natural Medicine Practitioners	12
HHN0022	Professional Writing in Natural Medicine	12
HHN0023	Research Project	14

BACHELOR OF SCIENCE (CLINICAL SCIENCES) (I)

Course Code: HBOP

Campus: City Flinders.

About this course: This degree prepares graduates for entry into the workforce or post graduate programs, including the Master of Health Science - Osteopathy. To be eligible to register and practice as an Osteopath, graduates must also complete the Master of Health Science (Osteopathy). Core studies include anatomy, osteopathic science, biosciences and medical sciences. Students also complete a clinical practicum, which includes fieldwork and clinical practice visits.

Course Objectives: The aims of the course are to: prepare graduates for entry into the workforce or post graduate programs, including the Master of Health Science - Osteopathy. To be eligible to register and practice as an Osteopath, graduates must also complete the Master of Health Science (Osteopathy). provide an education which contributes to the individual's personal, professional and intellectual growth; enable students to become life long learners and respond to changes and challenges in their future profession. provide an education which contributes to the preparation of competent primary health care practitioners who, upon graduation from the Masters degree, are able to: apply osteopathic principles to formulate and prescribe suitable and safe examination, treatment and management of patients; assess the health status of the patient, including physical, socio-economic and psychological factors and refer appropriately; communicate with the patient and interact with other health care providers and advisers for the benefit of the patient.

Careers: Students may exit the course after completing the Bachelor of Science (Clinical Sciences). They are eligible to apply for a variety of post graduate professional programs or enter the workforce in a variety of fields including human resources, workplace insurance companies or science laboratories. If students meet the minimum requirement of satisfactory completion of Bachelor of Science (Clinical Sciences) with a grade point average of 5 or greater, they may continue into the Master of Health Sciences (Osteopathy) after the completion of which, they are eligible to register as an Osteopath. Once registered the following career options are available Osteopath in private practice Osteopath working in Insurance Companies (Claims manager, Injury Managers) Education, VU Osteopathic graduates continue to be in demand to work at University and Private Colleges as lecturers, tutors and in clinical roles. Osteopaths from VU can apply to register in New Zealand and the United Kingdom Other individual graduates have taken up positions as clinical researchers or in one case as a research coordinator at a UK hospital.

Course Duration: 3 years.

Admission Requirements Year 12: Prerequisites: Units 3 and 4, a study score of at least 20 in English (any), in chemistry and in one of either physics or mathematics (any). Middle-band: A study score of at least 30 in chemistry, English (any) or mathematics (any) = an aggregate 3 points higher per study, to a maximum 9 points. Selection mode: CY12: ENTER and two-stage process with a middle-band of approximately 20%. NONY12: Academic record including GPA, form, interview. See Extra requirements for specifics. Extra requirements: NONY12 Form: Applicants must complete and submit a VTAC Pi form. Interview (some applicants only): Details will be provided by telephone or mail to the applicants required to attend. SUCCESSFUL APPLICANTS Police check: Students must complete a National Police Records Check prior to undertaking field/clinical placements. At this time, we do not anticipate changing the entry requirements for the amended course.

COURSE STRUCTURE

Course is offered over 3 years (6 semesters) on a full-time basis only. To qualify for the award of BSc (Clinical Sciences) a total of 288 credit points should be completed.

Year 1, Semester 1

HHA1171	ANATOMY 1	12
RBM1180	BIOCHEMISTRY	12
HHP1170	CELL PHYSIOLOGY	6
HHO1170	OSTEOPATHIC SCIENCE 1	12
HHL1171	ACADEMIC SKILLS	6

Year 1, Semester 2

HHA1272	ANATOMY 2	12
HHP1272	CLINICAL PHYSIOLOGY 1	6
HHO1271	OSTEOPATHIC SCIENCE 2	12
HHD1271	CLINICAL DIAGNOSIS & MANAGEMENT 1	6
HHY1271	PATHOLOGY 1	6
HHU1270	CLINICAL PRACTICUM 1	6

Year 2, Semester 1

HHA2171	ANATOMY 3	12
HHC2171	BIOMECHANICS 1	6
HHD2172	CLINICAL DIAGNOSIS & MANAGEMENT 2	6
HHO2171	OSTEOPATHIC SCIENCE 3	12
HHY2172	PATHOLOGY 2	6
HHP2171	CLINICAL PHYSIOLOGY 2	6

Year 2, Semester 2

HHA2272	ANATOMY 4	6
HHC2272	BIOMECHANICS 2	6
HHD2273	CLINICAL DIAGNOSIS & MANAGEMENT 3	6
HHO2272	OSTEOPATHIC SCIENCE 4	12
HHU2271	CLINICAL PRACTICUM 2	6
HHY2273	PATHOLOGY 3	6
HHP2272	CLINICAL PHYSIOLOGY 3	6

Year 3, Semester 1

HHA3175	ANATOMY 5 (CLINICAL NEUROLOGY)	12
HHC3173	BIOMECHANICS 3	6
HHS3171	PSYCHOLOGY & SOCIAL SCIENCES 1	6
HHO3174	OSTEOPATHIC SCIENCE 5	6
HHD3171	PROFESSIONAL ETHICS	6

Year 3, Semester 2

HHD3275	CLINICAL DIAGNOSIS AND MANAGEMENT 4 (NEUROLOGY)	6
HHO3275	OSTEOPATHIC SCIENCE 6	6
HHS3272	PSYCHOLOGY & SOCIAL SCIENCES 2	6
HHP3274	INTRODUCTION TO REHABILITATION	6
HHY3274	PATHOLOGY 4 (NEUROPATHOLOGY)	6

BACHELOR OF SCIENCE (CLINICAL SCIENCES)

Course Code: HBOS

Campus: City Flinders.

This course is for Continuing students only.

About this course: This degree prepares graduates for entry into the Master of Health Science, Osteopathy. To register as osteopaths in Australia students must complete both degrees. Core studies include anatomy, osteopathic science, physiology and biochemistry. Students also complete a clinical practicum, which includes fieldwork and clinical practice visits.

Course Objectives: The aims of the course are to: prepare graduates for entry into the Master of Health Science - Osteopathy. Upon completion of the Masters degree, a graduate will be eligible to apply for registration as an osteopath; provide an education which contributes to the individual's personal, professional and intellectual growth; provide an education which contributes to the preparation of competent primary health care practitioners who, upon graduation from the Masters degree, are able to: apply osteopathic principles to formulate and prescribe suitable and safe management of patients; assess the health status of the patient, including physical, socio-economic and psychological factors; communicate with the patient and interact with other health care providers and advisers for the benefit of the patient.

Careers: Students will obtain knowledge and skills to equip them for professional careers as osteopaths in today's international market.

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course applicants must have completed the Victorian Certificate of Education (after not more than two attempts), or equivalent, Units 3 and 4 in Chemistry and one of Physics or Mathematics (any), with a study score of at least 20 in English. Applicants over the age of 21 who have not attempted an approved year 12 course in the three years prior to application may apply to enter the course but are still required to meet the prerequisite study hurdles. Students will be required to undergo a Victoria Police check before commencing placement subjects. Police checks need to be conducted annually throughout the program. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation.

COURSE STRUCTURE

This course is offered as a three year full time program involving face to face teaching.

Year One

Semester One

HHA1171	ANATOMY 1	12
HHO1171	OSTEOPATHIC SCIENCE 1	12
HHP1171	PHYSIOLOGY 1	6
HHU1171	CLINICAL PRACTICUM 1	6
RBM1181	BIOCHEMISTRY 1 (OSTEOPATHY)	6
RBM1170	CELL STRUCTURE AND FUNCTION	6

Semester Two

HHA1272	ANATOMY 2	12
HHD1271	CLINICAL DIAGNOSIS & MANAGEMENT 1	6
HHO1272	OSTEOPATHIC SCIENCE 2	12
HHU1272	CLINICAL PRACTICUM 2	6
HHY1271	PATHOLOGY 1	6
RBM1282	BIOCHEMISTRY 2 (OSTEOPATHY)	6

Year Two

Semester One

HHA2173	ANATOMY 3	8
HHC2171	BIOMECHANICS 1	6
HHD2172	CLINICAL DIAGNOSIS & MANAGEMENT 2	6
HHO2173	OSTEOPATHIC SCIENCE 3	8
HHP2172	PHYSIOLOGY 2	6
HHU2173	CLINICAL PRACTICUM 3	8
HHY2172	PATHOLOGY 2	6

Semester Two

HHA2274	ANATOMY 4	8
HHC2272	BIOMECHANICS 2	6
HHD2273	CLINICAL DIAGNOSIS & MANAGEMENT 3	6
HHO2274	OSTEOPATHIC SCIENCE 4	8
HHP2273	PHYSIOLOGY 3	6
HHU2274	CLINICAL PRACTICUM 4	8
HHY2273	PATHOLOGY 3	6

Year Three

Semester One

HHC3173	BIOMECHANICS 3	6
HHD3174	CLINICAL DIAGNOSIS & MANAGEMENT 4	6
HHO3175	OSTEOPATHIC SCIENCE 5	8
HHP3174	PHYSIOLOGY 4	6
HHS3171	PSYCHOLOGY & SOCIAL SCIENCES 1	6
HHU3175	CLINICAL PRACTICUM 5	8
HHY3174	PATHOLOGY 4	8

Semester Two

HHA3275	ANATOMY 5	6
HHC3274	BIOMECHANICS 4	6
HHD3270	PROFESSIONAL ETHICS	8
HHO3276	OSTEOPATHIC SCIENCE 6	8
HHP3275	PHYSIOLOGY 5	6
HHS3272	PSYCHOLOGY & SOCIAL SCIENCES 2	6
HHU3276	CLINICAL PRACTICUM 6	8

Clinical Training For registration as an Osteopath, students must have completed the minimum clinical subject attendance requirements over the combined Bachelor of Science - Clinical Sciences and Master of Health Science - Osteopathy courses. Completion of the Bachelor of Science - Clinical Sciences course alone does not make graduates eligible for registration as Osteopaths. Teaching clinics operate 50 weeks per year, and students will be required to attend clinical sessions on a rotation basis including outside of semester hours to maintain a public service and provide continuity of patient care. Clinic Website School Regulations The following should be read in conjunction with the Faculty Regulations detailed earlier in this Handbook, and the University Statutes and Regulations. Disciplinary Failure A student who has been awarded a fail in a subject on disciplinary grounds, e.g. for cheating, may not enrol in any further subjects in any major sequence of which the subject forms a part without the permission of the Faculty Progress Committee. Graduation Requirements In order to be awarded a Bachelor of Science - Clinical Sciences, students must complete the hurdle clinical requirements. Professional RecognitionAll graduates will be eligible for registration with the Osteopaths Registration Board of Victoria, and for registration as an osteopath in all other Australian states by mutual recognition with the Osteopaths Registration Board. Registered Osteopaths are also eligible for membership with other professional associations.

BACHELOR OF HEALTH SCIENCE (PARAMEDIC) (CONVERSION DEGREE)

Course Code: HBPA

Campus: .

About this course: This course aims to provide a route to a degree qualification in paramedic practice for qualified paramedics who currently hold an Associate Diploma or equivalent. This course enhances the knowledge and skills of paramedics enabling them to function more effectively.

Course Objectives: The aims of the course are to: provide a route to a degree qualification in paramedic practice for qualified paramedics who currently hold an Associate Diploma or equivalent; enhance the knowledge and skills of paramedics enabling them to function more effectively in their current practice; provide opportunities for paramedic practitioners to explore practice behaviours and attitudes in light of contemporary multicultural and multidisciplinary environments; stimulate paramedic practitioners to use problem solving skills when planning and implementing pre-hospital emergency care; produce graduate paramedics who can apply a research approach relevant to present practice; produce graduates who can examine current developments in paramedic practice and their implications for paramedics and paramedic science.

Careers: Graduates will obtain additional skills, knowledge and personal attributes necessary to further employment in the emergency ambulance service. In addition, the qualification allows opportunities for those interested in pursuing post-graduate studies in areas such as medicine.

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for admission to the course, applicants must: have an Associate Diploma of Health Science (Ambulance Officer), Diploma of Health Science (Paramedic), or equivalent; or be eligible for registration as a paramedic by the relevant body within the applicant's state or country of residence; and have a minimum of one-year post-qualification experience in the emergency response ambulance industry or equivalent.

COURSE STRUCTURE

The course is offered over one year on a full-time basis or part-time equivalent, as demand requires. The course from 2009 onwards is offered on a full-time basis or part-time equivalent and is conducted on campus and via distance education depending upon the units chosen. Students are required to successfully complete eight (8) units of study (a total of 96 credit points), which must include seven core units and at least one elective unit, in order to meet graduation requirements. Students are encouraged to contact the Course Coordinator, Sue Eastcott, prior to selection of core and elective units. Some units may be available in either semester.

Pre-2007

Year One

Semester One

HFB3111	PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 1	12
HFB3222	INTEGRATION OF PARAMEDIC PRACTICE 2	12
HFB3301	ISSUES IN PREHOSPITAL HEALTH SERVICE DELIVERY	12
HFB3401	PREHOSPITAL ETHICAL AND LEGAL ISSUES	12

Semester Two

HFB3122	PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 2	12
HFB3211	INTEGRATION OF PARAMEDIC PRACTICE 1	12
HFB3501	RESEARCH IN PARAMEDIC PRACTICE	12

Elective x 12 credit points

General Electives

Student may choose an elective from any other higher education course offered by the University, subject to the approval of the Course Coordinator. Elective contact hours may be greater than three contact hours.

Post-2007

Year 1

Semester One

HFB3121	ADVANCED PARAMEDIC PRACTICE 1	12
HFB3123	ADVANCED PHARMACOLOGY	12
HFB3124	PRACTITIONER HEALTH 3	12
HFB3125	RESEARCH IN PARAMEDIC PRACTICE	12

Year 1

Semester Two

HFB3226	MAJOR INCIDENTS	12
HFB3227	PARAMEDIC EVIDENCE BASED HEALTH CARE	12
HFB3228	ADVANCED PARAMEDIC PRACTICE 2	12
HFB3229	PARAMEDIC PRACTICUM	12

Post-2009

Year 1

Semester One (Core units)

HFB3111	PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 1	12
HFB3301	ISSUES IN PREHOSPITAL HEALTH SERVICE DELIVERY	12
HFB3401	PREHOSPITAL ETHICAL AND LEGAL ISSUES	12

Plus one elective unit of at least 12 credit points

Semester Two (Core units)

HFB3122	PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 2	12
HFB3125	RESEARCH IN PARAMEDIC PRACTICE	12
HFB3211	INTEGRATION OF PARAMEDIC PRACTICE 1	12
HFB3222	INTEGRATION OF PARAMEDIC PRACTICE 2	12

Recommended elective units

HFB3123	ADVANCED PHARMACOLOGY	12
HFB3124	PRACTITIONER HEALTH 3	12

HFB3226	MAJOR INCIDENTS	12
HFB3228	ADVANCED PARAMEDIC PRACTICE 2	12
HFB3700	PARAMEDIC INSTRUCTION AND MENTORING	12

Recognition of Prior Learning/Credits/Units of Study ExemptionsNo recognition of prior learning is permissible.

Course Regulations

The following should be read in conjunction with the Faculty Regulations detailed earlier in this Handbook, and the University Statutes and Regulations.

Unsatisfactory Progress

Students may be asked to show cause why they should not be excluded from the course if they fail to complete the course within three calendar years full-time or six years part-time.

General ElectivesStudents may choose an elective from any other higher education course offered by the University, subject to the approval of the Course Co-ordinator. Elective contact hours may be greater than three (3) contact hours and may be available in either semester.

BACHELOR OF HEALTH SCIENCE (PARAMEDIC) (I)

Course Code: HBPX

Campus: St Albans.

About this course: HBPX Bachelor of Health Science (Paramedic) is a pre-service training degree. The overall goal of the degree is to produce paramedic science graduates who can provide competent, efficient and compassionate clinical care at a basic entry level in the paramedic profession.

CLINICAL PLACEMENTS

Clinical placements operate on a year-round basis. Paramedic Science students will be required to attend clinical placements on a rotation basis, including outside of semester hours, to maintain a public service and provide continuity of clinical care.

Course Objectives: The aims of this course are to produce graduates who can: identify, evaluate and manage the physical, psychological and social needs of patients and members of the community undergoing paramedic assessment, treatment and transport, and apply problem solving skills when planning and implementing out-of-hospital care; perform paramedic skills and techniques within paramedic protocols and apply paramedic knowledge necessary for safe, efficient and effective practice within paramedic environments; interpret the paramedic needs of patients and members of the community within a holistic framework and apply an integrated holistic approach in paramedic practice; perform effectively and safely as an independent person and as a member of a health care team in paramedic environments; be sensitive to contemporary issues within socially and culturally diverse communities and predict and respond effectively to such issues when providing paramedic practice; examine current research and developments in paramedic practice and evaluate their implications for paramedics and the profession.

Careers: Graduates should have obtained the necessary clinical practice skills, knowledge and personal attributes necessary for employment as emergency paramedics. The skills, knowledge and attributes should provide graduates with a competitive advantage for selection and promotion in the emergency paramedicine career pathways. Graduates are eligible to apply for membership of the Australian College of Ambulance Professionals (ACAP).

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course applicants must normally have successfully completed the Victoria Certificate of Education (VCE), with Units 3 and 4 and a study score of at least 20 in English, or equivalent. Preference will be given to applicants who have successfully completed biology, physics or mathematics. Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission. Students enrolled in the Bachelor of Health Science degree will be required to undergo a Victoria Police Check, a medical check and a physical capacity test before commencing placement units. Annual police checks need to be completed prior to census date of semester 1 of each year throughout the program. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation.

COURSE STRUCTURE

This course is usually delivered on a three (3) year full-time or part-time equivalent on-campus basis.

Year 1, Semester 1

Year 1, sem 1

HFB1111	PROFESSIONAL PRACTICE 1	12
HFB1112	PARAMEDIC CLINICAL PRACTICE 1	12
HFB1113	PRE-HOSPITAL ETHICAL AND LEGAL ISSUES	12
RBM1107	BIOSCIENCE FOR PARAMEDICS 1	12

Year 1, sem 2

HFB1212	PROFESSIONAL PRACTICE 2	12
HFB1213	PARAMEDIC CLINICAL PRACTICE 2	12
RBM1208	BIOSCIENCE FOR PARAMEDICS 2	12
RBM1209	EXERCISE PHYSIOLOGY & NUTRITION FOR PARAMEDICS	12

Year 2, sem 3

HFB2113	PARAMEDIC CLINICAL SCIENCE 1	12
HFB2117	CLINICAL PRACTICE 3	12
HFB2120	APPLIED PHARMACOLOGY	12
RBM2109	BIOSCIENCE FOR PARAMEDICS 3	12

Year 2, sem 4

HFB2216	PARAMEDIC CLINICAL SCIENCE 2	12
HFB2219	SPECIAL POPULATIONS	12
HFB2221	HEALTH CARE ORGANISATIONS	12
HFB2223	CLINICAL PRACTICE 4	12

Year 3, sem 5

HFB3133	MENTAL HEALTH & MENTAL ILLNESS	12
HFB3131	PARAMEDIC CLINICAL SCIENCE 3	12
HFB3132	MENTAL HEALTH & WELLBEING FOR PARAMEDICS	12
HFB3134	PARAMEDIC CLINICAL PRACTICE 5	12

Year 3, sem 6

HFB3225	RESEARCH IN PARAMEDIC PRACTICE	12
HFB3231	PARAMEDIC SCIENCE 4	12
HFB3226	MAJOR INCIDENTS	12
HFB3234	PARAMEDIC CLINICAL PRACTICE 6 - EXTENDED PRACTICE	12

BACHELOR OF HEALTH SCIENCE (DERMAL THERAPIES) (I)

Course Code: HBTD

Campus: City Queen.

About this course: The Bachelor of Health Science (Dermal Therapies) HBTD is a 4-year program which includes the Diploma of Beauty Therapy. The Higher Education component of this 4-year program is 3 years. HBTD has three entry points and entry requirements for each of these is as follows: Entry point 1: for all applicants including school leavers, mature age, international students onshore and offshore without previous studies in Beauty Therapy or Dermal Therapies Entry Point 2: for all applicants who have already completed (SIB50110) or equivalent. Entry Point 3: for applicants that have already completed the Associate Degree in Dermal Therapies. The Bachelor of Health Science (Dermal Therapies) can be completed in full time mode or part time equivalent as well as being offered on campus (face to face) and online. Online study includes mandatory attending on campus intensive practicum.

Course Objectives: Provide an education so graduates have the knowledge and skills to safely and effectively participate in Dermal therapies practice. Prepare graduates for entry into the Graduate Certificate, Graduate Diploma and Masters of Dermal Science Provide an education which contributes to the individual's personal, professional and intellectual growth. The area of dermal therapies, although relatively new, is expanding at a considerable rate. Recent global and western trends indicate that the beauty and dermal therapies areas are second only to the areas of hospitality and foods. Not only is there an increasing demand for services, but an increasing demand by industry, including from recent VU graduates, to improve the quality and quantity of trained graduates in the field. In addition, the interdisciplinary links amongst dermal therapists and those in the established basic sciences and health disciplines are strengthening sufficiently that the number of research publications in refereed journals in dermal therapies is also increasing. All these factors will ensure that dermal therapies will continue to grow as a professional field its own right. The course in existence was originally developed about nine years ago. Over the years, technological advances in equipment and cosmetic products have been extensive and consumer demand (from an increasingly articulate client base for both services and training) is on the increase.

Careers: Graduates will obtain knowledge and skills that will allow them to work comfortably in a wide range of health care settings. Career paths include: Working in plastic, cosmetic and dermatology medical practices. Working in dermal therapies clinics; performing aesthetic medical treatments, such as laser, on clients. Work together with Plastic and Cosmetic Surgeons as well as other healthcare and allied health professionals to enhance aesthetic outcomes in areas like cosmetic, plastic and re-constructive surgery. Work in the vocational education sector as beauty educators. Conducting training for medical aesthetic companies.

Course Duration: 4 years.

Admission Requirements Year 12: Units 3 and 4-a study score of at least 20 in English (any). ATAR and all applicants are required to attend an interview.

Admission Requirements International: Achieve an IELTS (Academic Module) result with an overall score of 6 or equivalent (no band less than 6).

Admission Requirements VET: Successful completion of the Diploma of Beauty Therapy (SIB50110) or equivalent. All applicants are also required to attend an interview and complete an entrance test.

COURSE STRUCTURE

The entire course is a 4-year program which includes the Diploma of Beauty Therapy. The Higher Education component of this 4-year program is 3 years. Those who have already completed a Diploma of Beauty Therapy or equivalent need only to complete the 3 year Higher Education program. The course can be completed in full time mode or part time equivalent. There is also an exit point at the end of the third year where graduates can qualify with an Associate Degree in Dermal Therapies.

Year 2, Semester 1		
HHD2112	DERMAL SCIENCE 1	12
HHD2113	HEALTH RESEARCH AND DERMAL STUDIES	12
HHD2115	PERMANENT HAIR REMOVAL	12
HHD2116	INDUSTRY EXPERIENCE 1	12
Year 2, Semester 2		
HHD2212	DERMAL SCIENCE 2	12
HHD2213	DERMAL WORKPLACE ISSUES	12
HHD2215	LASER FUNDAMENTALS AND SAFETY	12
HHD2216	INDUSTRY EXPERIENCE 2	12
Year 3, Semester 1		
HHD3112	LIGHT BASED HAIR REDUCTION	12
HHD3113	NUTRITION FOR DERMAL THERAPIES	12
HHD3115	WOUND CARE FOR DERMAL PRACTICE	12
HHD3116	LYMPH AND ADIPOSE BIOLOGY	12
Year 3, Semester 2		
HHD3212	DERMAL SCIENCE 3	12
HHD3213	ELECTROTHERAPY	12
HHD3215	ADVANCED HEALTH RESEARCH	12
HHD3216	DERMAL PROFESSIONAL PRACTICE	12
Year 4, Semester 1		
HHD4112	RESURFACING SCIENCE	12
HHD4113	ADVANCED LASER AND LIGHT 1	12
HHD4115	POST OPERATIVE MICROPIGMENTATION	12
HHD4144	INDEPENDENT RESEARCH 1	12
Year 4, Semester 2		
HHD4212	PLASTIC AND RECONSTRUCTIVE PROCEDURES	12
HHD4213	DERMAL CLINICAL PRACTICUM	12
HHD4215	ADVANCED LASER AND LIGHT 2	12
HHD4244	INDEPENDENT RESEARCH 2	12

GRADUATE DIPLOMA IN PAEDIATRIC MANUAL THERAPY

Course Code: HGPO

Campus: City Flinders.

About this course: The Graduate Diploma in Paediatric Manual Therapy is a postgraduate qualification in manual therapy paediatrics, covering the age group from 2 years to puberty. It forms the second part of a three part nested programme in paediatrics for manual therapists, and follows on from the HTPO Graduate Certificate in Neonatal & Infant Paediatric Manual Therapy course, successful completion of which (or an equivalent) is a prerequisiste for entry into this course. The course covers theoretical, practical and clinical practice aspects of paediatric patient care, with emphasis on common conditions amenable to manual therapy management. The course is structured in four units that include topics on childhood development and how it is assessed and evaluated; common conditions amenable to manual therapy; orthodox and manual therapy examination, assessment, diagnosis and management strategies; and medico-legal and ethical considerations and referral requirements essential to paediatric clinical care. There is also a unit which provides an introduction to clinical research methods and critical evaluation of published research. The course is designed so that its graduates are able to broaden their scope of practice with greater confidence in the area of manual therapy paediatrics.

Course Objectives: This course is designed to introduce osteopaths and other manual therapists to advanced assessment and management approaches appropriate to paediatric patients in the age group from 2 years to puberty. The course will ensure that graduates can demonstrate: An understanding of childhood development - anatomical, physiological and psychological - from age 2 to puberty, and a knowledge of how this development is assessed and monitored. An understanding of common health problems and injuries in patients of this age group, how they are assessed and diagnosed, and which of them would be considered amenable to treatment using manual therapies. An ability to manage those conditions amenable to manual therapy, including relevant assessment and diagnostic skills, technique skills, an understanding of relevant contraindications and safety issues, medico-legal issues, and liaison with other health practitioners An understanding of research methods used in clinical research, and an ability to apply that knowledge to be able to critically read and evaluate published research in the field.

Careers: Successful completion of this course will enhance the knowledge, skills and confidence of graduates in paediatric assessment, diagnosis and treatment sufficient to broaden the graduate's scope of practice in the area of paediatrics. It will also provide a lead-in to further development of research skills.

Course Duration: 2 years.

Admission Requirements Year 12: The course is available to Osteopaths, Chiropractors and Physiotherapists currently registered in all states and territories of Australia, Plus New Zealand registered Osteopaths who would be eligible to register in Australia under the terms of the Trans-Tasman Agreement. Applications from other practitioners will be considered, but may be restricted to only those who have successfully completed a 5-year professional training program in the field of manual therapy at university level. Applicants must have completed the HTPO - Graduate Certificate in Neonatal and Infant Paediatric Manual Therapy - course at VU, or an equivalent postgraduate qualification in paediatrics. Applicants must be able to provide evidence of current registration, and of current professional indemnity insurance cover which covers them for both medical negligence and public liability when working in their own practices, and includes cover for treating children. Students will also need to have direct access to paediatric patients in order to complete HOP5207 Management of Common Childhood Conditions.

COURSE STRUCTURE

The Graduate Diploma in Paediatric Manual Therapy is an eight (8) unit of study (96 credit point) postgraduate qualification available in part-time study mode via online learning and burst mode residentials. Nominal duration of study is one semester full time equivalent, but students may complete this course over one year part-time, and it is anticipated that many practitioners working full time will take this option. The course constitutes the second part of a three part nested programme in Paediatric Manual Therapy, and includes/follows on from the HTPO Graduate Certificate in Paediatric Manual Therapy course. Successful completion of the HTPO course or a substantially equivalent course is a requirement for direct entry into the HGPO course as a stand-alone qualification. Alternatively, students may enrol in the HGPO course and have the option of exiting the course with a Graduate Certificate after completion of the four units which make up the HTPO course, or of completing the additional HGPO units and exiting with a Graduate Diploma qualification.

These four units consitute the content of the first part of the course - the HTPO Graduate Certificate in Paediatric Manual Therapy. Exit at this point is possible, or students may complete the full 8 units and exit with the Graduate Diploma in Paediatric Manual Therapy.

HOP5200	BIRTHING AND INFANT DEVELOPMENT	12
HOP5201	NEONATAL AND INFANT ASSESSMENT	12
HOP5202	NEONATAL AND INFANT DIAGNOSIS	12
HOP5203	NEONATAL AND INFANT MANAGEMENT	12
Year 2, Semester 2		
HOP5204	EARLY CHILDHOOD DEVELOPMENT	12
HOP5205	COMMON CHILDHOOD CONDITIONS	12
HOP5206	INTRODUCTION TO CLINICAL RESEARCH	12
HOP5207	MANAGEMENT OF COMMON CHILDHOOD CONDITIONS	12
Year 1, Semester 2		

MASTER OF HEALTH SCIENCE (OSTEOPATHY) (I)

Course Code: HMOS

Campus: City Flinders.

About this course: The course equips graduates with the diagnostic skills required by primary health-care practitioners, the ability to assess the health status of the patient, including physical, socio-economic and psychological aspects, and the ability to formulate and prescribe a suitable and safe treatment program. Graduates can apply for registration as osteopaths in Victoria. The course also has the support of the Australian College of Physical Medicine.

Course Objectives: The aims of this course are to equip graduates with: the diagnostic skills required by a primary health care practitioner; the ability to assess the health status of the patient, including physical, socio-economic and psychological aspects and refer appropriately; the ability to formulate and prescribe a suitable and safe treatment program; skills in a full range of osteopathic techniques; an awareness of the application of osteopathic principles relevant to patient management; the ability to interact with other health care providers and advisers for the benefit of the patient, including an awareness of the need to gain informed consent; communication skills related to the patient and other persons, to maintain inter-professional co-operation and respect; an awareness of the cost effectiveness of osteopathic treatment; an awareness of the support systems that are available and an ability to take part in a multi-practitioner research program; an awareness of the need for continuing self education; clinical proficiency and an ability to manage all aspects of osteopathic patient care; and an awareness of their professional and personal responsibilities and an ability to effectively organise and manage their working environment.

Course Duration: 2 years.

Admission Requirements Year 12: To qualify for admission to the course applicants must have satisfactorily completed the HBOS Bachelor of Science - Clinical Sciences, or equivalent and have successfully completed the selection interview. Students will be required to undergo a Victoria Police check before commencing clinical placement units. Police checks need to be conducted annually throughout the programme. Prospective and continuing students should be aware that not passing relevant police checks may restrict access to clinical placements necessary for graduation. At the commencement of the course students must have completed the Level 2 First Aid Certificate update.

COURSE STRUCTURE

The course is offered over two years on a full-time basis.

Year One		
Semester One		
HHD4185	CLINICAL DIAGNOSIS AND MANAGEMENT 5	12
HHL4181	RESEARCH 1	12
HHO4187	OSTEOPATHIC SCIENCE 7	8
HHS4183	PSYCHOLOGY AND SOCIAL SCIENCES 3	8
HHU4187	CLINICAL PRACTICUM 7	8
Semester Two		
HHD4286	CLINICAL DIAGNOSIS AND MANAGEMENT 6	12

HHL4282	RESEARCH 2	12
HHO4288	OSTEOPATHIC SCIENCE 8	8
HHU4288	CLINICAL PRACTICUM 8	8
HHY4285	PATHOLOGY 5	8
Year Two		
Semester One		
HHD5187	CLINICAL DIAGNOSIS AND MANAGEMENT 7	12
HHL5183	RESEARCH 3	12
HHO5189	OSTEOPATHIC SCIENCE 9	12
HHU5189	CLINICAL PRACTICUM 9	12
Semester Two		
HHD5288	CLINICAL DIAGNOSIS AND MANAGEMENT 8	12
HHL5284	RESEARCH 4	12
HHO5280	OSTEOPATHIC SCIENCE 10	12
HHU5280	CLINICAL PRACTICUM 10	12

Clinical Practicum Clinical practicum is direct student/patient contact supervised by registered osteopaths and medical practitioners. In order to register as an osteopath, students must complete the minimum attendance requirements for clinical units over the full five years of the combined Bachelor of Science-Clinical Sciences and Master of Health Science-Osteopathy courses. This will be achieved cumulatively by an increasing commitment of time to clinically based learning as students progress through the course and their clinical skills increase. As the teaching clinics are required to operate 50 weeks per year, in order to maintain a public service and provide essential continuity of patient care, students will be expected to supplement any deficit in clinical practicum hours outside semester hours. The arrangement of clinical hours will be flexible and may vary from year to year dependent upon resources, patient availability and student development. During the clinical practicum students will develop and enhance the following skills within the supervised clinical setting: interpersonal and communication skills; history taking; general observation; clinical methods; general medical and osteopathic examination; data analysis and interpretation; pathological diagnosis; radiological diagnosis; special investigations; osteopathic treatment and management; and professional behaviour and ethics. School of Health Sciences/Osteopathy Website Professional Recognition Registration and regulation of osteopaths is a function of State Registration Boards in a similar way to the regulation of other health professions such as medicine and dentistry. Graduates of this course will be eligible to apply to be registered as osteopaths in Victoria. The course also has the support of the Australian College of Physical Medicine.

DOCTOR OF PHILOSOPHY

Course Code: HPHS

Campus: St Albans, Footscray Park.

This course is for Continuing students only.

About this course: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes.

Careers: Research related career options in the healthcare field.

Course Duration: 3 years.

Admission Requirements International: In addition to the requirements specified under 'Other' applicants must have achieved an IELTS, (Academic Module) result with an overall score of 6.5 (no band less than 6) or equivalent.

Admission Requirements Other: Applicants should normally have completed either a Masters degree or a four year undergraduate degree with Honours or its equivalent at a high standard.

COURSE STRUCTURE

The course normally requires three years of full-time study (research) or part-time equivalent.

Semester 1		
HHM6800	RESEARCH THESIS (FULL-TIME)	48
HHM6801	RESEARCH THESIS (PART-TIME)	24
Semester 2		
HHM6800	RESEARCH THESIS (FULL-TIME)	48
HHM6801	RESEARCH THESIS (PART-TIME)	24

GRADUATE CERTIFICATE IN NEONATAL & INFANT PAEDIATRIC MANUAL THERAPY

Course Code: HTPO

Campus: City Flinders, Learning will also take place in the students' own clinical practices, with regular case reports forming an important part of assessment.

About this course: The Graduate Certificate in Neonatal & Infant Paediatric Manual Therapy is a postgraduate qualification in manual therapy paediatrics. The course covers theoretical, practical and clinical practise aspects of neonatal and paediatric patient care, with emphasis on common conditions amenable to manual therapy management. The course is structured in four units that include topics on embryology, neonatal and infant development; birthing and potential complications; common conditions amenable to manual therapy; orthodox and manual therapy examination, assessment, diagnosis and management techniques; and medico-legal and ethical considerations and referral requirements essential to paediatric clinical care. The course is designed so that its graduates are able to broaden their scope of practice with greater confidence in the area of manual therapy paediatrics.

Course Objectives: This course is designed to introduce osteopaths and other manual therapists to advanced assessment and treatment techniques appropriate to paediatric patients. The course will ensure that graduates can demonstrate: An understanding of advanced Embryology and Foetal development; the birthing process and the main potential complications; common neonatal and infant conditions amenable to manual therapy; A comprehensive range of assessment, diagnostic, treatment and management techniques appropriate to common neonatal and infant conditions amenable to manual therapy; An awareness of medico-legal and ethical responsibilities and the requirements of referral to other health professionals as part of clinical care. Eligibility The course is available to Osteopaths, Chiropractors and Physiotherapists currently registered in all states and territories of Australia, Plus New Zealand registered Osteopaths who would be eligible to register in Australia under the terms of the Trans-Tasman Agreement. Applications from other practitioners will be considered, but may be restricted to only those who have successfully completed a 5-year professional training program in the field of manual therapy at university level. Contact hoursA large part of the course will be delivered online, so contact hours listed here are nominal. It is anticipated that each theory element will be the equivalent of 36 hours of face-to-face teaching, and each practical element will be 24-36 hours of actual contact time, subject to the available case mix. Practical teaching will utilise the resources of the technique teaching laboratories and the VU Paediatric Teaching Clinic Mode of delivery All theory elements will be delivered online, via a mixture of Blackboard notes and presentations/podcasts. Practical classes on assessment and treatment/rehab techniques will be in burst mode at VU, over a total of 2-4 weekend sessions, each of either 12 hours (2 sessions over both Sat. and Sun.) or 6 hours (4 X 1 day sessions on Sat.) A final decision on this split will be made after further consultation as to time availability with those prospective students who have already expressed interest in the course. Sessions will be recorded and made available either on DVD or by podcast for revision purposes. Assessment Theory elements will be assessed by a mixture of written assignments and online multiple choice tests. Practical elements will be assessed using a mixture of in-class formative assessment, an end-of-unit practical examination held at VU and a series of case reports from the students own clinic cases.

Careers: Successful completion of this course should enhance the knowledge, skills and confidence of graduates in neonatal and paediatric assessment, diagnosis and treatment sufficient to broaden the graduate s scope of practice in the area of paediatrics.

Course Duration: 1 year.

Admission Requirements Year 12: The course is available to osteopaths, physiotherapists and chiropractors currently registered in any state or territory in Australia, and who are currently in clinical practice. Osteopaths in New Zealand who are eligible to register in Australia under the terms of the Trans-Tasman Agreement are also eligible. Applications from other practitioners will be considered, but may be restricted to only those who have successfully completed a 5-year professional training program in the field of manual therapy at university level. Evidence of qualifications, registration, and appropriate professional indemnity insurance cover will be required.

Admission Requirements Other: Applicants may need access to external clinic patients for assessment purposes.

COURSE STRUCTURE

The Graduate Certificate in Neonatal & Infant Paediatric Manual Therapy is four (4) unit of study (48 credit point) postgraduate qualification available in part-time study mode via online learning and burst mode residentials. Students can complete this course over one year part-time study.

Year 1, Semester 1

HOP5200	BIRTHING AND INFANT DEVELOPMENT	12
HOP5201	NEONATAL AND INFANT ASSESSMENT	12

Year 1, Semester 2

HOP5202	NEONATAL AND INFANT DIAGNOSIS	12
HOP5203	NEONATAL AND INFANT MANAGEMENT	12

BACHELOR OF SCIENCE (BIOMEDICAL SCIENCES) (I)

Course Code: SBBS

Campus: St Albans.

About this course: This degree provides students with an in-depth knowledge of human physiology combined with skills in critical analysis and communication. Science studies, such as functional anatomy, nutrition, pathophysiology, immunology and clinical genetics, can be combined with electives.

Course Objectives: The Bachelor of Science in Biomedical Sciences is designed to provide professional training in the application of science to human biology in the market place. The course aims to produce highly flexible but well-trained graduates who will be adequately equipped to adapt to a changing environment. Four different streams are available for this degree in Biomedical Sciences including wellness management, science media and communications, marketing of biomedical products, and medical research/clinical sciences. Although, students are encouraged to follow one of these streams, they are able to choose from the entire range of subjects offered in the Biomedical Sciences degree. The overall objectives of the degree in Biomedical Sciences are to provide graduates with an excellent knowledge of human physiological functions together with skills in critical analysis and with highly developed communication skills. Complementary knowledge will be developed in a wide range of selected disciplines including psychology, human development, management, marketing, visual and audiovisual communications and a language. The Wellness Management stream is designed to produce graduates with an understanding of human function. Graduates will be eligible for employment as Wellness consultants either in private practice or within government agencies, large companies or corporations. The Science, Media and Communications specialisation is more specifically designed to produce graduates who would be knowledgeable in human biology and biomedical sciences. Graduates would have a broad education, being highly literate and articulate in specialised areas such as an Asian Language, Professional Writing, and Communications. Graduates in the Management and Marketing of Biomedical Products stream will have an in-depth knowledge of basic human biological function combined with specialised skills in either human resource management or in marketing. This combination of skills appears to be unique in Australia as there seems to be no other course in Australia with this combination of subjects. The Medical Research/Clinical Sciences stream will provide students with a range of skills appropriate to leading edge medical research. This degree offers a range of subjects appropriate for further postgraduate study in medical and paramedical fields.

Careers: Medical Research, Laboratory Technicians, Hospital Technicians, Postgraduate courses, Forensic Scientists, Teaching, Lifestyle Management, Scientific Journalism, Pharmaceuticals, Corporate Health.

Course Duration: 3 years.

Admission Requirements Year 12: You need to have an aptitude for science.VCE Units 3 and 4 English with a study score of at least 20 in English. A study score of at least 25 in one or more health and human development, mathematics (any), physical education or science (any) = an aggregate 2 points higher per study, to a maximum 9 points.

COURSE STRUCTURE

Three years fulltime or part-time equivalent.

The course will comprise of two 12 week semesters or 24 weeks per year for three years. The course outline together with the contact hours per week is contained in the following pages. First year subjects listed are currently running at the St Albans Campus.

Electives may be taken from the wide range of science and general subjects listed below. Other suitable electives (not listed below) may also be chosen subject to the approval of the course coordinator. If general electives are selected, students are encouraged to take a four-six semester sequence in one of the following areas including Human Resource Management, Marketing, Communications, Psychology, Professional Writing or a language other than English. Electives will be offered subject to adequate demand.

Students enrolled in the Biomedical Science course Degree must take a minimum of 60 per cent of their total credit points from subjects offered by the School of Biomedical Sciences. In addition, no more than 40 credit points from general elective subjects shall be at first year level, and at least one elective shall be commensurate with the year of the student's course.

Year 1

Semester 1

RBM1100	FUNCTIONAL ANATOMY OF THE TRUNK	12
RBM1501	FOUNDATIONS IN BIOMEDICAL SCIENCE A	12
RBM1518	HUMAN PHYSIOLOGY 1	12
RCS1110	CHEMISTRY FOR BIOLOGICAL SCIENCES A	12

OR

APP1012	PSYCHOLOGY 1A	12
OR		
RBM1110	NUTRITIONAL BIOCHEMISTRY 1	12
OR		
Other Elective		
Year 1		
Semester 2		
RBM1502	FOUNDATIONS IN BIOMEDICAL SCIENCE B	12
RBM1200	FUNCTIONAL ANATOMY OF THE LIMBS	12
RBM1528	HUMAN PHYSIOLOGY 2	12
RCS1120	CHEMISTRY FOR BIOLOGICAL SCIENCES B	12
OR		
APP1013	PSYCHOLOGY 1B	12
OR		
RBM2220	NUTRITIONAL BIOCHEMISTRY 2	12
OR		
Other elective		
Year 2		
Semester 1		
RBM2260	DIET AND NUTRITION	12
RBM2530	PATHOPHYSIOLOGY 1	12
Two of the following OR other elective.		
RBM2100	REHABILITATION ANATOMY	12
RBM2133	CELL AND MOLECULAR BIOLOGY	12
RBM2560	MEDICAL BIOCHEMISTRY	12
RBM2610	BIOMEDICAL SCIENCES AND SOCIETY	12
Year 2		
Semester 2		
RBM2540	PATHOPHYSIOLOGY 2	12
RBM2800	CARDIORESPIRATORY AND RENAL PHYSIOLOGY	12
Two of the following OR other elective.		
RBM2200	FUNCTIONAL ANATOMY OF THE HEAD AND BACK	12
RBM3610	BIOMEDICAL SCIENCE, ETHICS AND VALUES	12
RBM2365	MEDICAL MICROBIOLOGY	12
Year 3		
Choose four core units or three core units Plus one elective per semester from the list below.		
Semester 1		
Core Units of Study		
RBM3264	ADVANCED NERVE AND MUSCLE PHYSIOLOGY	12
RBM3550	GROWTH AND EARLY DEVELOPMENT	12
RBM3590	ADVANCED EXPERIMENTAL TECHNIQUES	12
RBM3720	IMMUNOLOGY	12
RBM3810	WELLNESS 1	12
Year 3		
Semester 2		
Core Units of Study		
RBM3640	ADVANCED NEUROSCIENCES	12
RBM3560	GROWTH, DEVELOPMENT AND AGING	12
RBM3660	HUMAN DEVELOPMENTAL AND CLINICAL GENETICS	12
RBM3800	PHARMACOLOGY	12
RBM3820	WELLNESS 2	12
RBM3910	PROJECT	12
RBM3265	EXERCISE BIOCHEMISTRY AND INTEGRATED METABOLISM	12
Electives		
RBM2201	CONSERVATION GENETICS	12
RBM3101	GEOGRAPHIC INFORMATION SYSTEMS (GIS) FOR CONSERVATION & HEALTH	12
RBM3960	NUTRITIONAL FRONTIERS	12

BACHELOR OF SCIENCE (NUTRITION, FOOD AND HEALTH SCIENCE) (I)

Course Code: SBFN

Campus: St Albans, Werribee, 1st year St Albans, 2nd and 3rd year Werribee Campus.

About this course: The Nutrition, Food and Health Science degree is designed to develop the knowledge and skills in the science of food, its safety and quality as required by today's nutritionist's and food scientists. Increasing consumer awareness and demands in regard to food related health issues and the increasingly important role of nutrition in the development and evaluation of food products has generated a rapidly growing need for graduates with a good understanding of both food manufacturing nutrition and health. The course has been specifically designed to meet the demand for such graduates.

Course Objectives: The SBFN course is designed to produce graduates who have up-to-date knowledge and skills in the science of food and its safety and quality as required by today s nutritionists and food scientists. The course ensures that its graduates have: a solid foundation in basic anatomy and physiology and the relevant biochemistry and microbiology; a developed consumer awareness with regard to food-related health and safety issues; a thorough understanding of the role of nutrition in the development and evaluation of food products; and an appreciation of food and nutrition within local and global contexts. The course also provides opportunities for the development of professional and personal skills essential for employment and successful career paths in the rapidly growing areas of food science, nutrition and health.

Careers: The Bachelor of Science - Nutrition, Food and Health Science will produce graduates with a thorough knowledge of nutrition and food sciences to assure delivery of safe and nutritious food. Graduates of this course will be equipped to work in a range of occupations where knowledge of the food industry, food composition, food safety, food quality assurance, processing and nutrition is required. Graduates are expected to find employment in food processing industries, education and research institutes, government food laboratories, food wholesale and retail industries, food safety and regulation bodies, health and nutrition promotion industry, product marketing and food quality assurance.

Course Duration: 3 years.

Admission Requirements Year 12: VCE, Units 3 and 4 with a study score of at least 20 in English (any).

Admission Requirements International: 1) Have achieved an IELTS (Academic Module) result with an overall score of 6 (no band less than 6). 2) Have completed a secondary school qualification equivalent to Australia's year 12 or VCE qualification.

COURSE STRUCTURE

Course is offered over 3 years (6 semesters) on full time basis and equivalent part time. To qualify for the award of BSc (Nutrition, Food And Health Science) a total of 288 credit points should be completed.

Year 1, Semester 1

RBM1110	NUTRITIONAL BIOCHEMISTRY 1	12
RBM1518	HUMAN PHYSIOLOGY 1	12
RBM1820	NUTRITION, SOCIETY, AND COMMUNICATION	12
RBM1100	FUNCTIONAL ANATOMY OF THE TRUNK	12

Year 1, Semester 2

RBF2410	FOOD COMPONENTS	12
RBM1528	HUMAN PHYSIOLOGY 2	12
RBF2218	NUTRITION AND COMMUNITY HEALTH	12
RBF1140	INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1	12

Year 2, Semester 1

RBM2260	DIET AND NUTRITION	12
RBF3730	FOOD MICROBIOLOGY	12
RBF2210	NUTRITION AND FOOD ANALYSIS 1	12
RNH2110	DISEASE AND HEALTH	12

Year 2, Semester 2

RBF2242	FOOD PRESERVATION	12
RBF2215	NUTRITION AND FOOD ANALYSIS 2	12
RBM2220	NUTRITIONAL BIOCHEMISTRY 2	12
RBF3252	FOOD SAFETY	12

Year 3, Semester 1

RBF3810	NUTRIENT AND DRUG INTERACTION	12
RBM3122	NUTRITION FOR PERFORMANCE	12
RBF3131	ANIMAL FOODS PROCESSING	12
RBF3151	FOOD QUALITY ASSURANCE	12

Year 3, Semester 2

RBF3240	FUNCTIONAL FOODS	12
RBF3900	PROJECT	12
RBF3236	PLANT FOODS	12
RBF3256	FOOD PRODUCT DEVELOPMENT	12

BACHELOR OF SCIENCE (NUTRITION FOOD AND HEALTH SCIENCE)

Course Code: SBNH

Campus: Werribee.

This course is for Continuing students only.

Course Objectives: The Nutrition, Food and Health Science degree is designed to develop the knowledge and skills in the science of food, its safety and quality as required by today's nutritionist's and food scientists. Increasing consumer awareness and demands in regard to food related health issues and the increasingly important role of nutrition in the development and evaluation of food products has generated a rapidly growing need for graduates with a good understanding of both food manufacturing nutrition and health. The course has been specifically designed to meet the demand for such graduates.

Careers: Qualified to contribute to the development of new foods and to ensure their safety and wholesomeness.

Course Duration: 3 years.

Admission Requirements Year 12: VCE, Units 3 and 4 with a study score of at least 20 in English (any).

Admission Requirements International: 1) Have achieved an IELTS (Academic Module) result with an overall score of 6 (no band less than 6). 2) Have completed a secondary school qualification equivalent to Australia's year 12 or VCE qualification.

COURSE STRUCTURE

The Bachelor of Science program requires the equivalent of three years full-time study.

Year 2, Semester 2

Year 1

Semester One

ACE1913	PROFESSIONAL COMMUNICATION	12
RBF1310	BIOLOGY 1	12
RCS1601	CHEMISTRY 1A	12
RBF1140	INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1	12

Semester Two

RMA1120	STATISTICS FOR THE BIOLOGICAL AND CHEMICAL SCIENCES 2	12
RBF1320	BIOLOGY 2	12
RCS1602	CHEMISTRY 1B	12
RBF1145	INTRODUCTION TO FOOD, NUTRITION AND HEALTH 2	12

Year 2

Semester One

RBF2242	FOOD PRESERVATION	12
RBF2210	NUTRITION AND FOOD ANALYSIS 1	12
RBF2520	BIOCHEMISTRY 1	12
RBM2750	NUTRITION	12

Semester Two

RBF2740	PRINCIPLES OF FOOD PRESERVATION	12
RBF2215	NUTRITION AND FOOD ANALYSIS 2	12
RBF2218	NUTRITION AND COMMUNITY HEALTH	12
RNH2110	DISEASE AND HEALTH	12

Year 3

Semester One: Core

RBF3230	ANIMAL FOOD PROCESSING	6
RBF3730	FOOD MICROBIOLOGY	12
RBF3810	NUTRIENT AND DRUG INTERACTION	12
RNH3210	SPECIAL TOPICS IN NUTRITION, FOOD AND HEALTH SCIENCE	6
RBF3250	FOOD SAFETY AND QUALITY	12

Semester Two: Core

RBF3235	PLANT FOOD PROCESSING	6
RBF3240	FUNCTIONAL FOODS	12
RBM3960	NUTRITIONAL FRONTIERS	12
RBF3900	PROJECT	12
RBF3255	PRODUCT DEVELOPMENT	6

BACHELOR OF SCIENCE (NUTRITIONAL THERAPY)

Course Code: SBNT

Campus: St Albans.

About this course: Nutritional Therapy is founded in medical science and on peer-reviewed evidence-based research. Nutritional Therapists use manipulation of food and diet for therapeutic purposes. Often a patient's condition can be improved by suitably matching food intake to their condition, together with nutriceutical prescription and appropriate lifestyle advice. The graduates from this course will not be Dieticians, but will be able to treat chronic non-life threatening conditions. This course is modelled on the highly successful BSc Nutritional Therapy courses offered in Europe. At present this is the only similar course in Nutritional Therapy in Australia.

Course Objectives: The Bachelor of Science in Nutritional Therapy will provide an alternative education and training program for those wishing to apply their knowledge of Nutrition to the treatment of a range of clients by high-quality nutrition care and therapy. The objectives of the course are to produce Graduates able to function independently as Nutritional Therapists. At the end of the course, Graduates will be able to; evaluate and process requests for nutritional therapy; assess the client and formulate an appropriate course of nutritional therapy; educate the client in self-care therapy, and evaluate the client's response to the course of treatment.The Graduates of this course will be able to make a valuable contribution to society as Nutritional Therapists in private practice, as Nutrition Consultants to the healthcare and fitness industries, and as practitioners in integrated health centres.

Careers: Nutritional therapists in private practice, nutrition consultants to the healthcare and fitness industries, practitioners in integrated health centres, education and research.

Course Duration: 3 years.

Admission Requirements Year 12: Completion of Year 12 VCE, Units 3 and 4 of English with a study score at least 20.

COURSE STRUCTURE

Three years fulltime or part-time equivalent.

Year 1

Semester 1

RBM1100	FUNCTIONAL ANATOMY OF THE TRUNK	12
RBM1518	HUMAN PHYSIOLOGY 1	12
RBM1820	NUTRITION, SOCIETY, AND COMMUNICATION	12
RBM1110	NUTRITIONAL BIOCHEMISTRY 1	12

Semester 2

RBF2410	FOOD COMPONENTS	12
RBM1830	DIET THERAPY 1	12
RBF1140	INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1	12
RBM1528	HUMAN PHYSIOLOGY 2	12

Year 2

Semester 1

RBM2141	PHARMACOLOGY AND NUTRITION	12
RBM2260	DIET AND NUTRITION	12
RBM2530	PATHOPHYSIOLOGY 1	12
RBM2850	NUTRITIONAL THERAPEUTICS A	12

Semester 2

RBM2540	PATHOPHYSIOLOGY 2	12
RBM2220	NUTRITIONAL BIOCHEMISTRY 2	12
RBM2855	NUTRITIONAL THERAPEUTICS B	12
HHN0021	COUNSELLING SKILLS FOR NATURAL MEDICINE PRACTITIONERS	12

Year 3

Semester 1

RBM3122	NUTRITION FOR PERFORMANCE	12
RBM3910	PROJECT	12
RBM3850	NUTRITIONAL THERAPEUTICS C	12
RBM3950	NUTRITIONAL THERAPY IN PRACTICE 1	12

Semester 2

RBM3855	NUTRITIONAL THERAPEUTICS D	12
RBM3955	NUTRITIONAL THERAPY IN PRACTICE 2	12
RBM3960	NUTRITIONAL FRONTIERS	12
RBM3970	OPERATING A CLINICAL PRACTICE	12

BACHELOR OF SCIENCE/BACHELOR OF PSYCHOLOGICAL STUDIES

Course Code: SBPL

Campus: St Albans, Footscray Park.

About this course: This degree enables students to study a range of science programs, such as: behavioural studies, counselling, physiology, pharmacology and human genetics linked with major studies in psychology.

Course Objectives: This degree is designed to give students a strong foundation in the scientist-practitioner model of Psychology. It will prepare them to pursue professional studies in Science and/or Psychology, or to use the theoretical, practical and research skills gained to pursue a wide range of career and study options.

Careers: The Bachelor of Science/Psychological Studies is designed to provide preparation for a fourth year of study in psychology for graduates wishing to achieve professional accreditation. Graduates of the course would also be qualified to find employment in scientific areas such medical research or sales. Other possible areas of employment are scientific officers, welfare, community services and human resources, or may undertake further study to qualify as psychologists, teachers or social workers.

Course Duration: 4 years.

Admission Requirements Year 12: Satisfactory completion of Year 12 or equivalent with a grade average of D in English. Applicants may also apply on an Alternative Category Entry basis.

COURSE STRUCTURE

The course is offered over four years on a full-time basis or part-time equivalent.

Year 1, Semester 1

APP1012	PSYCHOLOGY 1A	12
RBM1100	FUNCTIONAL ANATOMY OF THE TRUNK	12
RBM1518	HUMAN PHYSIOLOGY 1	12

Arts Elective equal to 12 credit points

Year 1, Semester 2

APP1013	PSYCHOLOGY 1B	12
RBM1528	HUMAN PHYSIOLOGY 2	12
RBM2200	FUNCTIONAL ANATOMY OF THE HEAD AND BACK	12

Arts Elective equal to 12 credit points.

Year 2, Semester 1

APP2013	PSYCHOLOGY 2A	12
APP2101	INTERCULTURAL AND DEVELOPMENTAL ISSUES IN PSYCHOLOGY	12
RBM2530	PATHOPHYSIOLOGY 1	12
RCS1110	CHEMISTRY FOR BIOLOGICAL SCIENCES A	12

Year 2, Semester 2

APP2014	PSYCHOLOGY 2B	12
APS2040	QUANTITATIVE SOCIAL RESEARCH METHODS 1	12
RBM2540	PATHOPHYSIOLOGY 2	12
RCS1120	CHEMISTRY FOR BIOLOGICAL SCIENCES B	12

* Alternative Biomedical Science units may be substituted for Chemistry for Biological Sciences A and B - subject to the approval of the Course Coordinator.

Year 3, Semester 1

APS2030	QUALITATIVE SOCIAL RESEARCH METHODS 1	12
RBM2260	DIET AND NUTRITION	12
RBM2560	MEDICAL BIOCHEMISTRY	12
APP3035	RESEARCH METHODS IN PSYCHOLOGY	12

RBM 2365 (Medical Microbiology) may be substituted for RBM2560 (Medical Biochemistry) subject to the approval of the Course Coordinator.

Year 3, Semester 2

RBM2800	CARDIORESPIRATORY AND RENAL PHYSIOLOGY	12
APP3037	CLINICAL ASPECTS OF PSYCHOLOGY	12
RBM3610	BIOMEDICAL SCIENCE, ETHICS AND VALUES	12

Plus one Psychology unit worth 12 credit points

An alternative Biomedical Science unit may be substituted for RBM3610 (Biomedical Science, Ethics and Values) subject to the approval of the Course Coordinator.

Year 4, Semester 1

APP3023	PSYCHOLOGICAL ISSUES IN THE WORKPLACE	12
APP3036	HISTORY AND THEORIES IN PSYCHOLOGY	12

Plus two 3rd year Biomedical Science units worth 12 credit points each

Year 4, Semester 2

RBM3910	PROJECT	12

Plus one 3rd Year Biomedical Science Unit worth 12 credit points

And two 3rd Year Psychology Elective units worth 12 credit points each

Third year Biomedical Science units options

RBM3264	ADVANCED NERVE AND MUSCLE PHYSIOLOGY	12
RBM3550	GROWTH AND EARLY DEVELOPMENT	12
RBM3590	ADVANCED EXPERIMENTAL TECHNIQUES	12
RBM3720	IMMUNOLOGY	12
RBM3810	WELLNESS 1	12
RBM3640	ADVANCED NEUROSCIENCES	12
RBM3560	GROWTH, DEVELOPMENT AND AGING	12
RBM3660	HUMAN DEVELOPMENTAL AND CLINICAL GENETICS	12
RBM3800	PHARMACOLOGY	12
RBM3820	WELLNESS 2	12
RBM3650	ADVANCED REPRODUCTION AND DEVELOPMENT	12
RBM3960	NUTRITIONAL FRONTIERS	12

Psychology elective unit options

APP3015	COUNSELLING THEORY AND PRACTICE	12
APP3016	GROUP BEHAVIOUR	12
APP3018	ORGANISATIONS AND WORK	12
APP3019	PSYCHOBIOLOGY	12
APP3020	PSYCHOANALYSIS	12
APP3021	PSYCHOLOGY OF ADJUSTMENT	12
APP3025	PSYCHOLOGICAL ASSESSMENT	12

Arts elective units in the first year

ACC1047	CULTURE AND COMMUNICATION	12
ACC1048	MEDIA, CULTURE AND SOCIETY	12
ACL1001	READING CONTEMPORARY FICTION	12
ACL1002	STUDYING POETRY AND POETICS	12
ACP1053	INTRODUCTION TO CREATIVE WRITING	12
ACP1054	INTRODUCTION TO MEDIA WRITING	12
ACW1020	SEX AND GENDER	12

ACW1021	FASHIONING GENDER	12
ASS1012	SOCIOLOGY 1A: INTRODUCTION TO AUSTRALIAN SOCIETY AND CULTURES	12
ASS1013	SOCIOLOGY 1B: ISSUES IN AUSTRALIAN SOCIETY AND CULTURE	12

BACHELOR OF SCIENCE (HONOURS) (BIOMEDICAL SCIENCES) (I)

Course Code: SHBM

Campus: St Albans, Werribee, Footscray Park, City Flinders.

About this course: This course comprises a research project including two oral presentations, a literature review and the project thesis.

Course Objectives: This course promotes the development of research skills and training, including ethics; critical appraisal of the literature; and the production of a scholarly piece of writing.

Careers: Medical research, research assistant, further studies to PhD and academics.

Course Duration: 1 year.

Admission Requirements Year 12: Successful completion of a three year science-based degree with a credit average in the 3rd year of the Biomedical Sciences or equivalent degree.

COURSE STRUCTURE

The Honours course is a one year (full-time) or two year (part-time) commitment. Students enrol in RBM4002 for two semesters, receiving a single, final mark and grade at the completion of the course. A part-time option is available in which the same structure, content and assessment items are undertaken over four semesters through enrolment in RBM4011. Honours comprises completion of a research project, including oral presentations, a literature review and research thesis. Honours coursework comprises areas of study in advanced research design, and research conduct, ethics and training. In special cases undergraduate units of studies may be substituted for course work when a student requires further studies of a specialised nature. The lecture or reading programs that make up the course work units will be determined by student's preferences in consultation with the student's approved supervisor(s). Course work will be assessed by oral presentations, written assignments or a written examination.

FULL-TIME

Semester 1

RBM4002	SCIENCE HONOURS 2	48

Semester 2

RBM4002	SCIENCE HONOURS 2	48

PART-TIME

Semester 1

RBM4011	SCIENCE HONOURS (PART TIME)	24

Semester 2

RBM4011	SCIENCE HONOURS (PART TIME)	24

Semester 3

RBM4011	SCIENCE HONOURS (PART TIME)	24

Semester 4

RBM4011	SCIENCE HONOURS (PART TIME)	24

BACHELOR OF SCIENCE (HONOURS) (NUTRITION AND FOOD SCIENCES) (I)

Course Code: SHNF

Campus: Werribee.

About this course: The aim of this honours program is to provide advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication.

Course Objectives: An Honours program is available in each of the degree specialisations. The aim of the honours program is to provide a course of advanced study at a fourth year level which builds on the knowledge and skills developed at degree level, and to prepare students for postgraduate research by developing skills in: working independently, critical analysis of information, problem-solving, devising, designing and conducting experimental work and written and oral communication

Careers: Nutrition and food research, further studies to PhD, research assistant.

Course Duration: 1 year.

Admission Requirements Year 12: To qualify for entry to the honours program, applicants must hold a degree or equivalent with major studies in a relevant discipline and should normally have obtained a 'credit' average, or equivalent, in the final year of the degree.

COURSE STRUCTURE

The courses are offered on a full-time basis over one year or equivalent if on a part-time basis. Entry to the Honours program for the Conservation Biology and Environmental Management specialisation can be either at the beginning of the academic year (February) or at a mid-year intake (July) to allow for field-based research with seasonal limitations.

Semester 1

RBF4001	SCIENCE HONOURS	48

Semester 2

RBF4002	SCIENCE HONOURS	48

The course consists of advanced coursework and a research thesis. Assessment will be based on written assignments, seminar presentations, a written examination and the research thesis.

Coursework assessment will be based on seminar presentations, written assignments and examination.

MASTER OF SCIENCE IN DIETETICS (I)

Course Code: SMDN

Campus: St Albans, Other, Students are required to undertake approximately 32 weeks of full-time professional placement experience in the final year of the Masters course.

About this course: The Master of Science in Dietetics is a 2 year Full-time course at Victoria University that will train: Graduates to work as Dietitians in the hospital and community health sector and also in private practice and industry. Graduates with the professional capabilities for advising clients on wellbeing, management of health issues and sports nutrition. Graduates who are skilled at performing and interpreting research in nutrition-related areas.

Course Objectives: The Master of Science in Dietetics is a 2 year course at Victoria University that will train: Dietitians to work in the hospital and community health sector and also in private practice and industry. Dietitians with the professional capabilities for advising clients on wellbeing, management of health issues and sports nutrition. Graduates who are skilled at performing and interpreting research in nutrition-related areas.

Careers: Graduates may be eligible for membership with the Dietitians Association of Australia as an Accredited Practicing Dietitian. Dietitians are trained in a wide range of skill sets enabling them to seek employment in a number of related industries leading to very favourable employment prospects. Dietitians can be employed in patient care in the hospital, community and public health system. Management of food service and consultations with the food industry are also strong sectors for employment. Consultancy and private practice are strong growth sectors for employment along with research and teaching.

Course Duration: 2 years.

Admission Requirements Year 12: Applicants must normally: hold an approved degree in some area of the biosciences, or an equivalent qualification; and have successfully undertaken and passed approved university-level studies in biochemistry and human physiology to at least Second Year level. have successfully undertaken and passed two approved university-level studies in the area of human nutrition Applicants must submit with their application a statement outlining their interest in the course and the Dietetic profession, and evidence of any relevant employment and educational experience. Admission is competitive, with only a limited number of student places per year. As such applicants will be ranked for admission on the basis of a selection score which is a combination of academic merit (70%) and assessment of their statement of interest and experience (30%). International students who have an IELTS score of 7 across all bands may apply for entry into the course providing they have met the prerequisites for admission.

Admission Requirements Other: Students are required to have police and working with Children checks, and have current immunisation status as specified by Australian Government Health Department for hospital staff.

COURSE STRUCTURE

The course is offered over 2 years (4 semesters) on a full time basis. The final year of the course is spread of approximately 42 weeks of the year, which includes 32 weeks of placements in hospital, community/population health, private practice, food service and research as well as additional lecture/tutorial/workshops. To qualify for the award of MSc in Dietetics a total of 192 credit points need to be completed.

Year 5, Semester 1

HDM5101	NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS	12
HDM5102	APPLIED FOOD SCIENCE FOR DIETITIANS	12
HDM5103	NUTRIENTS AND METABOLISM	12
HDM5104	RESEARCH PLANNING AND STATISTICS	12

Year 5, Semester 2

HDM5201	MEDICAL NUTRITIONAL MANAGEMENT	12
HDM5202	POPULATION HEALTH IN DIVERSE COMMUNITIES	12
HDM5203	PRIVATE PRACTICE MANAGEMENT	12
HDM5204	ENDOCRINOLOGY	12

Year 6, Semester 1

HDM6101	CLINICAL PLACEMENT IN DIETETICS 1	12
HDM6102	PUBLIC HEALTH AND COMMUNITY NUTRITION PLACEMENT 1	12
HDM6103	FOOD SERVICE MANAGEMENT FOR DIETITIANS	12
HDM6104	NUTRITION RESEARCH PROJECT 1	12

Year 6, Semester 2

HDM6201	CLINICAL PLACEMENT IN DIETETICS 2	12
HDM6202	PUBLIC HEALTH AND COMMUNITY NUTRITION PLACEMENT 2	12
HDM6203	PRIVATE PRACTICE CLINICAL SKILLS	12
HDM6204	NUTRITION RESEARCH PROJECT 2	12

MASTER OF SCIENCE (FOOD SCIENCE)

Course Code: SMFO

Campus: Werribee.

This course is for Continuing students only.

About this course: The course is designed to provide professional training in food science and technology for graduates in science, applied science, engineering, agricultural and other related disciplines who may or may not have had previous formal training in this area. The course seeks to equip graduates with the necessary knowledge and skills required to operate effectively in the food industry at various management levels. The course is designed not only to train recent graduates as food technologists, but also to enable those already employed in the food and associated industries to enhance their professional status.

Course Objectives: The course is designed to provide professional training in food science and technology for graduates in science, applied science, engineering, agricultural and other related disciplines who may or may not have had previous formal training in this area.The course seeks to equip graduates with the necessary knowledge and skills required to operate effectively in the food industry at various management levels. The course is designed not only to train recent graduates as food technologists, but also to enable those already employed in the food and associated industries to enhance their professional status.

Careers: Quality assurance Officer/manager Research scientist, Food Product Development Scientific/Technical Officer Food Science Specialist Consultant Chief Scientific Officer (CSO), Company Director, Corporate Consultant and CEO

Course Duration: 2 years.

Admission Requirements Year 12: To qualify for admission to the course an applicant must have satisfactorily completed a four year science based undergraduate degree, or a science based honours degree, or a three year science based undergraduate degree Plus relevant employment experience.Applicants who do not meet these qualifications may be admitted after the completion of an approved course of pre-study, or on submission of such other evidence of academic, professional or vocational attainment to indicate that the applicant possesses the educational preparation and capacity to pursue the course.

COURSE STRUCTURE

The course requires the successful completion of a program of compulsory and elective subjects, totalling a minimum of 192 credit points.Subject to demand, the course is offered on a full-time basis over two years or equivalent part time.

Year 1

Semester 1

RBF5110	FUNDAMENTALS OF FOOD MICROBIOLOGY	12
RBF5120	FUNDAMENTALS OF FOOD SAFETY AND QUALITY ASSURANCE	12
RBF5130	FOOD PRODUCT AND PROCESS DEVELOPMENT	12
RBF5140	CHEMISTRY OF FOODS	12

Semester 2

RBF5210	FUNDAMENTALS OF PRESERVATION AND PROCESSING TECHNOLOGIES	12

RBF5220	FUNDAMENTALS OF FOOD ANALYSIS	12
RBF5230	MANAGING FOOD ENTERPRISES	12
RCS5100	RESEARCH METHODOLOGY	12

Students may exit with a Graduate Diploma in Food Science after successfully completing 8 units of study (96 credit points)

Year 2

Semester 1

RBF6110	MAJOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY 1	24

And One Unit of Study from Commodity Electives (Plant foods), 12 credit points

And One Unit of Study from General electives, 12 credit points

Semester 2

RBF6210	MAJOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY - 2	24

And One Unit of Study from Commodity Electives (Animal foods), 12 credit points

And One Unit of Study from General Electives, 12 credit points

Commodity Electives (Plant foods)

RBF6120	FRUIT AND VEGETABLE SCIENCE AND TECHNOLOGY	12
RBF6130	GRAIN SCIENCE AND TECHNOLOGY	12

Commodity Electives (Animal foods)

RBF6230	MUSCLE FOOD SCIENCE AND TECHNOLOGY	12
RBF6220	DAIRY SCIENCE AND TECHNOLOGY	12

General Electives

RMS5145	BIOPROCESSING TECHNOLOGY APPLICATIONS	12
RMS5140	BIOPROCESSING TECHNOLOGY PRINCIPLES	12
RMS6140	CELL CULTURE AND FERMENTATION TECHNOLOGY	12
RBF6310	MINOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY	12
RBF6320	SPECIAL TOPICS IN FOOD SCIENCE AND TECHNOLOGY	12
BHO5583	MARKETING RESEARCH	12
RBF6330	INDUSTRY BASED TRAINING	12

*Other Units of Study from other Schools and Faculties may also be taken as electives subject to approval by the Course Coordinator.

UNITS

Below are unit details for courses offered by the School of Biomedical and Health Sciences in 2012.

IMPORTANT NOTICE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

HDM5101 NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

Locations: St Albans.

Prerequisites: Nil.

Description: This unit integrates the importance and the scientific basis of nutritional assessment of individuals. Students will learn the communication and counselling skills essential to gain this information and implement change in client behaviour in the professional practice as dietitians and as part of a healthcare team. The nutrition assessment methods will include the application of dietary, anthropometric, laboratory and clinical methods for the assessment of the nutritional status of individuals. In this unit students will gain an understanding of their own role and that of other allied health and medical professionals in the health care system, and will gain an understanding of working as part of a healthcare team. This unit will also provide students with communication concepts and skills fundamental to effective practice of dietetics. Students will undertake theory and practice in implementing effective oral presentations, facilitation of small group sessions, writing for non-professional audiences (including the media) and client-centred counselling practice in the context of the dietetic interview. This unit will also develop students ability to identify communication and counselling techniques to employ when working with individuals and groups from diverse backgrounds and with differing health priorities or conditions. Barriers to change and techniques used to enhance compliance are also identified.The topic will also provide introductory skills in conflict resolution and negotiation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge of nutrition assessment in the nutritional evaluation of counselling and group education programs. Demonstrate skills in conducting basic anthropometry (i.e. weights, height, length, girths, skinfolds) and apply these measurements to known reference ranges and growth charts Describe the strengths and limitations of commonly used anthropometric, biochemical, clinical and dietary assessment tools. Demonstrate counselling and education skills as applied to dietetic case management in both one-on-one and group sessions Demonstrate skill in developing nutrition education resources and programs using different media Apply nutrition education tools in counselling and group education programs Demonstrate clear techniques in verbal and written communication as they apply to different areas of professional practice, involving patients, carers and health professionals Identify and overcome barriers to effective communication including consideration of culture and ethnicity Collaborate constructively in group discussions in a range of settings where healthcare providers have a significant role

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: Nutritional Assessment Lee R and Nieman D. (2009) 5th Edition McGraw-Hill Communication and Education Skills for Dietetic Professionals Holli B, Calabrese R and O'Sullivan Maillet J. (2008) 5th Edition Lippincott Williams & Wilkins

Assessment: Project, Client assessment and management (including development of nutritional educational resource), 40%. Presentation, Class presentation (20min), 20%. Examination, Final examination (3hrs), 40%.

HDM5102 APPLIED FOOD SCIENCE FOR DIETITIANS

Locations: St Albans.

Prerequisites: Nil.

Description: This unit provides students with knowledge regarding the nature of food and contemporary methods of production, processing, preservation, food safety and quality control. It will also include knowledge regarding food law and marketing within the Australian food and nutrition system. These aspects will be covered from a dietetic perspective with an emphasis on its impact on human nutrition and health. This unit will also cover the practical application of this food science knowledge for the use and preparation of menu items suitable for clients requiring dietary modifications. Students will be expected to gain an in-depth understanding of foods available, and the preparation and evaluation of meals suitable for people with special dietary requirements. This unit will therefore provide basic food knowledge and practical food skills essential for future clinical dietetic management of clients.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Describe the Australian food system, from food production through to food consumption.
- Demonstrate comprehensive knowledge about food products on sale in Australia and the regulatory requirements controlling their sale and advertising.
- Describe recipes and ingredients for typical food products/meals.
- Demonstrate skills of recipe modification of meals for people with a variety of special dietary requirements.
- Demonstrate an understanding of the implications that various recipe modification may have on taste, appearance, smell and overall acceptability for clients with special dietary requirements.
- Discuss the main categories of food processing and the implications on nutritional quality of food products.
- Discuss microbial contamination of foods and food safety implications.
- Describe food regulation and food law and how it impacts food production, processing, labelling, marketing and distribution.
- Discuss the impact of marketing strategies used by the food industry on food consumption and food choice.
- Assess topical issues in nutrition such as nutraceuticals and health claims.

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: Essentials of Human Nutrition Mann JI and Truswell AS (2007) 3rd Edition Oxford University Press The Science and Technology of Foods Proudlove RK (1997) Forbes London

Assessment: Laboratory Work, Three Cooking Practicum laboratory reports (1500 words total), 30%. Assignment, Food labelling assignment (2500 words), 20%. Examination, Final examination (3hrs), 50%.

HDM5103 NUTRIENTS AND METABOLISM

Locations: St Albans.

Prerequisites: Nil.

Description: Students will be taught the core knowledge of the role and function of nutrients that are essential to the safe practice of nutrition and dietetics. This unit will give students a broad appreciation of different nutrients and the ways in which they are metabolized and their relationship to health. A variety of macronutrients and micronutrients, their food sources and factors affecting bioavailability including pharmacotherapy will be discussed. Methods of assessing biochemical status and pathology laboratory protocols, the requirements at each stage of life and recommended intakes, signs of deficiency and toxicity, and interactions with other nutrients will be covered. Students will also develop an appreciation for the development of RDI s for nutrients and their limitation in practice.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the physiological and biochemical processes that are essential for the biological activity of nutrients, including digestion, transport, metabolism, storage, excretion and homeostasis. Describe the most significant nutrient interactions and summarise important nutrient-drug interactions. Identify food sources of nutrients and their bioavailability Discuss the nutritional issues relevant to stages across the lifespan: pregnancy, infancy, childhood, adolescence and ageing. Examine recommended dietary intakes, dietary guidelines and how these recommendations are developed. Describe common pathology laboratory testing procedures Develop recommendations for a particular nutrient based on available scientific literature

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: Advanced Nutrition and Human Metabolism Groff SS, Smith JL, Groff JL (2009) 5th Edition WB Saunders Essentials of Human Nutrition Mann JI and Truswell AS (2007) 3rd Edition Oxford University Press

Assessment: Review, Literature review on a vitamin or mineral and how the RDI has been established (2500 words), 40%. Report, Laboratory Report (1000 words), 10%. Examination, Final examination (3hrs), 50%.

HDM5104 RESEARCH PLANNING AND STATISTICS

Locations: St Albans.

Prerequisites: Nil.

Description: This unit provides an introduction to the research process and provides practical training in research skills relevant to undertaking research in the health sciences. Students will explore the processes and steps involved throughout the research process. This will include aspects of planning a specific research project, developing methodology, analysing results and reporting of data. It also addresses research approaches, ethical and economic considerations, technical writing skills, information retrieval skills and methods of communicating research data for health science research. This unit will also introduce students to common statistical techniques and statistical analysis software packages. Topics include surveys and experiments; tables and graphs; measures of location and dispersion; basic probability; the scientific method; estimation; hypothesis testing; linear regression modelling; linear correlation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the research process including design, ethical issues and evidence-based practice; Devise specific research question(s) to address a selected research focus; Select a broad research strategy appropriate to the research focus/ area; Assess data using statistical principles and evaluate the results and draw conclusions ; Use common statistical package/s in research data management and analysis. Present data graphically and statistically

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: Statistics Workbook for Evidence-based Health Care Peat J., Barton B., Elliot E. (2008) 1st Edition Wiley-Blackwell

Assessment: Review, Completion of research proposal and literature review (2500 words), 30%. Assignment, Ethics proposal related to research proposal, 30%. Assignment, Statistical analysis of existing raw data and presentation of results (1500 words), 40%.

HDM5201 MEDICAL NUTRITIONAL MANAGEMENT

Locations: St Albans.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

Description: This unit will cover the pathophysiology, clinical features and relevant aspects of medical management of many acute and chronic diseases where dietetic intervention is important. This unit will provide students with the tools for advanced clinical nutrition and dietetic practice and an understanding of the scientific rationale on which they are based. Students will learn principles of clinical nutrition care used to treat common diseases in adults. Students will gain knowledge sufficient to ensure safe practice of dietetics, which is essential for clinical dietetic placements. This unit will utilise case studies, specialist lectures and workshops to develop an understanding of a range of dietetic interventions and teach students to apply and translate clinical nutrition theory into individualised clinical nutrition care plans. Common disease states covered in this unit include (but are not limited to) coronary artery disease, hypertension, stroke, dental caries, osteoporosis, food allergies/sensitivities, gastrointestinal disorders, acute trauma and wound healing.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the pathophysiology, clinical features, and relevant aspects of medical management of the major disease entities where dietetic intervention is important. Outline the scientific rationale and principles of clinical nutrition care as an intervention to treat a range of acute and chronic diseases and demonstrate knowledge sufficient to ensure safe practice of dietetics. Synthesise knowledge and medical/nutritional assessment data to identify nutritional problems and determine nutritional goals and dietary intake objectives for individuals with a range of acute and chronic diseases states. Define the nutritional problems from the perspective of both the patient/client and the dietitian and identify potential barriers to change. Identify priorities for nutritional care and scope for negotiating goals with the client. Plan a modified or therapeutic diet including appropriate nutrient sources, meal plans, recipes, special dietary products for both inpatient and outpatient use. Interpret and translate the scientific principles of clinical nutrition into practical information to influence food intake and eating behaviour. Describe potential complications and contraindications for nutrition intervention. Summarise the nutritional care plan for a patient & document it in the patient records.

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: Manual of Dietetic Practice, Thomas B & Bishop J. (2007). 4th Edition Blackwell Science, Oxford Griffith Handbook of Clinical Nutrition and Dietetics Stewart R. (2009) 3rd Edition Southport, Qld. Griffith University, School of Public Health.

Assessment: Other, Client assessment and management (including diet meal plan) for a maximum of three different case studies (3000 words total), 50%. Presentation, Oral case presentation of one of the clients in Assessment 1 (20mins), 10%. Examination, Final examination (3hrs), 40%.

HDM5202 POPULATION HEALTH IN DIVERSE COMMUNITIES

Locations: St Albans.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

Description: This unit will discuss the critical understanding of social and cultural factors influencing individual food choice and implications for professional dietetic practice. This unit will cover issues such as gender, culture and socio-economic influences to food practices, access to healthy foods and equity of health outcome. The past, present and predicted global challenges affecting the food supply, food intake, nutrition and disease patterns and the impact on the burden of nutrition-related diseases will be discussed. Health priority areas and challenges in special population groups such as indigenous and migrant communities will be covered. This unit will also critically examine the evidence for, and implementation of, national nutritional policies and strategies aimed at improving population health. Skills required for practice in community and public health nutrition will also be covered including needs assessment, planning, implementation and evaluation of nutrition-related health programs.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Interpret social and cultural factors which influence food choice, and health outcomes related to diet. Describe current public health nutrition practice contexts, priorities, strategies and initiatives. Demonstrate an awareness of community engagement strategies and the role of community participation as a strategy in public health nutrition intervention Recognise differing health service needs of clients with different social and cultural backgrounds. Describe the social, political, economic and ethical considerations involved in promoting dietary change at the individual and community level. Describe and evaluate policies and related strategies aimed at improving the nutritional health and wellbeing of communities. Describe the program development cycle in public and community nutrition program planning and define the needs assessment, planning, implementation and evaluation process of nutrition related health programs.

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: Public Health Nutrition - From Principles to Practice Lawrence M & Worsley (2007) Allen & Unwin.

Assessment: Review, Critical review of a current health promotion program (2500 words), 30%. Assignment, Program management plan to address a current nutrition-related public health issue (2000 words), 30%. Examination, Final exam (3hrs), 40%.

HDM5203 PRIVATE PRACTICE MANAGEMENT

Locations: St Albans.

Prerequisites: Nil.

Description: This unit will cover the requirements to own, operate and manage a private dietetic practice and skills necessary to operate a successful small business. Students will gain knowledge regarding the legal, professional and insurance requirements to operate a private practice or as an independent contractor. Basic accounting, record keeping (both income and patient) and taxation law will be covered. Marketing skills to promote a dietetic practice and the use of the media will also be discussed. This unit will also cover the differences in the provision of health care services and the management and communication with patients, carers and other health professionals in the private practice compared to hospital or community centres.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the legal, professional and insurance requirements to set up a dietetic practice. Demonstrate basic accounting and finance skills necessary for a small business. Demonstrate skills necessary to apply for and register a business name and necessary tax and insurance requirements for a new business. Prepare a basic marketing plan and business strategy. Discuss the importance and demonstrate clear techniques in verbal and written communication as they apply to different areas Of private practice, involving patients, carers and other health professionals. Describe the process of applying for a health care provider number, and explain the medicare system as it currently applies to dietitians working in private practice. Describe the importance of safe practice and apply basic occupational health and safety principles in a private practice. Apply the concepts of efficient, effective and reflective practice to developing a professional practice.

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: DAA Small Business Manual Dietitians Association of Australia (2009) Dietitians Association of Australia Marketing for Dietitians - An Introductory guide to Practical Marketing Dietitians Association of Australia (2003) Dietitians Association of Australia

Assessment: Assignment, Preparation of a business plan and business strategy for a dietetic practice (3000 words), 40%. Project, Generation of marketing flyer and lay press article (1500 words), 20%. Examination, Final examination (3 hrs), 40%.

HDM5204 ENDOCRINOLOGY

Locations: St Albans.

Description: This unit will cover the pathophysiology, clinical features and relevant aspects of medical management of many endocrinology related conditions where dietetic intervention is important. This unit will provide students with the tools for advanced clinical nutrition and dietetic practice and an understanding of the scientific rationale on which they are based. Students will learn principles of clinical nutrition care used to treat common endocrine related conditions. Students will gain knowledge sufficient to ensure safe practice of dietetics, which is essential for clinical dietetic placements. This unit will utilise case studies, specialist lectures and workshops to develop an understanding of a range of dietetic interventions and teach students to apply and translate clinical nutrition theory into individualised clinical nutrition care plans. This unit will cover topics in (but are not limited to); obesity, diabetes, disorders of the thyroid, pituitary and adrenal gland, reproductive endocrinology, paediatric endocrinology and inborn errors of metabolism.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the pathophysiology, clinical features, relevant aspects of medical and pharmacological management of the major endocrinology related conditions where dietetic intervention is important. Outline the scientific rationale and principles of clinical nutrition care as an intervention to treat a range of endocrinology related conditions and demonstrate knowledge sufficient to ensure safe practice of dietetics. Synthesise knowledge and medical/nutritional assessment data to identify nutritional problems and determine nutritional goals and dietary intake objectives for individuals with a range of endocrinology related conditions. Define the nutritional problems from the perspective of both the patient/client and the dietitian and identify potential barriers to change. Identify priorities for nutritional care and scope for negotiating goals with the client. Plan a modified or therapeutic diet including appropriate nutrient sources, meal plans, recipes, special dietary products for both inpatient and outpatient use. Interpret and translate the scientific principles of clinical nutrition into practical information to influence food intake and eating behaviour. Describe potential complications and contraindications for nutrition intervention.

Class Contact: Sixty (60) hours for one semester comprising lectures/tutorials/ workshops.

Required Reading: Manual of Dietetic Practice, Thomas B & Bishop J. (2007). 4th Edition Blackwell Science, Oxford Essential Endocrinology and Diabetes, Holt R.I.G. & Hanley N.A. (2006). 5th Edition Wiley-Blackell, Oxford Griffith Handbook of Clinical Nutrition and Dietetics Stewart R. (2009) 3rd Edition Southport, Qld. Griffith University, School of Public Health

Assessment: Literature Review, Literature review of an endocrinology related condition and its management (2000 words), 30%. Project, Client assessment and management (including diet meal plan) for a maximum of three different case studies (3000 words total), 30%. Examination, Final exam (3hrs), 40%.

HDM6101 CLINICAL PLACEMENT IN DIETETICS 1

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5204 - ENDOCRINOLOGY

Description: This unit will provide students with the skills necessary for the provision of safe practice in managing the nutritional care of individuals in the clinical setting. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional placement experience in the clinical setting. The unit will also include case studies, specialist lectures and workshops to develop an understanding of the nutritional management of dietetic interventions in advanced clinical nutrition. Special topics covered in this unit include (but are not limited to): maternal and child health, eating disorders, oncology, renal disease, liver disease, HIV, and poly-pharmacy and nutrition. Students will be given the opportunity to demonstrate skills in independent dietetic case management of individuals during this placement. Students will be supervised by industry-based practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include clinical case presentations, lectures and workshops on clinical management of individuals. Students will be required to travel off-campus for clinical placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate appropriate screening and assessment methods to identify and prioritise those at nutritional risk. Determine nutritional status using assessment data. Determine appropriate nutritional diagnoses. Prepare a plan for achieving nutritional management goals in collaboration with client or carer and other members of health care team. Demonstrate client-centred counselling skills suitable for a clinical setting and facilitate nutrition and lifestyle change and support clients to self manage outside of the clinical setting. Formulate nutrition care plans in collaboration with client or carer and other members of health care team. Manage client progress and adapt nutritional plan as required. Demonstrate appropriate documentation in client's medical records. Describe the pathophysiology, clinical features, and relevant aspects of medical management of complicated disease entities and demonstrate the advanced nutritional skills to manage these diseases.

Class Contact: One hundred and ninety (190) hours over an extended semester duration of 18 weeks comprising of clinical placement, lectures/tutorials/workshops.

Required Reading: Manual of Dietetic Practice Thomas B & Bishop J. (2007) 4th Edition. Blackwell Science, Oxford Griffith Handbook of Clinical Nutrition and Dietetics Stewart R. (2009) 3rd Edition Southport, Qld. Griffith University, School of Public Health

Assessment: Report, Major case study (3000 words), 30%. Presentation, Oral presentation of major case study (20 minute presentation Plus question time), 10%. Portfolio, Portfolio of nutrition care plans of clients managed in clinical placement - including 1000 word summary, 20%. Examination, Theory Exam (3hrs), 40%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HDM6102 PUBLIC HEALTH AND COMMUNITY NUTRITION PLACEMENT 1

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5202 - POPULATION HEALTH IN DIVERSE COMMUNITIES

HDM5204 - ENDOCRINOLOGY

Description: This unit will provide students with the skills necessary for the provision of safe practice in public health and community nutrition setting. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional placement experience in a community health, non-government organisation, government organisation and/or the food industry. Students will be given the opportunity to undertake practice that plans, implements and evaluates nutrition programs in the community and to demonstrate effective and appropriate skills in communicating information to groups and communities with diverse backgrounds and nutritional requirements. Students will be supervised by industry-based specialist and/or practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include case presentations, lectures and workshops that develop skills in community and population health nutrition. Students will be required to travel off-campus for clinical placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Implement a needs assessment for a particular community/population health program. Assesses opportunities to improve nutrition and food supply in a community or population group. Plan nutrition programs with the community/population group. Develop plans to provide safe and nutritious food. Evaluate nutrition programs with the community/population group. Apply appropriate documentation and dissemination methods for a community/public health workplace.

Class Contact: 150 hours over an extended semester duration of 18 weeks comprising of community and public health placement, lectures/tutorials/workshops.

Required Reading: Public Health Nutrition - From Principles to Practice Lawrence M & Worsley (Editors) 2007 Allen & Unwin

Assessment: Project, Community/population health project proposal (2500 words), 40%. Case Study, Case study written summary of a current community project (1500 words), 30%. Presentation, Oral presentation of case study of current community project (20min presentation Plus question time), 10%. Project, Cultural foods learning resource specific to placement (1500 words), 20%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HDM6103 FOOD SERVICE MANAGEMENT FOR DIETITIANS

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5202 - POPULATION HEALTH IN DIVERSE COMMUNITIES

HDM5204 - ENDOCRINOLOGY

Description: This unit will provide students with the skills necessary for the provision of safe practice in the provision of food services in the healthcare context. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional placement experience in a food industry and/or food service management in corrective services, child care centres, meals on wheels, voluntary meal provision, school canteens, nutrition service management, quality coordination, government policy advice and/or information management. This unit will provide students with the opportunity to recognise principles of food service management including management of information systems utilised in food service delivery, food safety standards and audit requirements in the food service industry. Topics include the development of food and nutrition policies and guidelines and their application to food service, menu planning, production and recipe standardisation in an institution. Students will be supervised by industry-based specialist and/or practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include case presentations, lectures and workshops on developing skills in food services. Students will be required to travel off-campus for clinical placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the unit s student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Evaluate the provision and management of food services in a health care setting. Assess opportunities to improve nutrition and food standards in a food service setting. Describe food and nutrition policies and how they apply to the food service environment. Describe the principles and practice of the provision of food service delivery in a health care setting, including menu planning, recipe standardisation, quality and portion control. Develop plans to provide safe and nutritious foods in a food service environment. Implement activities to support delivery of quality nutrition and food standards within a food service environment.

Class Contact: One hundred and fifty (150) hours over an extended semester duration of 18 weeks comprising of food service placement, lectures/tutorials/workshops.

Required Reading: Essentials of Human Nutrition Mann JI and Truswell AS (2007) 3rd Edition Oxford University Press The Science and Technology of Foods Proudlove RK (1997) Forbes London

Assessment: Project, Written report and evaluation on Food service delivery encountered during placement (2000 words), 35%. Presentation, Oral Presentation of evaluation on Food service delivery encountered during placement (20 min. Plus question time), 15%. Project, Recipe analysis, costing procedures and menu planning project (1500 words), 20%. Examination, Theory Exam (1.5hrs), 30%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HDM6104 NUTRITION RESEARCH PROJECT 1

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5202 - POPULATION HEALTH IN DIVERSE COMMUNITIES

HDM5204 - ENDOCRINOLOGY

HDM5104 - RESEARCH PLANNING AND STATISTICS

Description: This unit will provide students with the skills necessary for the provision of safe practice applied research in the health sciences setting. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional research placement experience in any suitable area of nutrition and dietetics (community, public health, clinical, human, animal or laboratory). The research project can be individualised to suit student s particular interests, however as the unit provides real-world research experience students will be required to work closely with a research supervisor and their research teams and as such research projects will be negotiated by them and their current research profile. Students will be given the opportunity to develop skills in research project management, as well as data collection, analysis and interpretation. Students will be supervised by industry-based specialist and/or practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include presentations, lectures and workshops that develop research skills in the health sciences. Students may be required to travel off-campus for research placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Appraise the current scientific literature related to the students' research area. Determine suitable study design and research questions. Identify suitable methods for data collection and analysis. Prepare a scientific presentation outlining research project design.

Class Contact: 150 hours over an extended semester duration of 18 weeks comprising of community and public health placement, lectures/tutorials/workshops.

Required Reading: Statistics Workbook for Evidence-based Health Care, Peat J., Barton B., Elliot E. (2008) Wiley-Blackwell

Assessment: Review, Completion of research proposal and literature review (2500 words), 40%. Report, Completion of grant request with full budget (3500 words), 40%. Presentation, Oral presentation of research proposal (20 min. presentation Plus question time), 20%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HDM6201 CLINICAL PLACEMENT IN DIETETICS 2

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5204 - ENDOCRINOLOGY

Description: This unit will provide students with the skills necessary for the provision of safe practice in managing the nutritional care of individuals in the clinical setting. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional placement experience in the clinical setting. Students will be given the opportunity to demonstrate skills in independent dietetic case management of individuals during this placement. Students will be supervised by industry-based practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include clinical case presentations, lectures and workshops on clinical management of individuals. Students will be required to travel off-campus for clinical placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate appropriate screening and assessment methods to identify and prioritise those at nutritional risk. Determine nutritional status using assessment data. Determine appropriate nutritional diagnoses. Prepare a plan for achieving nutritional management goals in collaboration with client or carer and other members of health care team. Demonstrate client-centred counselling skills suitable for a clinical setting and facilitate nutrition and lifestyle change and support clients to self manage outside of the clinical setting. Formulate nutrition care plans in collaboration with client or carer and other members of health care team. Manage client progress and adapt nutritional plan as required. Demonstrate appropriate documentation in client's medical records. Demonstrate ability to manage a case load in a clinical setting.

Class Contact: One hundred and fifty (150) hours over an extended semester duration of 18 weeks comprising of clinical placement, lectures/tutorials/workshops.

Required Reading: Manual of Dietetic Practice, Thomas B & Bishop J. (2007). 4th Edition Blackwell Science, Oxford Griffith Handbook of Clinical Nutrition and Dietetics Stewart R. (2009) 3rd Edition Southport, Qld. Griffith University, School of Public Health

Assessment: Report, Major case study written report (3000 words), 35%. Presentation, Oral presentation of major case study (20 min. presentation Plus question time), 15%. Portfolio, Portfolio of nutrition care plans of clients managed in clinical placement - including 1500 word summary, 50%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HDM6202 PUBLIC HEALTH AND COMMUNITY NUTRITION PLACEMENT 2

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5202 - POPULATION HEALTH IN DIVERSE COMMUNITIES

Description: This unit will provide students with the skills necessary for the provision of safe practice in public health and community nutrition setting. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional placement experience in a community health, non-government organisation, government organisation and/or the food industry. Students will be given the opportunity to undertake practice that plans, implements and evaluates nutrition programs in the community and to demonstrate effective and appropriate skills in communicating information to groups and communities with diverse backgrounds and nutritional requirements. Students will be supervised by industry-based specialist and/or practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include case presentations, lectures and workshops that develop skills in community and population health nutrition. Students will be required to travel off-campus for clinical placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Implement a needs assessment for a particular community/population health program. Assess opportunities to improve nutrition and food supply in a community or population group. Plan nutrition programs with the community/population group. Develop plans to provide safe and nutritious food. Implement nutrition programs with the community/population group. Prepare recommendations on food and nutrition policy. Evaluate nutrition programs with the community/population group. Apply appropriate documentation and dissemination methods for a community/public health workplace.

Class Contact: 150 hours over an extended semester duration of 18 weeks comprising of community and public health placement, lectures/tutorials/workshops.

Required Reading: Public Health Nutrition - From Principles to Practice Lawrence M & Worsley (2007) Allen & Unwin

Assessment: Project, Community/population health project proposal (2500 words), 40%. Case Study, Case study written summary of a current community project (1500 words), 30%. Presentation, Oral presentation of case study of current community project (20min presentation Plus question time), 10%. Project, Cultural foods learning resource specific to placement (1500 words), 20%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HDM6203 PRIVATE PRACTICE CLINICAL SKILLS

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5203 - PRIVATE PRACTICE MANAGEMENT

HDM5204 - ENDOCRINOLOGY

Description: This unit will provide students with the skills necessary for the provision of safe practice in managing the nutritional care of individuals in the clinical private practice and sports dietetic setting. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional placement experience in the clinical private practice and sports dietetic setting. The unit will also include case studies, specialist lectures and workshops to develop an understanding of the nutritional management to support physical activity and training programs undertaken by children, adolescents and adult recreational, sub-elite and/or elite athletes. Special topics covered in this unit include (but are not limited to): Hydration, training and recovery diets, sports supplements, ergogenic aids and current potential advances in sports nutrition. Students will be given the opportunity to demonstrate skills in independent dietetic case management of individuals during this placement. Students will be supervised by industry-based practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include clinical case presentations, lectures and workshops on clinical management of individuals. Students will be required to travel off-campus for clinical placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the pathophysiology, clinical features, relevant aspects of medical and pharmacological management of the major endocrinology related conditions where dietetic intervention is important. Outline the scientific rationale and principles of clinical nutrition care as an intervention to treat a range of endocrinology related conditions and demonstrate knowledge sufficient to ensure safe practice of dietetics. Synthesise knowledge and medical/nutritional assessment data to identify nutritional problems and determine nutritional goals and dietary intake objectives for individuals with a range of endocrinology related conditions. Define the nutritional problems from the perspective of both the patient/client and the dietitian and identify potential barriers to change. Identify priorities for nutritional care and scope for negotiating goals with the client. Plan a modified or therapeutic diet including appropriate nutrient sources, meal plans, recipes, special dietary products for both inpatient and outpatient use. Interpret and translate the scientific principles of clinical nutrition into practical information to influence food intake and eating behaviour. Describe potential complications and contraindications for nutrition intervention.

Class Contact: 190 hours over an extended semester duration of 18 weeks comprising of clinical placement, lectures/tutorials/workshops.

Required Reading: Manual of Dietetic Practice Thomas B & Bishop J. (2007) 4th Edition Blackwell Science, Oxford Clinical Sports Nutrition Burke L & Deakin V. (2000) 2nd Edition McGraw-Hill, Sydney

Assessment: Report, Major case study written report (3000 words), 30%. Presentation, Oral presentation of major case study (20 min presentation Plus question time), 10%. Portfolio, Portfolio of nutrition care plans of clients managed in clinical placement - including 1000 word summary, 20%. Examination, Theory Exam (3 hrs), 40%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HDM6204 NUTRITION RESEARCH PROJECT 2

Locations: St Albans, Other.

Prerequisites: HDM5101 - NUTRITIONAL ASSESSMENT AND COMMUNICATION FOR DIETITIANS

HDM5102 - APPLIED FOOD SCIENCE FOR DIETITIANS

HDM5103 - NUTRIENTS AND METABOLISM

HDM5104 - RESEARCH PLANNING AND STATISTICS

HDM5201 - MEDICAL NUTRITIONAL MANAGEMENT

HDM5202 - POPULATION HEALTH IN DIVERSE COMMUNITIES

HDM5204 - ENDOCRINOLOGY

HDM6104 - NUTRITION RESEARCH PROJECT 1

Description: This unit will provide students with the skills necessary for the provision of safe practice applied research in the health sciences setting. It will also prepare students with knowledge, skills and attitudes required for entry-level practice as a dietitian. The primary objective of the practice program is to develop and refine student competencies in the range of practice areas prescribed by the DAA Course Accreditation standards. This unit requires students to undertake four weeks of full-time professional research placement experience in any suitable area of nutrition and dietetics (community, public health, clinical, human, animal or laboratory). The research project can be individualised to suit student s particular interests, however as the unit provides real-world research experience students will be required to work closely with a research supervisor and their research teams and as such research projects will be negotiated by them and their current research profile. Students will be given the opportunity to develop skills in research project management, as well as data collection, analysis and interpretation. Students will be supervised by industry-based specialist and/or practising dietitians with support from the university-based Academic dietitians. Students are required to participate in professional practice consistent with the placement worksite and relevant professional standards. Student placements will also include presentations, lectures and workshops that develop research skills in the health sciences. Students may be required to travel off-campus for research placements and may be required to travel outside of metropolitan Melbourne. All attempts will be made to ensure that this travel is allocated equitably across the student cohort.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Appraise the current scientific literature related to the students research area. Determine suitable study design and research questions. Identify suitable methods for data collection and analysis. Prepare a scientific research report in a format suitable for publication in a scientific journal. Present research data suitable for presentation to a scientific audience.

Class Contact: One hundred and fifty (150) hours over an extended semester duration of 18 weeks comprising of community and public health placement, lectures/ tutorials/workshops.

Required Reading: Statistics Workbook for Evidence-based Health Care, Peat J., Barton B., Elliot E., 2008 Wiley-Blackwell

Assessment: Report, Completion of research report (5000 words), 70%. Presentation, Oral presentation of research results (25min presentation Plus question time), 30%. Professional placement assessment of competency in selected components of the DAA approved competency assessment tools (hurdle requirement), reflective practice journal (hurdle requirement).

HFB1111 PROFESSIONAL PRACTICE 1

Locations: St Albans.

Description: This unit will cover: Pre-hospital health service delivery and professionalism; Medical terminology; Verbal and non-verbal communication and effective interpersonal communication; The nature of emotional work; Death and Dying.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Module 1: Pre-hospital Health Service Delivery and Professionalism Discuss the history and development of pre-hospital health service delivery; Discuss the current Australian pre-hospital health service systems and contrast these with those overseas; Discuss the principles of professionalism of both individuals and professional organisations in pre-hospital care; Discuss the day-to-day roles and responsibilities of the paramedic; Discuss the practicalities of the nature of pre-hospital service delivery. Module 2: Medical Terminology Define various medically-related root terms, suffixes and prefixes; Identify and define the root terms, suffixes and prefixes in common and uncommon medical terms and phrases. Module 3: Communications theories. Discuss the core concepts, skills, techniques and barriers relating to both verbal and non-verbal communication; List the common primary traits or qualities of a poor communicator and describe the potential consequences of a Paramedic being a poor communicator; List the common primary traits or qualities of a good communicator and detail the techniques that should be adopted to ensure effective communication; Detail the questioning techniques a paramedic can use to obtain the most detailed and relevant patient information possible and, given specific case study details, cite when each type may or may not be effective in obtaining information; Discuss the various cultural considerations and communications approaches that may be effective when dealing with specific demographic patients and/or bystander groups; Given specific case study details, identify the factors that may impact (either positively or negatively) on the communication experience. Module 4: The Nature of Emotional Work Discuss the nature of emotions and the personal implications of emotional work; Discuss the importance of self awareness; Discuss the essential elements of compassion, including empathy and sympathy; Module 5: Death & Dying Discuss the concepts of death, dying and the grieving process in the context of pre-hospital care.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, including group discussions.

Required Reading: A practical guide to therapeutic communication for health professionals. Hosley, J., & Molle, E. (2006). USA: Elsevier. Communication for nurses. Kennedy Sheldon, L. (2008). (2nd rev. ed.). Canada: Jones & Bartlett.

Assessment: Group work is a hurdle requirement in this unit.

Assignment, Written (1000 words), 10%. Exercise, Group work written (1000 words), 40%. Examination, 2 hour written, held in examinations week, 50%. In order to obtain a pass or higher in this graded unit, all components of assessment must be submitted and an aggregate mark of at least 50% must be attained.

HFB1112 PARAMEDIC CLINICAL PRACTICE 1

Locations: St Albans.

Description: This unit introduces students to the basic underpinning knowledge, techniques, skills and equipment related to the clinical practice of paramedicine. Topics include: OH&S and manual handling of patients Infection control Anatomical planes and positions - Medical Terminology Concepts of basic life support The arrest patient Vital signs Secondary survey The time critical patient Principles of splinting and wound management Patient documentation - Victorian Ambulance Clinical Information System (VACIS) Interhospital transfers Ambulance Victoria Clinical Work Instructions

Students will complete a minimum of twenty (20) hours placement in appropriate clinical settings.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate the process of history taking in order to obtain a comprehensive health history, using effective communication techniques; Apply principles of consent and confidentiality when obtaining and documenting a health history; Demonstrate the use of, and differentiate between, facilitation, reflection, clarification, empathetic responses, confrontation and interpretation; Identify scene hazards and potential hazards, and describe methods of making a scene safe; Relate the importance of accurate scene assessment with the importance of early and accurate communication; Describe and demonstrate methods of assessing medical and trauma patients, including conscious and apparently unconscious patients; Describe and demonstrate primary, vital signs and secondary patient surveys; Describe and demonstrate the use of oxygen delivery systems and assisted ventilation to correct hypoxia in a hypoventilation or aponic patient Satisfactorily demonstrate cardiopulmonary resuscitation and demonstrate safe defibrillation of a patient using a defibrillator in semi-automatic mode; Demonstrate the use of body substance isolation guidelines; Perform the assessment of a patient expected of, or identified as having, infectious or communicable disease; Demonstrate the proper disposal of contaminated wastes and supplies, and disinfection of patient care equipment; Demonstrate correct manual handling techniques and the safe use of appropriate equipment: Stretcher, Carry chair, Spine board, Scoop stretcher, Slide board, Kendrick extrication device (KED), to assist in the lifting and movement of patients in a variety of pre-hospital care scenarios, and explain the biomechanical principles of lifting and manual handling of patients with and without equipment; Identify strategies to minimise manual handling injuries in the work place; Identify signs and symptoms of a fracture, sprain, strain, musculoskeletal tear/rupture, and demonstrate the pre-hospital management of severe musculoskeletal injury; Demonstrate the correct methods of splinting pelvic and limbs fractures; Correctly deliver paramedic clinical skills in an appropriate clinical setting.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, practical classes and self-directed learning, Plus twenty (20) hours clinical placement in an appropriate clinical setting as per the rotating roster. Practical sessions have a hurdle requirement of at least 80% attendance and clinical placement sessions have a hurdle requirement of 100% attendance.

Required Reading: Clinical practice guidelines. Ambulance Services Victoria. (2009). Melbourne: Author. Clinical work instructions. Ambulance Services Victoria. (2005). Melbourne: Author. History and examination at a glance. Gleadle, J. (2004). Victoria: Blackwell Science. Textbook of Adult Emergency Medicine. Cameron, P., Jelinek, G., Kelly, A., Murray, L and Heyworth, J. (2000). Sydney: Churchill Livingstone.

Assessment: Practical skills will be assessed using criterion referenced clinical skills assessment format. Students will be provided with clinical skills assessment (satisfactory/unsatisfactory) forms by the second week of semester. Knowledge, skills and values developed in this unit will be assessed through group discussion and cased based problem solving exercises. Students are required to satisfactorily complete a clinical logbook and reflective journal whilst on clinical placement. To obtain a pass in this ungraded unit, all components of assessment must be attempted and passed.Test, Online test, Pass/Fail. Practicum, Skills Assessment, Pass/Fail. Other, Scenario Exam, Pass/Fail. Practicum, Clinical Placements, Pass/Fail.

HFB1113 PRE-HOSPITAL ETHICAL AND LEGAL ISSUES

Locations: St Albans.

Description: This unit is designed for ambulance paramedic students to have a clear understanding of the ethical and legal issues and their implications for paramedics and in the use paramedic practice. This unit provides students with an introduction to ethical and legal issues relating to employment as a paramedic. The themes of client autonomy and self-determination, client rights and professional responsibility are examined within the context of the pre-hospital care setting.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Define and explain common terminology and abbreviations used in ethics and law; Describe and locate commonly-used statutes used in ethics and law; Discuss how ethical and legal practices and issues may influence paramedic practice; Explain the relevance and impact of ethical and legal principles and processes within the healthcare systems.

Class Contact: Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week of lectures, tutorials, practicals, self-directed learning activities and online support.

Required Reading: Eburn, M. (2005). Emergency law (2nd ed.). NSW: The Federation Press. Forrester, K., & Griffiths, D. (2005). Essentials of law for health professionals (2nd ed.). NSW: Elsevier.

Assessment: This unit has three assessment items: one assignment (1500 words) (30%); one case study (1500 words) (30%); one 2-hour theory examination (40%). To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of 50% must be attained.

HFB1201 HEALTH ORGANISATIONS

Locations: St Albans.

Prerequisites: HFB1111 Professional Practice 1; or equivalent

Description: Australian health care system Health policy in the Australian context Structure and management of health organisations Division of labour/scope of practice Management theories Heath politics in the Australian context Access to health care Power and knowledge: impact on decision-making

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply an understanding of health services management in the context of the Australian society and the Australian health care system; Identify the key elements that determine health policy; Discuss the importance of quality access to health services and good management in the efficient provision of health care; Evaluate a range of settings (clinic, community, society) in which health promotion activities take place and the range of relevant interventions (socio-environmental, behavioural, biomedical); Explain the importance of knowledge of organizational behaviour to organizational effectiveness; Discuss influences on the development of management theories; Describe the relationship between power and knowledge in decision-making in healthcare settings.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and tutorials.

Required Reading: Duckett, S. (2007). The Australian health care system (3rd ed.). South Melbourne: OUP.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted.Annotated Bibliography, (1500 words), 30%. Review, Literature review (1500 words), 30%. Examination, 3-hour written, 40%.

HFB1212 PROFESSIONAL PRACTICE 2

Locations: St Albans.

Description: This unit introduces students to: Past and present sociological perspectives of health and illness; Biomedical models of health; The role of the 'sick' person; The influence of society, religion and culture on health care systems; Cultural, social diversity and multiculturalism in Australia; The role of culture in the provision of health care services; Social construction of biological traits; Death, dying and grief; Mental Illness; Disabilities in society; Indigenous health; Minority groups; Epidemiological health trends in Australia; Inequality and bias in health and illness; Ethnicity and identity; Principles of conditioning.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe various ways in which the sociological approach to health differs from the more traditional biomedical approaches; Discuss the work of prominent social theorists, as they pertain to models of the sociology of health and medicine; Discuss the concepts of 'health' and 'illness'; Discuss the role of the 'sick' person in various socioeconomic, religious and cultural contexts; Contrast the biomedical model with the sociological perspective in terms of approach and treatment of various illnesses; Discuss how a society's view or model of health influences the structure of the health system and the role of 'culture' in the provision of health care services; Discuss various sociological models of death and dying within the context of different socioeconomic, religious and cultural groups, and contrast the practices amongst groups; Discuss the various models of grief within the context of different socioeconomic, religious and cultural groups; Discuss the prevalence and treatment of disabilities within the context of different socioeconomic, religious and cultural groups; Discuss the concept of sociological, religious and cultural construction and moulding of what are traditionally considered 'biological' traits, such as gender and age; Discuss patterns of mental illness within society in the context of a sociological model; Describe and define multiculturalism in relation to the Australian society; Describe health trends and the epidemiology of diseases in Australian society with respect to different socioeconomic and cultural groups; Discuss the concept of cultural footprints relevant to current sociological expectations; Contrast the health care needs and expectations of differing cultural and religious and minority groups; including Indigenous Australians; Express a developing understanding of the relationship between ethnicity and identity.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures.

Required Reading: Health Sociology An Australlian Perspective. Gray, D., (2006). Frenchs Forest NSW: Prentcie Hall.

Assessment: Assignment, Group Assignment (1500 words), 50%. Assignment, Reflective journal or case study on placement experiences (500 words), 10%. Examination, 2 hour written, held in examination week, 40%. To obtain a pass or higher in this graded unit all components of assessment must be passed.

HFB1213 PARAMEDIC CLINICAL PRACTICE 2

Locations: St Albans.

Prerequisites: HFB1112 - PARAMEDIC CLINICAL PRACTICE 1

RBM1107 - BIOSCIENCE FOR PARAMEDICS 1

Description: This clinical placement unit introduces students to topics on: Applied pharmacology and drug administration Pain assessment and management Basic ECG interpretation and analysis Clinical instruction and mentoring Ambulance Victoria Clinical Practice Guidelines Students will complete a minimum of sixty (60) hours placement in appropriate clinical settings.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate the correct methods for the delivery of pre-hospital pharmacology using selected routes of administration; Correctly calculate drug dosages and volumes; Describe and demonstrate the appropriate pre-hospital assessment and management of patients experiencing pain in the pre-hospital setting; Demonstrate correct procedure for monitoring an ECG rhythm; Analyse and interpret basic ECG rhythms; Describe and demonstrate the appropriate assessment techniques used with paediatric patients in the pre-hospital setting; Describe the anatomical, physiological and psychosocial development of infants and children; Describe the methods and strategies for training small groups and mentoring in the paramedic workplace; Evaluate the effectiveness and appropriateness of clinical decisions and actions; Use evidence-based medicine and reflective strategies to identify opportunities for improvement in clinical reasoning, patient management and mentoring and training. Demonstrate a systematic approach to the assessment of patients presenting with medical and traumatic conditions.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, practical classes and self-directed learning, Plus sixty (60) hours clinical placement in an appropriate clinical setting as per the rotating roster. Practical sessions have a hurdle requirement of at least 80% attendance and clinical placement sessions have a hurdle requirement of 100% attendance.

Required Reading: Clinical practice guidelines. Ambulance Services Victoria. (2005). Melbourne, Australia: Author. Textbook of adult emergency medicine. Cameron, P., Jelinek, G., Kelly, A., Murray, L. and Heyworth, J. (2000). Sydney, Churchill Livingstone. Basic dysrhythmias: Interpretation & management. Huszar, R. (2007). St Louis, MO. The Australian drug guide (2006). (7th ed.). Melbourne, Australia: Schwartz Publishing Pty Ltd.

Assessment: Practical skills will be assessed using criterion referenced clinical skills assessment format. Students will be provided clinical skills assessment (satisfactory/ unsatisfactory) forms by the end of the second week of semester. Knowledge skills and values developed in clinical mentoring and instruction will be assessed through group discussion and problem solving exercises. Students are required to satisfactorily complete a clinical logbook and reflective journal whilst on clinical placement. To obtain a pass in this ungraded unit, all components of assessment must be attempted and passed.Test, on line test, Pass/Fail. Other, Skills Assessment, Pass/Fail. Other, Scenario Examination, Pass/Fail. Practicum, Clinical Placement, Pass/Fail.

HFB2113 PARAMEDIC CLINICAL SCIENCE 1

Locations: St Albans.

Prerequisites: HFB1213 - PARAMEDIC CLINICAL PRACTICE 2

RBM1208 - BIOSCIENCE FOR PARAMEDICS 2

Description: This unit will introduce students to medical conditions relating to: Cardiology and acute coronary syndromes,neurology and pulmonary emergencies. Pathophysiology assessment, and management of these patients will be explored.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the pathophysiology, presentation, assessment and management of selected cardiovascular, neurological and pulmonary emergencies. Interpret key abnormal and normal electrocardiograms.

Class Contact: Forty-eight (48) hours for one semester comprising lectures supported by e-learning.

Required Reading: Pathophysiology: The biologival basis for disease in adults and children. McCance, K.L., Huether, S.E., Brashers, V.L., & Rote, N.S. (2009). (6th ed.). St Louis, MO: Mosby. Textbook of adult emergency medicine. Cameron, P., Jelinek., G., Kelly, A., Murray, L. and Heyworth, J. (2009). (6th ed.). Sydney: Churchill Livingstone. Flip and see ECG. Cohn, E. G. (2009). (3rd ed.). St Louis: Elsevier.

Assessment: Test, 3 theory tests (during semester), 30%. Examination, 3 hour theory exam (end of semester), 40%. Assignment, one group assignment (2000 words), 30%.

HFB2117 CLINICAL PRACTICE 3

Locations: St Albans.

Prerequisites: HFB1213 - PARAMEDIC CLINICAL PRACTICE 2

HFB1212 - PROFESSIONAL PRACTICE 2

RBM1208 - BIOSCIENCE FOR PARAMEDICS 2

RBM1209 - EXERCISE PHYSIOLOGY & NUTRITION FOR PARAMEDICS

Description: This unit will introduce the student to practical components of: cardiovascular, respiratory, neurological, endocrine and female reproductive emergencies. Additionally the unit will also cover the management of childbirth, care of the neonate and paediatric and management of the pre and postpartum patient.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe and demonstrate the appropriate pre-hospital assessment and management of patients presenting with selected cardiovascular, respiratory, neurological and endocrine disorders.
2. Demonstrate the correct application, usage and analysis of a variety of cardiac monitoring devices;
3. Describe, demonstrate and justify the administration of various pharmacological agents related to the management of cardiovascular, respiratory, neurological and endocrine disorders;
4. Describe and demonstrate the appropriate pre-hospital assessment and management of female patients with reproductive emergencies;
5. Demonstrate, in a simulated environment, the successful delivery, assessment and management of a child, in a variety of presentations;
6. Describe and demonstrate the appropriate pre-hospital assessment and management of paediatric emergencies;
7. Use reflective strategies to identify opportunities for improvement in clinical reasoning, patient management.

Class Contact: Forty-eight (48) hours for one semester comprising practical classes and supervised self-directed learning utilising the Paramedic Interactive Curriculum, and sixty (60) hours clinical placement in an appropriate clinical setting during the semester.

Required Reading: Clinical practice guidelines. Ambulance Services Victoria. (2010). Clinical work instructions. Ambulance Victotria. (2000). Textbook of adult emergency medicine. Cameron, P., Jelinek, G., Kelly, A., Murray, L. and Heyworth, J. (2009). (6th ed.). Sydney: Churchill Livingstone.

Assessment: 80% attendance at practical class and a minimum of 60 hours clinical placement are both hurdle requirements for this unit.

Practicum, Simulated patient scenario assessment compliant with ambulance guidelines (Hurdle requirement), Pass/Fail. Test, 10 Online tests (Hurdle requirement), Pass/Fail. Other, Clinical workbook (Hurdle requirement), Pass/Fail. Practicum, Clinical Placement, Pass/Fail. It is mandatory for students to obtain a 50% aggregate mark for online tests and the clinical workbook.

HFB2120 APPLIED PHARMACOLOGY

Locations: St Albans.

Prerequisites: HFB1213 - PARAMEDIC CLINICAL PRACTICE 2

RBM1208 - BIOSCIENCE FOR PARAMEDICS 2

Description: This unit will introduce the student to pharmacology in the following specific areas: Pharmacodynamics and pharmacokinetics, inotropic agents, antibiotic, antiviral, antifungal and antimicrobial agents, fluid therapies, local anaesthetics, adrenergic and cholinergic agents, histamine and antihistamines, antipsychotics, anxiolytics, hypnotics, and antidepressant drugs; anticonvulsants and muscle relaxants; narcotic analgesics and antagonists; anti-inflammatory, antipyretic, analgesic, antiarrhythmic, anti anginal and antihypertensive drugs; anticoagulant, fibrinolytic, anti-platelet, diuretic, bronchodilators, respiratory and antiemetic agents.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the clinical indications for, and adverse effects of, adrenergic and cholinergic agonists and antagonists; Describe the distribution and function of selected drug receptors; Discuss the indications, uses, mechanisms of action, contraindications and adverse effects of narcotic analgesics and non-narcotic analgesics; anxiolytic, hypnotic and anti-psychotic drugs; selected cardiovascular drugs; selected local anaesthetics; anti-convulsants, antipyretics, anti-inflammatories and analgesics, selected anti-emetics, and selected antibiotic, anti-viral and antimicrobial agents; Discuss the indications, uses, mechanisms of action, contraindications and adverse effects of selected drugs that act on the respiratory system; Discuss the roles of prostaglandins in the inflammatory response; Contrast the actions of depolarising and non-depolarising neuromuscular blocking agents; State the rationales for using neuromuscular blocking agents in anaesthesia; Identify suitable agents for rapid sequence induction; Describe the actions of selected drugs used to treat heart failure; Discuss the indications, uses, mechanisms of action, contraindications and adverse effects of fluids and blood products in the treatment of cardiovascular instability.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and practical classes.

Required Reading: Pharmacology for health professionals. Bryant, B. and Knights, K., (2007). (2nd ed.). Sydney: Mosby Elsevier.

Assessment: Test, 1 hour theory test (mid semester), 30%. Assignment, 2000 words, 30%. Examination, 3 hour examination (end of semester), 40%.

HFB2216 PARAMEDIC CLINICAL SCIENCE 2

Locations: St Albans.

Prerequisites: HFB2113 - PARAMEDIC CLINICAL SCIENCE 1

RBM2109 - BIOSCIENCE FOR PARAMEDICS 3

Description: This unit will introduce students to assessment and management of the trauma patient in the pre-hospital and hospital setting. Trauma systems in Australia and mechanism of injury will be examined. Specific areas of focus will include: Haemorrhage and shock, Soft tissue, Burns, Head and facial, Spinal, Thoracic, Abdominal, Musculoskeletal and Environmental trauma.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the pathophysiology and pre-hospital management of a patient in pain. Describe the pathophysiology, presentation, assessment and management of haemorrhage and shock, soft tissue trauma, burns, head and facial trauma, spinal trauma, thoracic trauma, abdominal trauma, musculoskeletal trauma, toxicologicy and environmental trauma. Describe trauma scales used in the pre-hospital setting.

Class Contact: Forty-eight (48) hours for one semester comprising lectures supported by e-learning.

Required Reading: Pathophysiology: the biological basis for disease in adults and children. McCance, K. L., & Huether, S. E. (2009). (6th ed.). St Louis, MO: Mosby. Textbook of adult emergency medicine Cameron, P., Jelinek, G., Kelly, A.-M., Murray, L., Brown, A., & Heyworth, J. (2009). (6th ed.). Sydney: Churchill Livingstone

Assessment: Test, 10 theory tests (during semester) (3% each), 30%. Examination, 3 hour theory exam (end of semester), 40%. Assignment, one group assignment (2000 words), 30%.

HFB2219 SPECIAL POPULATIONS

Locations: St Albans.

Prerequisites: HFB2113 - PARAMEDIC CLINICAL SCIENCE 1

HFB2117 - CLINICAL PRACTICE 3

RBM2109 - BIOSCIENCE FOR PARAMEDICS 3

Description: This unit will focus on special cohorts within the population, covering aspects of lifespan development from biopsychosocial approach and the key pathophysiological conditions that commonly affect these groups. Specific populations to be investigated include paediatric and geriatric populations. Specific systems to be covered include obstetrics, gynaecology, and male reproductive system.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the pathophysiology and signs and symptoms of male reproductive disorders; Describe the pathophysiology of selected non-traumatic and traumatic gynaecological disorders; Describe and provide an overview of pregnancy including embryological through to fetal development, parturition, labour and delivery and common obstetrics pathologies and emergencies; Describe paramedics role in the management of the pregnant and labouring women; Explain the physiology of ageing, the general principles of management of older adults and the most common pathologies; Describe general principles specific to paediatrics, including the pathophysiology assessment and management of specific illnesses in paediatric patients.

Class Contact: Forty-eight (48) hours for one semester comprising lectures.

Required Reading: Textbook of adult emergency medicine Cameron, P., Jelinek, G., Kelly, A., Murray, L. and Heyworth, J. (2009) (6th ed.). Sydney: Churchill Livingstone. Pathophysiology: The biologival basis for disease in adults and children. McCance, K.L., Huether, S.E., Brashers, V.L., & Rote, N.S. (2009). (6th ed.). St Louis, MO: Mosby.

Assessment: Examination, Final 3 hour examination, 50%. Test, Two online tests, 40%. Presentation, Group presentation, 10%.

HFB2221 HEALTH CARE ORGANISATIONS

Locations: St Albans.

Prerequisites: HFB1212 - PROFESSIONAL PRACTICE 2

Description: This unit introduces students to the complex nature of contemporary organisations. An examination of the key elements that influence and define the health of a population is undertaken. The different types of health care systems and the specific characteristics that apply to the Australian health care system are examined. The role of health service managers as members of the health care team, the basic principles of health service management in health care facilities and beyond, and the functions of health service managers are explored.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain the health services management in the context of the Australian society and the Australian health care system;
2. Identify the key elements that determine health policy;
3. Discuss the importance of quality access to health services and good management in the efficient provision of health care;
4. Evaluate a range of settings (clinic, community, society) in which health promotion activities take place and the range of relevant interventions (socio-environmental, behavioural, biomedical);
5. Explain the importance of knowledge of organisational behaviour to organisational effectiveness;
6. Discuss influences on the development of management theories;
7. Describe the relationship between power and knowledge in decision-making in healthcare settings.

Class Contact: Forty-eight (48) hours for one semester comprising lectures.

Required Reading: The Australian health care system, Duckett, S. (2007). (3rd ed.). South Melbourne: OUP.

Assessment: Assignment, 1500 words, 30%. Assignment, 1500 words, 30%. Examination, 2 hour written examination, 40%.

HFB2223 CLINICAL PRACTICE 4

Locations: St Albans.

Prerequisites: HFB2113 - PARAMEDIC CLINICAL SCIENCE 1

HFB2117 - CLINICAL PRACTICE 3

Description: This unit will introduce the student to practical components of Fluid resuscitation and Haemorrhage control and shock management. It will also cover assessment and management of soft tissue injuries, burns, head and facial trauma, spinal and back injuries, thoracic and abdominal trauma.

Credit Points: 12

Learning Outcomes:

1. Describe and discuss fluid replacement in the pre-hospital setting.
2. Describe and demonstrate the appropriate pre-hospital assessment and management of patients with a haemorrhage.
3. Describe and demonstrate the appropriate pre-hospital assessment and management of patients with: burns, facial, head, spinal, thoracic, abdominal and musculoskeletal trauma.
4. Use reflective strategies to identify opportunities for improvement in clinical reasoning, patient management.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, practical classes and 12 hours of supervised self-directed learning utilising the Paramedic Interactive Curriculum, and minimum eighty (80) hours clinical placement in an appropriate clinical setting. .

Required Reading: Clinical practice guidelines. Ambulance Services Victoria. (2010). History and examination at a glance. Gleadle, J. (2004). Victoria: Blackwell Science. Clinical Work Instructions Ambulance Victoria (2000) Textbook of Adult Emergency Medicine Cameron, P., Jelinke, G., Kelly, L., Murray, L. and Heyworth, J. (2009) 6th. ed. Sydney: Churchill Livingstone

Assessment: 80% attendance at practical classes and a minimum of 80 hours clinical placements are both hurdle requirements for this unit.

Practicum, Simulated patient scenario assessment compliant with ambulance guidelines (Hurdle requirement), Pass/Fail. Test, 10 Online tests (Hurdle requirement), Pass/Fail. Other, Clinical workbook (Hurdle requirement), Pass/Fail. Practicum, Clinical Placement, Pass/Fail. It is mandatory for students to obtain a 50% aggregate mark for online tests and the clinical workbook.

HFB3111 PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 1

Locations: St Albans.

Description: This subject challenges students to analyse their present practice by examining the principles of intervention for the acutely ill or injured person. An integral part of this subject will be the development of students' health assessment and practice skills necessary to care for the acutely ill or injured person and the adoption of those skills to improve and extend current practice. Integration of material from basic and paramedic sciences, applied clinical sciences, paramedic clinical practice and professional issues will be incorporated throughout the subject.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Required Reading: To be advised by Lecturer.

Assessment: Portfolio (100%) To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3121 ADVANCED PARAMEDIC PRACTICE 1

Locations: St Albans.

Prerequisites: HFB2217 - PARAMEDIC SCIENCE 2

HFB2219 - SPECIAL POPULATIONS

HFB2220 - PARAMEDIC CLINICAL PRACTICE 4

Description: This unit will cover the current and evolving role of the paramedic and the changes in paramedic science in the following areas of pre hospital care: Cardiology - 3, 5 and 12 lead ECG interpretation and care of issues arising from cardiac ischaemia and arrhythmias; Advanced airway management - currently used techniques in para medicine and the application to pre hospital care of techniques currently used in hospital environments; Allergies and anaphylaxis - drugs and techniques currently used in pre hospital care and potential pharmacological interventions.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Outline the appropriate clinical assessment of a patient who may be experiencing a cardiovascular disorder and management of the disorder as it relates to the underlying pathophysiology of the trauma or illness. Describe a range of diagnostic tests that aim to support or validate clinical hypotheses regarding a cardiovascular emergency. Describe ECG monitoring techniques for diagnosis of dysrhythmias and ischaemia (3, 5 and 12 lead) and discuss the advantages and disadvantages of each. Identify dysrhythmias originating in the sinus node, atria, atrioventricular junction, and ventricles and discuss possble causes, clinical significance and pre-hospital management. List indications, contraindications, and pre-hospital considerations of manual cardioversion, synchronised cardioversion, transcutaneous cardiac pacing, thrombolytic and reperfusion therapies, implanted defibrillation devices and cardiac marker assay. Identify and discuss circumstances in which to terminate or withhold resuscitation in the pre-hospital setting. Discuss the assessment and management of medical or traumatic obstruction of the airway and the advantages and disadvantages of a range of airway management techniques. Describe the use of ventilation-perfusion diagnostic technology including pulse oximetry, end-tidal carbon monoxide detection, and peak flow testing. Outline the indications, contraindications, complications and precautions for advanced pre-hospital airway management and protection including; tracheal intubation, rapid sequence induction, needle and surgical cricothyroidotomy, lighted stylet intubation, nasogastric and orogastric intubation and mechanical and transport ventilation. Outline antigen antibody responses and differentiate between an allergic reaction and a normal immune response. Describe the pathophysiology, signs and symptoms, and management of anaphylaxis and identify common allergens associated with it. State the indications, contraindications, precautions, side effects and pharmacology of agents used to manage cardiovascular disorders, airway and allergic conditions.

Class Contact: Forty-eight (48) hours for one semester of mixed-mode lectures and tutorials.

Required Reading: Additional hardcopy and audiovisual material developed and supplied by the Paramedic Science Unit, School of Biomedical and Health Sciences will support these texts. Pathophysiology: The biologic basis for disease in adults and children McCance, K. L., & Huether, S. E. (2010). (6th ed.). St Louis, MO: Mosby. Mosby's paramedic textbook Sanders, M. J. (2007). (3rd ed.). St Louis, MO: Mosby.

Assessment: Knowledge, skills and values developed in this unit will be assessed through group discussion and case-based problem solving exercises. To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of 50% must be attained.Assignment, 2 assignments - 2500 Words in total, 50%. ICT (Wiki, Websites), 3 Web discussions, 15%. Test, 3 Online tests - 90 minutes in total, 35%.

HFB3122 PROFESSIONAL BASIS OF PARAMEDIC PRACTICE 2

Locations: St Albans.

Description: This subject challenges students to analyse their present practice by examining the principles of intervention for the acutely ill or injured person. An integral part of this subject is the development of students' understanding of electrocardiology and pharmacology, and their ability to apply principles in electrocardiology and pharmacology to their present practice. Integration of material from basic and paramedic sciences, applied clinical sciences, paramedic clinical practice and professional issues will be incorporated throughout this subject.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Required Reading: To be advised by Lecturer.

Assessment: Portfolio including contribution to online discussions (500-800 words each) (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3123 ADVANCED PHARMACOLOGY

Locations: St Albans.

Prerequisites: HFB1213 - PARAMEDIC CLINICAL PRACTICE 2

HFB2217 - PARAMEDIC SCIENCE 2

OR EQUIVALENTS.

Description: This unit will cover the following topics: Adrenergic and cholinergic pharmacology Histamine and antihistamine agents Antipsychotic drugs Anxiolytics, hypnotics, and antidepressant drugs Anticonvulsants, and muscle relaxants Narcotic analgesics and antagonists Antiinflammatory, antipyretic, and analgesic dugs Local analgesia Antiarrhythmic and anginal drugs Antihypertensive drugs Anticoagulant, fibrinolytic and anti-platelet agents Diuretic agents Bronchodilators and respiratory agents Antiemetic agents

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe the clinical indications for, adverse effects of adrenergic and cholinergic agonists and antagonists. Describe the distribution and function of selected drug group receptors. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of narcotic analgesics and non-narcotic analgesics. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of anxiolytic, hypnotic, and anti-psychotic drugs. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected cardiovascular drugs. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected drugs that act on the respiratory system. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected local anaesthetic drugs. Understand the role of prostaglandins in the inflammatory response. Contrast the actions of depolarising and non-depolarising neuromuscular blocking agents. State the rationale for the use of neuromuscular blocking agents in anaesthesia. Identify suitable agents for rapid sequence induction. Describe the actions of selected drugs used to treat heart failure. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of anti-convulsant agents. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of antipyretics, anti-inflammatory and analgesic drugs. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of fluids and blood products in the treatment of cardiovascular instability. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected anti-emetic agents. Discuss the indications, uses, mechanisms of action contraindications and adverse effects of selected anti-biotic, anti-viral and anti-microbial agents.

Class Contact: Forty-eight (48) hours over one 12-week semester comprising four (4) hours per week: 2 hours on-line lectures per week and 2 hours on-line tutorials per week.

Required Reading: Bryant B. and Knights K. Pharmacology for Health Professionals. 3rd Ed. Australia: Mosby Pharmacology for Health Professionals Bryant B. and Knights K. 3rd Mosby, Australia

Assessment: This unit has three assessment items: one 1-hour mid-semester theory examination (30%); one written assignment (2000 words) (30%); one 3-hour end-of-semester theory examination (40%). Knowledge, skills and values developed in this unit will be assessed through group discussion and cased-based problem solving exercises. To obtain a pass or higher in this graded unit, normally all components of assessment must be attempted and submitted, and an aggregate mark of 50% must be attained.

HFB3124 PRACTITIONER HEALTH 3

Locations: St Albans.

Prerequisites: HFB2115 - MENTAL HEALTH AND ILLNESS

HFB2118 PRACTITIONER HEALTH 2; OR EQUIVALENTS.

Description: Biopsychosocial model of health. Concept of social capital and how it relates to the biopsychosocial model of health. How the biopsychosocial model of health can be utilized to discuss and understand mental health issues. Mental health profile of ambulance paramedics and the Australian population.Managing the effects of shiftwork on sleep. Mental health issues of concern to the ambulance industry. Suicide. Stress processes and how the stress process might be managed.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe the biopsychosocial model of health. Explain the concept of social capital and how it relates to the biopsychosocial model of health. Describe the mental health profile of people working in the ambulance industry. Compare the mental health profile of people working in the ambulance industry with that of the general Australian population. Explain the effects of shiftwork on sleep. Integrate concepts and techniques drawn from cognitive-behavioural psychology to improve sleep. Identify the mental health disorders of concern to the ambulance industry (including depression, anxiety and substance misuse). Integrate knowledge of the biopsychosocial model of health with ways of describing and dealing with mental health issues. Discuss concerns about suicide. Develop an understanding of the stress process and techniques or tactics for dealing with stress including those used by ambulance paramedics.

Class Contact: Forty-eight (48) hours over one 12-week semester comprising lectures, group discussions and small group work.

Required Reading: There are no books published that deal specifically or exclusively with the issue of paramedic mental health. Caltabiano, M. L., Byrne, D., Martin, P. R., & Sarafino, E. P. (2002). Health psychology: Biopsychosocial interactions an Australian perspective. Milton, QLD: John Wiley & Sons Australia. Sanders, M. J. (2005). Mosby's paramedic textbook (3rd ed.). St Louis, MO: Mosby. (Chapter 2: The Well-Being of the Paramedic). Students will be provided with relevant readings (primarily via WebCT)

Assessment: This unit has two assessment items: three written assignments (max 1000 words each) (20% each; 60% total); one 2-hour (time-locked online) MCQ test (40%) (A2, C3, I3, O2, P2, W2). To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and passed.

HFB3125 RESEARCH IN PARAMEDIC PRACTICE

Locations: St Albans.

Prerequisites: HFB2220 - PARAMEDIC CLINICAL PRACTICE 4

Description: Principles of research. Research ethics. Research paradigms. Qualitative and quantitative research designs. Data collection and data analysis. Critical evaluation of research. Analysis and criticism of research reports.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe basic research methodology and terminology; Describe the main differences between qualitative and quantitative research; Discuss the advantages and disadvantages of the different methodologies; Describe basic research design, establishing the rigour of a research process, methods of data collection and analysis and reporting on research data; Retrieve appropriate articles for a literature review; Conduct an in-depth critical appraisal of research articles; Discuss the significance of consent, confidentiality and other ethical considerations in relation to research.

Class Contact: Forty-eight (48) hours over one 12-week semester comprising lectures, tutorials, workshops and self-directed learning.

Required Reading: Research in nursing and health care: evidence for practice, Taylor, B., Kermode. S & Roberts, K (2007), 3rd Edn Nelson, Australia.

Assessment: Test, Two On-line tests, 40%. Assignment, Two written assignments (combined total of 3000 word limit), 60%.

HFB3131 PARAMEDIC CLINICAL SCIENCE 3

Locations: St Albans.

Prerequisites: HFB2223 - CLINICAL PRACTICE 4

HFB2216 - PARAMEDIC CLINICAL SCIENCE 2

HFB2219 - SPECIAL POPULATIONS

RBM2109 - BIOSCIENCE FOR PARAMEDICS 3

Description: This unit will introduce students to medical conditions relating to gastro-intestinal, endocrine, renal and haematological emergencies. Pathophysiology assessment and management of these patient conditions will be explored.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to:

1. Describe the pathophysiology, presentation, assessment and management of selected neurological, endocrine, renal, gastro-intestinal, and haematological emergencies.

Class Contact: Forty eight (48) hours over one semester comprising lectures supported by e-learning.

Required Reading: Pathophysiology: The biologic basis for disease in adults and children McCance, K. L., & Huether, S. E., Brashers, V.L., Rote, N.S. (2009). 6th St Louis, MO: Mosby. Textbook of adult emergency medicine Cameron, P., Jelinek., G., Kelly, A., Murray, L. and Heyworth, J. (2009) 3rd Sydney: Churchill Livingstone

Assessment: Test, 3 theory tests (during semester), 30%. Examination, 3 hour theory exam (end of semester) Hurdle Requirement, 40%. Assignment, Group Assignment (2000 words), 30%.

HFB3132 MENTAL HEALTH & WELLBEING FOR PARAMEDICS

Locations: St Albans.

Prerequisites: HFB2223 - CLINICAL PRACTICE 4

Description: Biopsychosocial model of health. How the biopsychosocial model of health can be utilised to discuss and understand mental health issues. Mental health profile of ambulance paramedics and the Australian population. Managing the effects of shiftwork on sleep. Mental health issues of concern to the ambulance industry. Suicide. Stress processes and how the stress process might be managed. Cognitive Behavioural Therapy techniques for managing stress and enhancing resilience.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to:

1. Describe the biopsychosocial model of health.
2. Develop an understanding of the stress process and techniques or tactics for dealing with stress including those used by ambulance paramedics.

3. Identify and describe the factors that modify or impact upon the stress process.
4. Integrate concepts and techniques drawn from cognitive behavioural therapy to influence the stress process and improve resilience.
5. Discuss the concept of resilience.
6. Describe the mental health profile of people working in the ambulance industry
7. Compare the mental health profile of people working in the ambulance industry with that of the general Australian population.
8. Explain the effects of shiftwork on sleep.
9. Integrate concepts and techniques drawn from cognitive-behavioural psychology to improve sleep.
10. Identify the mental health issues of concern to the ambulance industry.
11. Discuss concerns about suicide.
12. Integrate knowledge of the biopsychosocial model of health with ways of describing and dealing with mental health issues.
13. Apply what has been learned to individual case studies.

Class Contact: Forty-eight (48) hours over one semester comprising lectures, group discussions and small group work.

Required Reading: Health Psychology: Biopsychosocial interactions an Australian perspective Caltabiano, M.L., Byrne, D., & Sarafino, E, P. (2008) Milton QLD john Wiley & Sons

Assessment: Test, Online test (week 5), 15%. Assignment, Written assignment (1500 words), 15%. Assignment, Written assignment (2000 - 3000 words), 70%.

HFB3133 MENTAL HEALTH & MENTAL ILLNESS

Locations: St Albans.

Prerequisites: HFB2120 - APPLIED PHARMACOLOGY

RBM2109 - BIOSCIENCE FOR PARAMEDICS 3

Description: This unit will foster an understanding of the history of mental health and epidemiology of mental health in Australia in order to provide a sound basis for the understanding of common mental health disorders. Students will be provided with the underpinning knowledge required to effectively assess and manage patients presenting with a mental health disorder or behavioural emergency in the prehospital setting, as well as a sound foundation in the pharmacology, pathophysiology and ongoing therapies related to these disorders.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: 1.Describe what is meant by the term Mental Health 2.Discuss the history of psychiatry and psychology as it is related to mental health disorders 3.Describe and discuss how psychosocial, lifestyle and cultural factors influence societal perceptions of mental health disorders 4.Describe the classification systems used to define mental health disorders 5.Discuss the general state of mental health and the epidemiology of mental health disorders in Australia 6.Display an understanding of the concepts of neurophysiology and brain anatomy as they relate to disorders of mental health 7.Detail the pathophysiology of various mental health disorders, including (but not limited to): mood disorders; anxiety disorders; substance abuse; factitious and somatoform disorders; schizophrenia and psychosis; and eating disorders. 8.Discuss the approach, assessment and management strategies that can be utilised by Paramedics in various behavioural emergencies and for different mental health patients. 9.Discuss the use of physical and chemical restraints in behavioural emergencies. 10.Display an understanding of the pharmacology of drugs used in the management of mental health disorders and behavioural emergencies 11.Discuss the range of therapies used in the ongoing management of mental health disorders 12.Describe and discuss the National and State legislation, as well as Ambulance Service policies and regulations that apply to patients experiencing a behavioural emergency.

Class Contact: Forty-eight (48) hours over one semester.

Required Reading: Mosby's pocket book of mental health. Barkway, P., Muir-Cochrane, E. & Nizette, D. (2010). Sydney, Australia: Elsevier.

Assessment: To obtain a pass or higher in this graded unit, all components of assessment must be attempted and passed.Assignment, Written Assignment Plan (500 words), 10%. Assignment, Written Assignment (3000 words), 40%. Examination, 2 hour examination, 50%.

HFB3134 PARAMEDIC CLINICAL PRACTICE 5

Locations: St Albans.

Prerequisites: HFB2221 - HEALTH CARE ORGANISATIONS

HFB2216 - PARAMEDIC CLINICAL SCIENCE 2

HFB2219 - SPECIAL POPULATIONS

HFB2223 - CLINICAL PRACTICE 4

Description: Cardiology - 3, 5 and 12 lead ECG interpretation and care of issues arising from cardiac ischaemia and arrhythmias; Advanced airway management - currently used techniques in para medicine and the application to pre hospital care of techniques currently used in hospital environments; Allergies and anaphylaxis - drugs and techniques currently used in pre hospital care and potential pharmacological interventions Students will complete a minimum of eighty (80) hours placement in appropriate clinical setting.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Outline the appropriate clinical assessment of a patient who may be experiencing a cardiovascular disorder and management of the disorder as it relates to the underlying pathophysiology of the trauma or illness.
2. Describe a range of diagnostic tests that aim to support or validate clinical hypotheses regarding a cardiovascular emergency.
3. Describe ECG monitoring techniques for diagnosis of arrhythmias and ischaemia (3, 5 and 12 lead) and discuss the advantages and disadvantages of each.
4. Identify arrhythmias originating in the sinus node, atria, atrioventricular junction, and ventricles and discuss possble causes, clinical significance and pre-hospital management.
5. Identify indications, contraindications, and pre-hospital considerations of manual cardioversion, synchronised cardioversion, transcutaneous cardiac pacing, thrombolytic and reperfusion therapies, implanted defibrillation devices and cardiac marker assay.
6. Identify and discuss circumstances in which to terminate or withhold resuscitation in the pre-hospital setting.
7. Discuss the assessment and management of medical or traumatic obstruction of the airway and the advantages and disadvantages of a range of airway management techniques.
8. Describe the use of ventilation-perfusion diagnostic technology including pulse oximetry, end-tidal carbon monoxide detection, and peak flow testing.
9. Outline the indications, contraindications, complications and precautions for advanced pre-hospital airway management and protection including; tracheal intubation, rapid sequence induction, needle and surgical cricothyroidotomy, lighted stylet intubation, nasogastric and orogastric intubation and mechanical and transport ventilation.
10. Outline antigen antibody responses and differentiate between an allergic reaction and a normal immune response.
11. Describe the pathophysiology, signs and symptoms, and management of anaphylaxis and identify common allergens associated with it.

12. State the indications, contraindications, precautions, side effects and pharmacology of agents used to manage cardiovascular disorders, airway and allergic conditions.

Class Contact: Forty-eight (48) hours for one semester of mixed-mode lectures and tutorials Plus eighty (80) hours clinical placement in an appropriate clinical setting.

Required Reading: Additional hardcopy and audiovisual material developemd and supplied by the paramedic Science unit, School of Biomedical and Health Sciences will support these texts. Basic dysrhythmias and acute coronory syndrome. Huszar, R. J. (2010). Albany N.Y.: Mosby.

Assessment: Knowledge, skills and values developed in this unit will be assessed through group discussion and case-based problem solving exercises. To obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of 50% must be attained.Students are expected to complete all 80 clinical hours. Clinical Placement Practicum must be passed as a hurdle requirement.Examination, Written examination, 30%. Other, 3 web discussions (100 words each), 15%. Test, 3 online tests, 30%. Other, 3 web discussions (300 words each), 25%.

HFB3211 INTEGRATION OF PARAMEDIC PRACTICE 1

Locations: St Albans.

Description: This subject will allow each student to extend and refine their particular area of professional paramedic practice. Students are expected to apply the principles developed in Professional Basis of Paramedic Practice 1 and 2 to their current paramedic practice and to concentrate on the professional development of their nominated area through observation, participation, discussion, and self-reflection.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or equivalents.

Required Reading: To be advised by Lecturer.

Assessment: Portfolio (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3222 INTEGRATION OF PARAMEDIC PRACTICE 2

Locations: St Albans.

Description: This subject re-introduces and extends the fundamentals of paramedicine. A systems approach reinforces the anatomical, physiological, pathophysiological and pharmacological aspects of care from the perspectives of the paramedic. Applied considerations will be given to a range of adult and paediatric emergencies.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising lectures and self-directed learning activities or online equivalent.

Required Reading: To be advised by Lecturer.

Assessment: Essay (1500 words) (25%); weekly online activities including contributions to online discussions (15%); final online examination of multiple-choice questions only (60%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment items (essay and weekly activities) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%. Where the final examination is failed, a supplementary examination will be offered. The maximum possible mark on the supplementary examination will be 50%.

HFB3226 MAJOR INCIDENTS

Locations: St Albans.

Prerequisites: HFB3134 - PARAMEDIC CLINICAL PRACTICE 5

Description: This unit will cover the history of major incidents, principles of major incident planning, preparation, response and recovery. The role, responsibilities and communications of emergency services and the sociological and physiological impacts of major incidents.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Define a major incident; Describe traditional and new disaster threats Discuss the principals of risk assessment and major incident planning, preparation, and coordination; Discuss the main elements of the national major incident and disaster policy; Describe the emergency services response to a major incident including police, fire, ambulance, health, state emergency service and other support agencies; Discuss the importance of a multi disciplinary response, and the need for effective communication at a major incident; Discuss medical service major incident planning, preparation, response and recovery; Discuss the principals of major incident management including principals of command and control and the Incident Command System (ICS); Describe triage, evolution of modern triage principles, the aims of triage, triage priorities and the correct application of these in a major incident; Discuss the major physiological and sociological effects following a major incident including survival, bereavement, and post traumatic stress. Demonstrate practical applications using scenarios/simulation

Class Contact: Forty-eight (48) hours for one semester of mixed-mode lectures and tutorials.

Required Reading: Major incident medical management and support. Hodgetts, T.J., & Mackway Jones, K. (2002). (2nd ed.). London, BMJ Books.

Assessment: For students undertaking this unit via distance education, a written assignment (1500 words) valued at 50% will be substituted for the simulated exercises. To obtain a pass in this unit all components of the assessment must be passed as hurdle requirements.

Other, Workbook (2000 words), 50%. Exercise, Major incident simulated event (2), 50%. Major incident simulation day is provided for students to be assessed on their communication, triage and patient assessment skills as they relate to a major incident via scenario based activities. Students are given the choice to attend this exercise day, or submit the project, both of which attract identical value and assess identical criteria.

HFB3227 PARAMEDIC EVIDENCE BASED HEALTH CARE

Locations: St Albans.

Prerequisites: HFB3125 - RESEARCH IN PARAMEDIC PRACTICE

Description: Principles of evidence based practice will be explained, including analysis of hierarchies of evidence, clinical decision making and models of reasoning. Implementation of evidence based findings and the process of documentation associated with current protocol systems and clinical decision making in pre-hospital care will be critiqued.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Apply the skills and knowledge of evidence based health care acquired in this unit to evaluate their work as a paramedic. Critically examine current protocol systems and how they inhibit, support and/or constrain the clinical decision making process Apply knowledge, skills and values, which will enable them to reflect their opinion and practice of pre-hospital care. Describe the decision making process as it applies to diagnostic reasoning in pre-hospital care.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and tutorials.

sication of a variety of physiotherapeutic techniques including, strapping, extended sprain and strain care, therapeutic massage, therapeutic ultrasound, and dislocation reduction; Demonstrate, through active participation in a variety of clinical settings, an understanding of the integration of health care practices in order to provide extended patient care for the sick and injured patient; Use reflective strategies to identify opportunities for improvement in clinical reasoning, patient management.

Class Contact: Eighty-eight (88) hours over one 12-week semester comprising two (2) hours per week of practical classes and self-directed learning utilising the Paramedic Interactive Curriculum, and sixty-four (64) hours clinical placement in an appropriate clinical setting during the semester.

Required Reading: Cameron, P., Jelinek, G., Kelly, A.-M., Murray, L., Brown, A., & Heyworth, J. (2004). Textbook of adult emergency medicine (2nd ed.). Sydney: Churchill Livingstone. Ma, O. J., Cline, D. M., Tintinalli, J. E., Kelen, G. D., & Stapczynski, J. S. (2004). Just the facts in emergency medicine: A comprehensive study guide (2nd ed.). Sydney: McGraw-Hill.

Assessment: This unit has three assessment items. Practical skills will be assessed using criterion referenced clinical skills assessment format. Students will be provided clinical skills assessment forms by the end of the second week of semester. Knowledge skills and values developed in this unit will be assessed in final semester examinations, which will be conducted in a scenario-based format. Students are required to satisfactorily complete a clinical logbook and reflective journal whist on clinical placement. To obtain a pass in this ungraded unit, all components of assessment must be attempted and passed.

HFB3301 ISSUES IN PREHOSPITAL HEALTH SERVICE DELIVERY

Locations: St Albans.

Description: This subject introduces students to a range of key concepts that influence health service delivery in out-of-hospital practice. Students will relate to their own perspectives and experiences in order to explore and analyse the many roles of the paramedic in health service delivery.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Required Reading: To be advised by Lecturer.

Assessment: Portfolio (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3401 PREHOSPITAL ETHICAL AND LEGAL ISSUES

Locations: St Albans, Other.

Description: This unit enables students to explore ethical and legal issues and their implications for paramedics and paramedic science. Students' experiences will be drawn upon to demonstrate and scrutinise their responses to common situations that occur in paramedic practice, which may cause ethical and legal dilemmas.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Define the terminology and abbreviations used in ethics and law; Locate and comment on statutes relevant to paramedic science; Discuss how ethical and legal practices and issues may influence paramedic practice; Describe various ethical and legal principles and processes within the health care system.

Class Contact: Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Required Reading: Eburn, M. (2005). Emergency law (2nd ed.). NSW: The Federation Press.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed. If the assessment item is failed, it may be resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.Portfolio, One portfolio, 50%. Examination, One written final examination, 50%.

HFB3501 RESEARCH IN PARAMEDIC PRACTICE

Locations: St Albans, Other.

Description: This unit investigates major research considerations and focuses on facilitating the students' abilities to critically analyse research reports. Emphasis is placed on the application of research findings to paramedic practice and ways in which applications can be facilitated.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe basic research methodology and terminology; Describe the main differences between qualitative and quantitative research; Discuss the advantages and disadvantages of the different methodologies; Explain at a beginning level of understanding, research design, the rigour of a research process, methods of data collection and analysis of and reporting on research data; Retrieve appropriate articles for a literature review; Conduct an in-depth critical appraisal of research articles; Recognise the significance of consent, confidentiality and other ethical considerations in relation to research.

Class Contact: Four hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Required Reading: Minichiello, V., Sullivan, G., Greenwood, K., & Axford, R. (Eds.). (2003). Handbook of research methods for nursing and health (2nd ed.). Frenchs Forest, Australia: Pearson Ed.

Assessment: Other, One 1-hour online quiz, 10%. Assignment, Written (2000 words), 40%. Research Paper, Research proposal outline (1000 words), 20%. Examination, One 3-hour final examination, 30%. In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed. If the assessment item is failed, it may be resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3700 PARAMEDIC INSTRUCTION AND MENTORING

Locations: St Albans.

Description: The development and extension of clinic management skills, observation of treatments and supervised provision of limited client care. Contributions to and partial leading of case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the role of the clinical educator; Identify the needs of the learner; Describe factors that influence learning; Develop clinical instructor programs; Deliver clinical instructor programs; Explain concepts and theories of assessment and evaluation; Evaluate a clinical instruction program.

Class Contact: Three hours per week or equivalent for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Required Reading: Meir, D. (2000). The accelerated learning handbook: A creative guild to designing and delivering faster, more effective training programs. New York: McGraw Hill.

Assessment: Negotiated written report or portfolio (100%). To obtain at least a Pass in the subject, normally the negotiated assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HFB3900 EMERGENCY MEDICAL SERVICES MANAGEMENT (ELECTIVE)

Locations: St Albans.

Description: This subject examines two organizational areas (practices and functioning of organisations, and theories and models of organisational structure, policy and decision making) and how they relate to emergency medical services (EMS). Emphasis is on individuals within EMS organisational settings and the critical value of structure, policy and decision making to the organisation. Topics covered in the first area include personality, social perception, group dynamics, motivation and specific personal behaviour management issues such as stress management, conflict resolution and career management strategies. Topics in the second area include the nature of strategic planning, analysis of the environment, planning directions, strategy formulation and implementation, and global strategic management and future directions.

Credit Points: 8

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising lectures, tutorials, practicals and self-directed learning activities or online equivalents.

Required Reading: To be advised by Lecturer.

Assessment: Portfolio (100%). To obtain at least a Pass in the subject, normally the assessment task must be attempted and passed. If the assessment item is failed, it may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HHA1171 ANATOMY 1

Locations: City Flinders.

Description: Topics include definitions of anatomical terms such as; arthrology, osteology, neurology, angiology and myology of the head and neck; back, abdomen, thorax and upper limb. This unit will also include an introduction to the somatic and autonomic nervous systems and the clinical applications of the musculoskeletal anatomy covered.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use anatomical language to describe structures, planes and motions of the musculoskeletal system of the upper body; Identify, on models and cadaveric specimens, the bones, muscles, joints, ligaments, nerves and vasculature of the upper body; Describe in detail the features of the bones, muscles, joints, ligaments, nerves and vasculature of the upper body; Describe in detail the three dimensional relationship between the anatomical structures covered; Identify and explain the clinical relevance of key anatomical features of the upper body; Employ a basic level of anatomical problem solving and clinical reasoning.

Class Contact: Seventy - two (72) hours for one semester comprising lectures, tutorials and laboratory practicals.

Required Reading: Grant's atlas of anatomy. Agur, A., & Dalley, A.F. (2005). (11th ed.). Philadelphia: Lippincott Williams & Wilkins. Clinically oriented anatomy. Moore, K. L., & Dalley, A. F. (2008). (6th ed.). Philadelphia: Lippincott Williams & Wilkins.

Assessment: All assessments in this unit are hurdle requirements and as such a minimum pass grade is required in each to satisfactorily complete the unit overall. Participation in practical sessions with at least 90% attendance unless well documented acceptable reasons are provided (hurdle requirement).Examination, Mid-semester practical/oral, 10%. Examination, End-of semester practical/oral, 40%. Examination, 2-hour written, 50%.

HHA1272 ANATOMY 2

Locations: City Flinders.

Prerequisites: HHA1171 - ANATOMY 1

Description: Topics include definitions of anatomical terms; arthrology, osteology, neurology, angiology and myology of the back, abdomen and inguinal regions, pelvis and lower limb. This unit will also include an introduction to the somatic and autonomic nervous systems and the clinical applications of the musculoskeletal anatomy covered.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use anatomical language to describe structures, planes and motions of the musculoskeletal system of the lower body; Identify, on models and cadaveric specimens, the bones, muscles, joints, ligaments, nerves and vasculature of the lower body; Describe in detail the features of the bones, muscles, joints, ligaments, nerves and vasculature of the lower body; Describe in detail the three dimensional relationship between the anatomical structures covered; Identify and explain the clinical relevance of key anatomical features of the lower body; Employ a basic level of anatomical problem solving and clinical reasoning.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and laboratory practicals.

Required Reading: Clinically oriented anatomy. Moore, K. L., & Dalley, A. F. (2005). (5th ed.). Philadelphia: Lippincott Williams & Wilkins.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement). All assessments in this unit are hurdle requirements and as such a minimum pass grade in each is required to satisfactorily complete the unit overall.Examination, Mid-semester practical/oral, 10%. Examination, End of semester practical/oral, 40%. Examination, 2-hour written, 50%.

HHA2171 ANATOMY 3

Locations: City Flinders.

Description: Visceral anatomy of the head and neck (cranial nerves, larynx), thorax (heart and great vessels, respiratory system, mediastinum, thoracic diaphragm), abdomen (spleen, renal system) and pelvis (urogenital systems), including the nerve supply, circulation, lymphatic drainage and histology of visceral tissues.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify, name and describe anatomical structures within the human head (Cranial Nerves), neck (Larynx), thorax (Heart and Great Vessels, Mediastinum), abdomen (Spleen, Renal System) and pelvis (Urogenital System), including the fascia and nervous, vascular and lymphatic systems, from regional perspectives; Communicate knowledge of the anatomy of the human head, neck, thorax, abdomen and pelvis (including bones, vessels, fascia and spaces) to lay and professional audiences in ways that each group can understand; Explain the relationships amongst structure, function and dysfunction pertinent to regions of the human head, neck, thorax, abdomen and pelvis; Relate the relevant anatomical structures within the human head, neck, thorax, abdomen and pelvis to osteopathic practice.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: Wheater's functional histology. Heath, J. W., & Young, B. (2005). (5th ed.). Churchill Livingstone. Clinically oriented anatomy. Moore, K. L., & Dalley, A. F. (2009). (6th ed.). Philadelphia: Lippincott Williams & Wilkins. The developing human. Moore, K. L., & Persuad, T. V. N. (2007). (8th ed.). W. B. Saunders Co. HHA2171 Anatomy 3 manual. Ryan, E.(2011). Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.

Assessment: Participation in practical sessions with at least 90% attendance (hurdle requirement).Examination, Viva Voce examination, 10%. Examination, Viva Voce examination, 45%. Examination, 2 hour final written examination, 45%.

HHA2173 ANATOMY 3

Locations: City Flinders.

Prerequisites: HHA1272 - ANATOMY 2

Description: Visceral anatomy of the head (skull osteology, cranial nerves), thorax (heart and great vessels), abdomen (spleen, renal system) and pelvis (urogenital systems), including the nerve supply, circulation, lymphatic drainage and histology of visceral tissues. An introduction to embryonic development.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify, name and describe anatomical structures within the human head (Skull Osteology, Cranial Nerves), neck, thorax (Heart and Great Vessels), abdomen (Spleen, Renal System) and pelvis (Urogenital System), including the fascia and nervous, vascular and lymphatic systems, from regional perspectives; Describe the developmental processes during the first three weeks of embryonic development; Communicate knowledge of the anatomy of the human head, neck, thorax, abdomen and pelvis (including bones, vessels, fascia and spaces) to lay and professional audiences in ways that each group can understand; Explain the relationships amongst structure, function and dysfunction pertinent to regions of the human head, neck, thorax, abdomen and pelvis; Relate the relevant anatomical structures within the human head, neck, thorax, abdomen and pelvis to osteopathic practice.

Class Contact: Forty-eight (48) hours per semester including lectures, laboratory and tutorials.

Required Reading: Clinically oriented anatomy Moore, K. L., & Dalley, A. F. (2010) 6th Edition Philadelphia: Lippincott Williams & Wilkins Wheater's functional histology Heath, J. W., & Young, B. (2006) 5th Edition UK: Churchill Livingstone Anatomy 3 manual Ryan, E.(2011) Melbourne, Australia: Victoria University, School of Biomedical and Health Sciences, Osteopathy Unit.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Examination, viva voce examination, 10%. Examination, vica voce examination, 45%. Examination, 2-hour final written examination, 45%.

HHA2272 ANATOMY 4

Locations: City Flinders.

Description: Visceral anatomy of the head (orbit, ear, nose, nasal cavity, paranasal sinuses, oral cavity, salivary glands), neck (pharynx, thyroid and parathyroid glands), thorax (oesophagus) abdomen (stomach and intestinal tract, pancreas, suprarenal glands, liver and gall bladder), including the histology of visceral tissues. Embryological development of the major systems, including the neuromusculoskeletal system.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify, name and describe anatomical structures within the human head (Orbit, Ear, Nose, Nasal and Paranasal Sinuses, Oral Cavity, Salivary Glands), neck (Pharynx, Thyroid and Parathroid Glands), thorax (Oesophagus), abdomen (Stomach and Intestinal Tract, Pancreas, Suprarenal Glands, Liver and Gall Bladder), including the fascia and nervous, vascular and lymphatic systems, from regional perspectives; Describe the embryonic developmental processes of all the major systems in the human body; Communicate knowledge of the anatomy of the human head, neck, thorax, abdomen and pelvis (including bones, vessels, fascia and spaces) to lay and professional audiences in ways that each group can understand; Explain the relationships amongst structure, function and dysfunction pertinent to regions of the human head, neck, thorax and abdomen; Relate the relevant anatomical structures within the human head, neck, thorax, abdomen and pelvis to osteopathic practice.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and laboratory practicals.

Required Reading: Wheater's functional histology. Heath, J. W., & Young, B. (2005). (5th ed.). Churchill Livingstone. Clinically oriented anatomy Moore, K. L., & Dalley, A. F. (2009). (6th ed.). Philadelphia: Lippincott Williams & Wilkins.

The developing human Moore, K. L., & Persuad, T. V. N. (2007). (8th ed.). W. B. Saunders Co. HHA2171 Anatomy 4 manual. Ryan, E.(2011). Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.

Assessment: Participation in practical sessions and tutorials with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Examination, Two practical viva voce examinations (one at 10%; the other at 45%), 55%. Examination, One 2 hour final written examination, 45%.

HHA2274 ANATOMY 4

Locations: St Albans, City Flinders.

Prerequisites: HHA2173 - ANATOMY 3

Description: Visceral anatomy of the head (orbit, ear, nose, nasal and paranasal sinuses, oral cavity, salivary glands), neck (larynx, pharynx, thyroid and parathyroid glands), thorax (thoracic diaphragm, lungs, bronchial tree, oesophagus and mediastinum), abdomen (stomach and intestinal tract, pancreas, suprarenal glands, liver and gall bladder), including the histology of visceral tissues. Embryological development of the major systems, including the neuromusculoskeletal system.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify, name and describe anatomical structures within the human head (Orbit, Ear, Nose, Nasal and Paranasal Sinuses, Oral Cavity, Salivary Glands), neck (Larynx, Pharynx, Thyroid and Parathroid Glands), thorax (Thoracic Diaphragm, Lungs, Bronchial Tree, Oesophagus and Mediastinum), abdomen (Stomach and Intestinal Tract, Pancreas, Suprarenal Glands, Liver and Gall Bladder), including the fascia and nervous, vascular and lymphatic systems, from regional perspectives; Describe the embryonic developmental processes of all the major systems in the human head, neck, thorax, abdomen and pelvis; Communicate knowledge of the anatomy of the human head, neck, thorax, abdomen and pelvis (including bones, vessels, fascia and spaces) to lay and professional audiences in ways that each group can understand; Explain the relationships amongst structure, function and dysfunction pertinent to regions of the human head, neck, thorax and abdomen; Relate the relevant anatomical structures within the human head, neck, thorax, abdomen and pelvis to osteopathic practice.

Class Contact: Forty-eight (48) hours per semester comprising lectures, tutorials and laboratory practicals.

Required Reading: Heath, J. W., & Young, B. (2000). Wheater's functional histology (4th ed.). Churchill Livingstone.Kuchera, M. L., & Kuchera, W. A. (1994). Osteopathic considerations in systemic dysfunction (rev. ed.). Columbus, OH: Original Books.Moore, K. L., & Dalley, A. F. (2005). Clinically oriented anatomy (5th ed.). Philadelphia: Lippincott Williams & Wilkins.Moore, K. L., & Persuad, T. V. N. (1993). The developing human (6th ed.). W. B. Saunders Co.Ryan, E. (2009). HHA2173 Anatomy 4 subject manual. Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.

Assessment: Participation in practical sessions and tutorials with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Examination, Two practical viva voce examinations (one at 10%; the other at 45%), 55%. Examination, One 2 hour final written examination, 45%.

HHA3175 ANATOMY 5 (CLINICAL NEUROLOGY)

Locations: City Flinders.

Prerequisites: HHA2171 - ANATOMY 3

HHA2272 - ANATOMY 4

Description: The aim of this unit is to develop an integrated understanding of the major components of the nervous system, their neuroanatomy and neurophysiology, and an ability to apply this knowledge to clinical problem solving.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the gross and developmental anatomy of the nervous system; Describe and discuss the clinical implications of the three dimensional relationship between the neuroanatomical structures covered; Describe the integrated functions of the nervous system at a neurological and systemic level; Apply this knowledge to demonstrate capabilities of problem solving and clinical reasoning.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and practicals.

Required Reading: Neuroscience: Exploring the brain. Bear, M. F., Connors, B. W., & Paradiso, M. A. (2007). (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. The human brain: An introduction to its functional anatomy. Nolte, J. (2009). (6th ed.). St Louis, MO: Mosby. The human brain in photographs and diagrams. Nolte, J., & Angevine, Jr. J. B. (2000). (2nd ed.). St Louis, MO: Mosby.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement). All assessments in this unit are hurdle requirements and as such a minimum pass grade in each is required to satisfactorily complete the unit overall.Examination, Mid-semester exam, 10%. Examination, Combined practical/oral exam, 40%. Examination, 2 hour Written exam, 50%.

HHA3275 ANATOMY 5

Locations: City Flinders.

Prerequisites: HHA2274 - ANATOMY 4

Description: General and radiographic anatomy, histology and embryology of the human body. Various visceral and musculo-skeletal diseases and conditions and associated clinical significances. Progressive prosection and specimen review of human material in a supervised wet lab environment.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify, name and describe human anatomical structures from a regional perspective; Describe the developmental processes and histology of all the major systems; Prosect cleanly and accurately a nominated musculo-skeletal region of the human body; Communicate knowledge of anatomy to colleagues and to lay people in ways that each group can understand, and using prosected material or anatomical models as appropriate; Explain the relationships amongst structure, function and dysfunction; Relate the relevant anatomical structures to osteopathic and medical practice; Explain the clinical significance of various disease conditions typically presenting to an osteopathic clinic.

Class Contact: Seven (7) hours per week or 84 per semester; comprising lectures, tutorials and laboratory practicals. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Agur, A., & Dalley, A. F. (2005). Grant's atlas of anatomy (11th ed.). Philadelphia: Lippincott Williams & Wilkins. American Psychological Association. (2001). Publication manual of the American Psychological Association (5th ed.). Washington, DC: Author. OR APA Style Sheet. (2004). Available from Dr. Abel Scribe PhD Website, www.docstyles.com/apacrib.htm Moore, K. L., & Dalley, A. F. (2005). Clinically oriented anatomy (5th ed.). Philadelphia: Lippincott Williams & Wilkins.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement). Formative assessment: A written prosection proposal must be submitted prior to commencing specimen prosection. This is a hurdle requirement.Presentation, Oral, 30%. Presentation, Practical and oral presentation of cadaveric prosection, 30%. Examination, OSCE Examination, 40%.

HHA3276 ANATOMY 6 (CLINICAL AND RADIOLOGY)

Locations: City Flinders.

Prerequisites: HHA3175 - ANATOMY 5 (CLINICAL NEUROLOGY)

Description: General and radiographic anatomy, histology and embryology of the human body. Various visceral and musculo-skeletal diseases and conditions and associated clinical significances. Progressive prosection and specimen review of human material in a supervised wet lab environment.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that you will be able to: Identify and describe in detail, anatomical structures from a regional perspective; Describe the developmental processes and histology of all the major systems; Prosect cleanly and accurately a nominated musculo-skeletal region of the human body; Communicate knowledge of anatomy to colleagues and to lay people in ways that each group can understand, and using prosected material or anatomical models as appropriate; Explain the relationships between structure, function and dysfunction; Relate the relevant anatomical structures to osteopathic and medical practice; Explain the clinical significance of various disease conditions typically presenting to an osteopathic clinic.

Class Contact: Sixty-six (66) hours for one semester comprising lectures, tutorials and anatomy dissection practicals.

Required Reading: Grant's atlas of anatomy. Agur, A., & Dalley, A. F. (2005). (11th ed.). Philadelphia: Lippincott Williams & Wilkins. Publication manual of the American Psychological Association. American Psychological Association. (2001). (5th ed.). Washington, DC: Author. Clinically oriented anatomy. Moore, K. L., & Dalley, A. F. (2005). (5th ed.). Philadelphia: Lippincott Williams & Wilkins. Atlas of radiologic anatomy. Wicke, L. (2004). (7th ed.). Icon Learning Systems.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement). All assessments in this unit are hurdle requirements and as such a minimum pass grade in each is required to satisfactorily complete the unit overall.Assignment, Cadaveric Prossection proposal, 10%. Presentation, Practical/Oral presentation of cadaveric prossection, 20%. Examination, 2 hour written combined Anatomy & Radiology exam, 30%. Examination, OSCE Exam, 40%.

HHC2171 BIOMECHANICS 1

Locations: St Albans, City Flinders.

Prerequisites: HHA1272 - ANATOMY 2

HHP1171 - PHYSIOLOGY 1

Description: Introduction to biomechanical principles and general applications to osteopathic practice. Biomechanical principles, term, definitions. Kinematics and kinetics. Levers, moments and torque. Analysis of joints (general type, structure and function). Applications of data collection and analysis. Mechanics of biological tissue: bone, muscle, ligament, cartilage.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Define and use correctly basic biomechanical terminology and principles; Discuss basic biomechanical principles in relation to osteopathic practice; Describe using general concepts, the structure and function of the components of joints; Explain the functions of the various joints and tissues in the human body; Comment on laboratory analysis techniques in kinetics, kinematics and gait.

Class Contact: Three (3) hours per week one semester comprising lectures, tutorials and laboratory practicals.

Required Reading: Neumann, D. A. (2002). Kinesiology of the musculoskeletal system. Sydney, Australia: Mosby.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); five (5) laboratory reports (10% each, total 50%); one 1-hour final written examination (50%).

HHC2272 BIOMECHANICS 2

Locations: City Flinders.

Prerequisites: HHA2173 - ANATOMY 3

HHC2171 - BIOMECHANICS 1

Description: Biomechanical analysis of specific joints in the human thorax and spine, hip, shoulder, knee and ankle. Analysis of joint components, muscles and passive structures peculiar to each joint, and an overview of injury-related issues peculiar to each joint. Students will research one specific topic area.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss in detail the biomechanics of major joints; Describe joint injury mechanics peculiar to each joint; Predict common causes of injury to each joint; Demonstrate laboratory analysis techniques in a biomechanics laboratory; Critically assess published research papers on mechanics of the body and its joints.

Class Contact: Three (3) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory practicals.

Required Reading: Neumann, D. A. (2002). Kinesiology of the musculoskeletal system. Sydney, Australia: Mosby.

Assessment: Presentation, 10-minute video, 30%. Examination, 2-hour final, 70%. Other, Class quizzes, 0%. Class quizzes (hurdle requirement); one 10 minute video presentation (30%); one 2-hour final written exam (70%).

HHC3173 BIOMECHANICS 3

Locations: City Flinders.

Prerequisites: HHC2272 - BIOMECHANICS 2

Description: Application of biomechanics to daily living and common activities. Gait, posture, ergonomics, lifting. Walking and running injuries; shoulder - throwing and injuries; sport biomechanics.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply biomechanical principles and knowledge of anatomy to common activities; Apply biomechanical principles to the analysis of daily and other specified activities; Apply appropriate laboratory-based methods to analyse those activities; Orally present individual biomechanics research findings in a seminar setting.

Class Contact: Three (3) hours per week or equivalent for one semester comprising lectures, tutorials and laboratory classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Neumann, D. A. (2002). Kinesiology of the musculoskeletal system. Sydney, Australia: Mosby.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Other, Oral Tutorial questions (week 5), 10%. Other, Oral Tutorial questions (week 10), 10%. Examination, 15-minute oral exam as part of the third year OSCE, 80%.

HHC3274 BIOMECHANICS 4

Locations: St Albans, City Flinders.

Prerequisites: HHC3173 - BIOMECHANICS 3

Description: Further expansion of the analysis of specific musculoskeletal and postural problems. How posture changes when injury/illness occurs and the effect this has on the rest of the body.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: apply knowledge of biomechanical principles including knowledge of anatomy to common activities; describe postural changes that may occur as a result of specified injuries or illnesses; evaluate the effects of posture and changes to posture on the human body; and discuss topical questions in a seminar setting periodically throughout the semester.

Class Contact: Three (3) hours per week or equivalent for one semester comprising laboratory classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: There are no set texts for this unit. Reading will be influenced by the nature the research project undertaken by the student.American Psychological Association. (2001). Publication manual of the American Psychological Association (5th ed.). Washington, DC: Author.ORAPA Style Sheet. (2004). Available from Dr. Abel Scribe PhD Website, www.docstyles.com/apacrib.htm

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); oral tutorial questions (week 5) (10%); oral tutorial questions (week 10) (10%), 15 minute oral exam as part of 3rd year OSCE (80%). Written and practical examinations have been replaced by an Objective Structured Clinical Examination (OSCE) in line with other units in the 3rd year Bachelor of Osteopathic Science program. This type of examination assesses a student's clinical and practical skills, reflects more closely the reality of osteopathic practice and improves integration with other clinical and practical units.Other, Oral Tutorial Questions (Week 5), 10%. Other, Oral Tututorial Questions (Week 10), 10%. Examination, 15 Minute Oral, 80%.

HHD1101 INTRODUCTION TO DERMAL THERAPY STUDIES

Locations: City King Street.

Description: This unit introduces students to higher education through the examination of studies in Dermal Therapies. Students will investigate the role of dermal therapies within a health framework and will examine, at an introductory level, clinical practices and procedures and research trends in dermal therapy. The unit introduces and develops in students academic and other tertiary study skills necessary for successful study in higher education. Skills include academic essay writing, lecture note-taking, the pitfalls of plagiarism and collusion, APA referencing style and format, and examinations strategies. Scientific writing and basic principles of research are introduced through critical appraisal of published journal articles that focus predominantly on the dermal therapies. Application of academic studies skills, with particular emphasis on critical evaluation, is emphasised throughout the unit. Successful completion of this unit requires that students attend and successfully complete the intensive study block (on campus) associated with this unit.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe the sections typically found in scientific articles; Discuss the key aspects of research that can bias the quality of the research; Assess the strengths and weaknesses of journal articles, with particular reference to published articles on dermal therapies; Write a logically and syntactically well-structured academic essay; Correctly reference using APA style and format; Apply tertiary study skills necessary for successful study in higher education.

Class Contact: 3 hours per week for one semester.

Required Reading: Donald, D. B. (1996). Writing clear essays. Prentice Hall. Polgar, S., & Thomas, S. A. (2003). Introduction to research in the health sciences. Edinburgh: Churchill Livingstone.

Assessment: This unit has three (3) assessment items: This unit has three (3) assessment items: A one (1) hour written examination 30% (P1, I1, W1, A1); One (1) Article Critique (students are to critique a selected article 1000 words) 30% (P2, I1, W1, A1) One (1) assignment 1000 words, 40% (P1, I1, W1, A1, C1)

HHD1201 DERMAL HEALTH SCIENCE 1

Locations: City King Street.

Description: The unit introduces students to theoretical aspects of anatomy, physiology and microbiology relevant to the practice of Dermal Therapy. The unit provides knowledge on cells, tissues and systems that students will require in their theoretical and practical applications throughout the associate degree program. Topics include: the cell, membrane and organelles; the circulatory, lymphatic, musculoskeletal, nervous (including the brain), endocrine and integumentary systems; and identification and biochemistry of micro-organisms. Fundamental microbiological principles that underpin infection control and sterile procedures in clinical practice units are emphasised. This unit extends the knowledge of anatomy and physiology gained in the Diploma of Beauty Therapy.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the basic floorplan of a human cell, including the organelles and cellular membrane; Explain cellular functions in terms of cellular structures; Describe the structures (anatomy and basic histology) of the circulatory, lymphatic, musculoskeletal, nervous, endocrine and integumentary systems with special reference to dermal therapy; Explain the functions (physiology) of the circulatory, lymphatic, musculoskeletal, nervous, endocrine and integumentary systems with special reference to dermal therapy; Discuss how hormones affect the integumentary system in normal and pathological conditions; Outline key microbiological concepts and principles relevant to dermal therapy; Comment on infection control and sterile procedures in dermal therapy.

Class Contact: Total of thirty-six (36) hours for one semester comprising online lectures, online tutorials and a lab session.

Required Reading: Principles of anatomy and physiology Tortora, G. J., & Derrickson, B. H. (2008). (11th ed.). Hoboken: John Wiley & Sons. Microbiology and infection control for health professionals. Lee, G., & Bishop, P. (2005). Prentice Hall.

Assessment: Examination, 1.5-hour written examination, 35%. Test, Weekly mini quizzes, 30%. Assignment, (1000 words), 35%.

HHD1202 DERMAL HEALTH SCIENCE 2

Locations: City King Street.

Description: The unit extends students theoretical knowledge of aspects of anatomy, physiology, patho-physiology, immunology, cellular damage, allergy, infection, inflammation, wound repair, neoplasia, and tissue responses to stress relevant to the practice of Dermal Therapy. The unit provides underpinning knowledge that students will require in their theoretical and practical applications throughout the associate degree program. Specific topics include: wound rehabilitation, skin and deeper tissue physiology, inflammatory response and associated damage, allergic responses, embryology of the skin, and structure and biochemistry of the skin. This unit extends the knowledge of anatomy and physiology gained in the Diploma of Beauty Therapy.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the function of the skin in terms of its structure; Discuss, with specific details, the biochemistry of the skin; Explain the principles of the inflammatory process and the process of wound healing; Describe the embryology of the integumentary system; Outline the clinical manifestations pathophysiology aetiology and embryology for common neoplasias; Compare and contrast benign and malignant neoplasias.

Class Contact: Thirty-six (36) hours for one semester comprising online lectures, online tutorials and a laboratory session.

Required Reading: Robbins basic pathology Kumar, V., Abbas, A. K., Fausto, N., & Mitchell, R. N. (Eds.) (2007). (8th ed.). Philadelphia, PA: Saunders Elsevier.

Assessment: Examination, 1.5-hour online examination, 35%. Test, Weekly mini-quizzes, 30%. Assignment, (1000 words), 35%.

HHD1203 DERMAL WORKPLACE PRACTICES

Locations: City King Street.

Description: This unit explores psychological issues in the dermal therapy workplace. Individual (student practitioner, the client, the employee) and group (employee-employee) issues are examined, and psychological explanations for individual and group responses typically found in dermal therapy and other allied practices are discussed. Psychological conditions typical of some clients are explained further and appropriate communications strategies are provided. Client responses warranting referral are covered in conjunction with referral procedures to external agencies. Students are required to document their use of reflective practice in the workplace.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss workplace issues that impact on individuals (self, the client) and groups (employees) working in dermal therapy and other allied practices; Give psychological explanations for group and individual responses (thoughts, actions and feelings) typically found in dermal therapy and other allied practices; Reflect on their tertiary education and workplace experiences in a constructive manner; Document their use of reflective practice to maintain or improve cohesion in the workplace; Document examples from their workplace in which psychological theories and reflective practice have been applied to issues arising with clients; Describe client responses (thoughts, actions and feelings) that warrant consideration for referral to external agencies; Give written and spoken examples of referrals to external agencies.

Class Contact: 3 hours per week.

Required Reading: Kolt, G. S., & Andersen, M. B. (Eds.). (2004). Psychology in the physical and manual therapies. Edinburgh: Churchill Livingstone.

Assessment: Reflective journals (1500 words Students are to present a reflective journal encompassing their opinions and related arguments or agreements to each lecture) 45% (P2, I1, W1, A1, D2) Protocol workbook (1500 words - students are to select five issues covered in the lectures and prepare a standard protocol on how to address these issues in the workplace setting). 55% (P2, I1, W1, A1, C1, D2)

HHD1271 CLINICAL DIAGNOSIS & MANAGEMENT 1

Locations: St Albans, City Flinders.

Prerequisites: HHA1171 - ANATOMY 1

HHO1170 - OSTEOPATHIC SCIENCE 1

Description: Content will include an introduction to the examination and assessment of: the skin, head and neck, eye and ear, respiratory system, heart, peripheral vascular system, cranial nerves, abdomen and peripheral nervous system. Students will be trained in the use of diagnostic equipment commonly employed in clinical examinations, including the stethoscope, otoscope, ophthalmoscope, reflex hammer, tuning fork, and sphygmomanometer.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Correctly and accurately use the vocabulary of the clinical examination; Name the basic skin lesions and have will recognise their aetiology and clinical significance; Conduct a competent examination of the following structures: head, eyes, ears, nose, mouth, neck, nervous system, including the cranial nerves and reflexes, muscles and joints, the thorax including lungs, heart and great vessels, the peripheral vascular system, and the abdomen; Describe the basic abnormal signs and symptoms that may be encountered when the named structures and systems are affected by pathology; Integrate and apply knowledge of anatomy and physiology (from other units) to the living body; Explain the purpose of and demonstrate competence in the use of the basic tools of clinical medicine, such as the stethoscope, otoscope, ophthalmoscope, reflex hammer, tuning fork and sphygmomanometer.

Class Contact: Twenty - four (24) hours for one semester comprising lectures and practical classes.

Required Reading: HHD1271 Clinical diagnosis & management 1 manual. Kiatos, J. (2011). Melbourne, Australia: Victoria University,School of Biomedical and Health Sciences, Osteopathy Unit. Dorland's illustrated medical dictionary. Dorland, W. A. N. (2007). (31st ed.). W. B. Saunders Co. Bates' guide to physical examination and history taking. Bickley, L. S. (2008). (10 th ed.). Lippincott Williams & Wilkins.

Assessment: Participation in practical sessions with at least 90% attendance is a hurdle requirement for completion of this unit. All assessment items for this unit are hurdle requirements.Examination, Final viva voce practical examination, 100%.

HHD2101 DERMAL HEALTH SCIENCE 3

Locations: City King Street.

Prerequisites: HHD1201 - DERMAL HEALTH SCIENCE 1

HHD1202 - DERMAL HEALTH SCIENCE 2

Description: This unit builds on the knowledge presented in Health Science 1 by further researching advanced skin structure and cosmetic dermatology, specifically in the area of dermatological conditions. This unit also covers the clinical features, pathophysiology including histological features, aetiology, diagnosis, treatment and management, and epidemiology of a range of non-infectious dermatological conditions. Conditions include dermatitis, eczema, psoriasis, benign and pre-malignant skin lesions and skin cancers. Other skin disorders requiring the introduction and development of pharmacology and toxicology are also discussed. Principles of pharmacology and toxicology are reinforced with research studies on the effects of various drugs and chemicals on the skin. Students are expected to investigate the effects on the skin of various cosmetic ingredients especially those in chemical peels and cosmeceutical preparations. Client responses warranting referral to a medical practitioner are covered and students will be expected to become familiar with the Therapeutic Goods Act and other legislation relevant to practical work in dermal therapy.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Contrast the chemical formulas, properties and actions and adverse reactions of a range of chemical peels and cosmeceuticals commonly used on the skin in the aesthetics industry; Discuss issues of toxicology as they relate to the use of chemicals on the skin Outline the clinical manifestations, differential diagnoses, pathophysiology, aetiology, treatment and management and epidemiology for a range of dermatological conditions Discuss the role of the dermal clinician in the management of various dermatological conditions.

Class Contact: 4 hours per week.

Required Reading: Draelos, Z. (2005). Cosmeceuticals. Elsevier Saunders. Savin, J., Dahl, M., & Hunter, J. (2002). Clinical dermatology. UK: Blackwell Science.

Assessment: This unit has three (3) assessment items: This unit has three (3) assessment items: A two (2) hour online examination 35% (P3, I3, W3, A3); One (1) ten minute presentation (online) 30% (P3, I3, O2, W3, C3, D3) One (1) assignment 2000 words, 35% (P3, I3, W3, A3, C2, D3) The student will be required to investigate, discus and present a dermatological problem, how it would have been treated in the past and how they would revise treatment with new knowledge gain in Health Science 1, 2 and 3.

HHD2112 DERMAL SCIENCE 1

Locations: City Queen.

Prerequisites: SIBBCCS403A -

SIBBCCS301A -

Description: The unit introduces students to theoretical aspects of anatomy, physiology, and microbiology relevant to the practice of dermal therapy. The unit provides important underpinning knowledge that students will require in their practical applications throughout the degree program. Topics include cell and cell membrane structure and function, the musculoskeletal system including joints, the circulatory and lymphatic systems, the nervous system with emphasis on the central nervous system, and the endocrine system. This unit also includes the identification and biochemistry of micro-organisms, a basis for the dermatology and pathology material in later units, and a grounding in microbiology sufficient for infection control and sterile procedures required in the clinical practice units.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify and discuss the structure and function of the circulatory system, lymphatics and nervous systems; Recognise and describe the craniofacial vasculature and the microvasculature of the skin; Recognise and describe the structure and function of the musculoskeletal system, with an emphasis on craniofacial musculature and osteology; Explain the structure and function of cells and cellular membranes; Discuss the structure and functions of microorganisms, including bacteria, viruses, fungi and protists.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, laboratory sessions and online interactive demonstrations.

Required Reading: Principles of anatomy and physiology. Tortora, G.J., & Derrickson, B. (2009). (12th ed.). Hoboken, NJ: Wiley and Sons. Microbiology and infection control for health professionals. Lee, G., & Bishop, P. (2009). (4th ed.). NSW: Pearson Education Australia.

Assessment: Examination, Written Examination (2 hours), 40%. Test, 10 Online Tests (each test 12 minutes duration), 25%. Assignment, Written Assignment (1500 words), 35%.

HHD2113 HEALTH RESEARCH AND DERMAL STUDIES

Locations: Off-shore, City Queen.

Description: This unit provides an introductory research focus for health care professionals with an emphasis on basic quantitative paradigms. A primary aim of this introductory research subject will be to facilitate the students ability to critically analyse and evaluate selected research literature relating to health sciences with particular reference to the safe practice of applied dermal therapies. Preparatory academic skills required for the rest of the course will also be covered; these include APA referencing, writing academic essays, and sourcing appropriate information.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Interpret findings in research papers containing statistics. Recognise the quality of research studies. Demonstrate an understanding of basic statistics. Compare and contrast the quality of research studies. Employ APA referencing when writing essays and reports. Write an essay at a University standard.

Class Contact: Thirty - six (36) hours for one semester comprising lectures and online tutorials.

Required Reading: Get great marks for your essays, reports, and presentations. Germov, J. (2011). (3rd ed.). Crows Nest: Allen &Unwin. Statistical methods for health care research. Munro, B.H. (2004). (5th ed.). Philadelphia: Lippincott Williams & Wilkins.

Assessment: Examination, Written examination (2 hours), 40%. Essay, Essay on a selected topic (1000 words), 30%. Exercise, Critique on a selected research article (1000 words), 30%.

HHD2115 PERMANENT HAIR REMOVAL

Locations: City Queen, Other.

Prerequisites: HLTIN402B -

SIBBCCS301A -

SIBBCCS406A -

SIBBCCS403A -

SIBBCCS404A -

Description: This unit explores the biology and physiology of hair and its associated structures including the cycle of hair growth and its impact on permanent hair reduction procedures. The underpinning science behind the process of electrolysis and thermolysis and the effects this has on permanent hair removal will be examined in detail. The student will be able to apply this knowledge to designing and performing permanent hair removal procedures on patients to the level of a professional dermal clinician

Credit Points: 12

Learning Outcomes: On successful completion of this unit students, are expected to be able to: Describe anatomy and physiology of hair and associated structures. Describe normal hair growth cycle and influence on permanent hair removal procedures. Explain disorders of hair growth and biological factors that influence overgrowth of hair. Describe the underpinning science of electrolysis and thermolysis and effects on the structure of the hair and associated structures. Perform thorough consultation identifying contraindications and indications and design a safe and effective treatment plan with post care advice. Perform permanent hair removal procedures to the level of a professional dermal clinician.

Class Contact: Sixty-six (66) hours for one semester comprising thirty-six (36) hours of lectures and tutorials and thirty (30) hours of supervised attendance at the Dermal Teaching Clinic.

Required Reading: Either of these would be sufficient for required reading Principles and practice of electrical epilation. Godfrey, S. (2001). (3rd ed.). UK: Elsevier. Modern electrology: Excess hair its causes and treatment. Gior, F. (2000). (3rd ed.). USA: Hair Publishing.

Assessment: Hurdle requirement; Supervised placement comprising successful completion of 30 hours at Dermal Teaching Clinic. Attendance and participation in all activities required in the Dermal Teaching Clinic.Test, 12 Online Tests (each test 10 minutes duration), 20%. Case Study, Perform and document permanent hair removal treatments (minimum 5), 30%. Assignment, Written Assignment (1000 words), 25%. Examination, Practical Exam (1 hour), 25%.

HHD2116 INDUSTRY EXPERIENCE 1

Locations: City Queen.

Description: In this unit students will explore the workplace context by examining the organisational structure and identifying and defining their role as an active and accountable employees within industry. They will gain a better understanding as to what techniques are best suited for particular conditions. Student engage in experiential learning. Students will also be able to reflect on the integration of academic and workplace learning.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Perform treatments within a beauty therapy workplace to the standard of a qualified beauty therapist; Critique and assess their own participation and interaction within a beauty therapy workplace; Critique and assess the standard of treatments they offer within a beauty therapy workplace; Investigate and evaluate treatments, products or equipment used within a beauty therapy workplace; Apply the knowledge and skills learnt in the Diploma of Beauty Therapy to practice within a beauty therapy workplace.

Class Contact: One Hundred and Ninety Two (192) hours for one Semester comprising 180 hours within an approved clinical setting and 12 hours of online or on-campus workshops.

Required Reading: Values, ethics and health care. Duncan, P. (2010). London, UK: Sage.

Assessment: Learning in the workplace- 180hrs paid work within an approved beauty therapy workplace is required to be completed for this unit.Portfolio, Log book of treatments performed, 20%. Case Study, Case report on a series of treatments performed (1500 words), 30%. Other, Reflective practice journal (approx 200 words, completed fortnightly), 50%.

HHD2172 CLINICAL DIAGNOSIS & MANAGEMENT 2

Locations: St Albans, City Flinders.

Prerequisites: HHD1271 - CLINICAL DIAGNOSIS & MANAGEMENT 1

HHY1271 - PATHOLOGY 1

Description: Clinical presentations of common and life-threatening diseases affecting the haematological, cardiovascular, renal and urogenital systems will be discussed. The unit features common clinical scenarios with clinical examination in those scenarios, and the common laboratory and radiological tests used in the investigations of those systems. Particular emphasis will be given to conditions that are of special interest to osteopaths.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe common and serious clinical scenarios in the haematological, cardiovascular, renal and urogenital systems; Demonstrate appropriate examination skills relevant to the cardiovascular, renal and urogenital systems; Recognise symptoms or signs that warrant referral to another practitioner including those that require immediate referral; Describe and use the communication skills involved in the consultative process; Discuss models of clinical judgment used by a practising General Practitioner in relation to their own clinical experience; Explain the appropriate applications of and typical pathological findings from widely employed laboratory, radiological and other special investigations of the haematological, cardiovascular, renal and urogenital systems.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and tutorials.

Required Reading: Bates' guide to physical examination and history taking. Bickley, L. S. (2008). (10th ed.). Philadelphia: Lippincott Williams & Wilkins. HHD2172 CD&M 2 and HHD2273 CD&M 3 unit manual. Fitzgerald, K., & Kiatos, J. (2006). Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.

Assessment: Tutorial Participation, One practical examination, 35%. Examination, one 2-hour written examination, 65%.

HHD2204 DERMAL ANATOMY AND PHYSIOLOGY

Locations: City King Street, City Flinders, Off-shore, City Queen.

Prerequisites: WRBCS408- Apply Knowledge of Anatomy and Physiology to Beauty Treatments WRBCS305- Apply Knowledge of Skin Biology to Beauty Treatments WRBCS409- Apply Knowledge of Skin Science to Beauty Treatments

Description: The unit introduces students to theoretical aspects of anatomy, physiology, and microbiology relevant to the practice of dermal therapy. The unit provides important underpinning knowledge that students will require in their practical applications throughout the degree program. Topics include cell and cell membrane structure and function, the musculoskeletal system including joints, the circulatory and lymphatic systems, the nervous system with emphasis on the central nervous system, and the endocrine system. This unit also includes the identification and biochemistry of micro-organisms, a basis for the dermatology and pathology material in later units, and a grounding in microbiology sufficient for infection control and sterile procedures required in the clinical practice units.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the structure and function of the circulatory system; Describe the craniofacial vasculature and the microvasculature of the skin; Describe the structure of the lymphatic system as it relates to the practice of dermal therapies treatments such as clinical manual lymphatic drainage and machine based lymphatic drainage; Describe the structure and function of the skeletal system, with an emphasis on craniofacial osteology, arthrology and bony landmarks; Describe the structure and function of the muscular system in relation to the practice of dermal therapies; Describe the structure and function of cells and cellular membranes; Describe the structure and function of the nervous system; Apply the principles of microbiology to the application of dermal therapies procedures; Describe the endocrine system and the function of hormones in relation to the performance of dermal therapy procedures;

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, laboratory sessions and online interactive demonstrations.

Required Reading: Microbiology and infection control for health professionals. Lee, G., & Bishop, P. (2005). Prentice Hall. Principles of anatomy and physiology. Tortora, G.J., & Derrickson, B. (2008). (12th ed.). Hoboken: Wiley and Sons.

Assessment: Examination, one 2.5-hour written examination, 35%. Test, mid-semester test and weekly quizzes, 30%. Assignment, one written assignment (2000 words), 35%.

HHD2205 DERMAL LASER PRACTICE AND TECHNIQUES 1

Locations: City King Street.

Prerequisites: HHD2101 - DERMAL HEALTH SCIENCE 3

Description: This unit covers aspects of laser light physics and laser safety. Topics include laser optics, laser properties, laser tissue interactions, light-based dermal treatments, introduction to mechanisms underlying certain laser and light-based therapies; and safety issues involved with the use of cosmetic laser devices in a health care setting. Principles of laser safety are according to Australian Standards and related government regulations. Successful completion of this unit requires that students attend and successfully complete the intensive practical study block (on campus) associated with the unit.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss how the Australian and New Zealand standards for the safe use of lasers in a health care setting apply to the use and management of these modalities in dermal therapies; Describe and discuss the properties of laser light; Describe and discuss a range of laser tissue interactions; Explain the mechanisms underlying the effectiveness of certain laser and light-based therapies; Describe and discuss issues of laser safety relevant to the use of laser devices for aesthetic purposes; Explain in plain English (as if to a client), general safety issues that apply to health care settings in which lasers are used; Discuss legislative issues in relation to the use of non-ionising radiation sources for aesthetic purposes.

Class Contact: 3 hours per week.

Required Reading: AS/NZS 4173: 2004 Guide to the safe use of lasers in health care Standards Australia.

Assessment: This unit has three (3) assessment items: This unit has three (3) assessment items: A two (2) hour online examination 40% (P2, I2, W2, A2, D2); One (1) identification of laser and light safety issues exam 20% (P2, I2, W2, A2, D2); One (1) assignment, 2000 words, 40% (P2, I2, W2, A2, D2) The student will be required to investigate laser or light based therapy procedure and discuss this procedure in light of the knowledge gained in laser safety and laser physics.

HHD2206 DERMAL LASER PRACTICE AND TECHNIQUES 2

Locations: City King Street.

Prerequisites: HHD2101 - DERMAL HEALTH SCIENCE 3

Description: This unit covers aspects of theory and application of laser and light based procedures. The unit includes topics such as laser tissue interactions in relation to Class 3b lasers, radio frequency devices, class 4 lasers for tattoo removal and resurfacing, and photodynamic therapy. Knowledge and skills in a range of laser and light-based therapy devices are developed further, and students will apply laser safety protocols associated with the use of cosmetic laser devices in a health care setting. Professional skills, attitude and presentation appropriate for a clinician dealing with laser and light-based therapy devices are further refined. Successful completion of this unit requires that students attend and successfully complete the intensive practical study block (on campus) associated with the unit.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe and discuss the range of conditions treated with Class 3b lasers; Explain the mechanisms underpinning the effectiveness of Class 3b laser and photodynamic therapies; Perform a range of laser and light based treatments, safely, effectively and efficiently, according to client needs and procedure protocols; Describe and discuss the range of treatment modalities in photodynamic therapy and perform these modalities to the appropriate skin conditions; Explain the use of class 4 laser devices for tattoo removal; Explain the use of radio frequency devices in dermal therapy; Comment on the range of new technologies and recent laser and light based therapy devices; Assess client needs and suitability for a range of light based treatments; Communicate appropriately with clients (in plain English) and fellow clinicians (in plain and technical language) about conditions, treatment options and treatment plans.

Class Contact: 3 hours per week.

Required Reading: AS/NZS 4173: 2004 Guide to the safe use of lasers in health care Standards Australia.

Assessment: This unit has three (3) assessment items: A two (2) hour MCQ examination 35% (P3, I3, W3, A3, D3); Three (3) online discussion exercises (Composed of a series of short answer questions relating to selected journal articles) 30% (P3, I3, W3, A3, D3); Practical assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards), 35% (P3, I3, O3, A3, C3, D3)

HHD2207 DERMAL LASER PRACTICE AND TECHNIQUES 3

Locations: City King Street.

Prerequisites: HHD2101 - DERMAL HEALTH SCIENCE 3

Description: This unit covers aspects of theory and application of laser and light based procedures. The unit includes topics such as laser physics, laser tissue interactions in relation to class 3B and class 4 lasers and pulsed light technologies. Knowledge and skills in a range of advanced lasers and light-based dermal treatments are developed further, and students will apply laser safety protocols associated with the use of cosmetic laser devices in a health care setting. Professional skills, attitude and presentation appropriate for a clinician dealing with laser and light-based therapy devices are expected. Successful completion of this unit requires that students attend and successfully complete the intensive practical study block (on campus) associated with the unit.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Explain how knowledge of laser and light physics is used in the application and management of class 3b and class 4 lasers and pulsed light treatments; Discuss laser tissue interactions in relation to class 3B and class 4 lasers and pulsed light technologies; Explain the mechanisms underpinning certain class 4 laser and pulsed light therapies; Compare and contrast a range of aesthetic laser and light modalities for treating various skin conditions; Document the assessment of client needs and suitability for a range of light based treatments; Perform a range of advanced laser and light based treatments, safely, effectively and efficiently, according to client needs and procedure protocols; Communicate appropriately (in plain English) with clients with special needs and fellow clinicians (in plain and technical language) about straightforward and complex conditions, advantages and disadvantages of the treatment options, and the recommended treatment plan(s); Demonstrate professional skills, attitude and presentation (including appropriate communication skills, and social and cultural awareness and responsiveness with clients and colleagues) consistent with dermal clinicians dealing with laser and light-based therapy devices.

Class Contact: 3 hours per week.

Required Reading: AS/NZS 4173: 2004 Guide to the safe use of lasers in health care Standards Australia.

Assessment: This unit has three (3) assessment items: This unit has three (3) assessment items: A two (2) hour MCQ examination 35% (P3, I3, W3, A3, D3); One (1) Written assignment on laser documentation (pre procedure instructions, consent form, and post procedure directions). 30% (P3, I3, W3, A3, D3); Practical assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards), 35% (P3, I3, O3, A3, C3, D3)

HHD2208 MEDICAL PROCEDURES RELATED TO DERMAL THERAPY

Locations: City King Street.

Prerequisites: HHD2101 - DERMAL HEALTH SCIENCE 3

Description: In this unit, students are introduced to theoretical aspects of specific medical procedures that relate to dermal therapy. Medical and aesthetic reasons for a range of approaches will be outlined using terminology typically used in medical and health care settings. Basic clinic management procedures will include appropriate record keeping and case note recording. Students will observe, via various media, a representative range of face and body procedures include plastic, reconstructive and cosmetic. Pre- and post-operative management and adjunctive therapies used by dermal clinicians are included. Other topics are: aging skin; management of aged skin and other fragile skin issues; management and documentation of complications and adverse outcomes; and the role of the dermal therapist and medical procedures.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe appropriate record keeping requirements for a medical setting; Correctly use medical terminology pertinent to dermal therapy; Explain in plain English, casenotes relevant to dermal therapy from patients who have undergone routine plastic, reconstructive or cosmetic procedures; Describe and discuss at a basic level, the principles and techniques typically used in routine cosmetic, plastic and reconstructive procedures; Discuss appropriate pre- and post-operative management and adjunctive therapies used by dermal clinicians for patients who have undergone cosmetic, plastic and reconstructive procedures; Describe and document complications and adverse outcomes typically seen in dermal therapy; Describe and document procedures and management plans for complications and adverse outcomes typically seen in dermal therapy; Explain the process of aging skin; Discuss the management and issues related to the management of aging skin and other fragile skin conditions; Evaluate the role of the dermal therapist in relation to cosmetic, plastic and reconstructive medical procedures.

Class Contact: Independent research together with regular online and telephone contact with the project coordinator and other students of the Clinical Practice unit of study as advised by the project coordinator.

Required Reading: Vuyk, H.D & Lohuis, P.J. (2006). Facial plastic and reconstructive surgery. London: Hodder Arnold.

Assessment: This unit has three (3) assessment items: This unit has three (3) assessment items: One (1) Case Study (2000 words) 40% (P2, I2, W2, A2, D2) Students will be required to investigate and discus the issues involved with the care of a patient who has undergone a plastic, reconstructive or cosmetic procedure. Two (2) Online discussion exercises (Composed of a series of short answer questions relating to selected journal articles) 20% (P2, I2, W2, A2, C2, O2) One (1) two and a half hour (2.5 hour) written examination 40% (P2, I2, W2, A2, D2)

HHD2212 DERMAL SCIENCE 2

Locations: City Queen.

Prerequisites: HHD2112 - DERMAL SCIENCE 1

Description: The unit will introduce students to theoretical aspects of integumentary system embryology, structure and function, patho -physiology, immunology, cellular damage, allergy, inflammation, wound repair, neoplasia and tissue responses to stress relevant to the practice of Dermal Therapy. The unit will provide important underpinning knowledge that students will require in their practical applications throughout the degree program. Knowledge to be developed will include: wound repair, integumentary system biology, embryology and biochemistry, inflammatory response and associated damage, infection, immunity and allergy and neoplasia.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Identify and discuss cellular damage, inflammation and wound healing processes; Develop and demonstrate knowledge of inflammation and wound healing relevant to the practice of dermal therapies; Develop and demonstrate knowledge of skin biochemistrty; Describe and discuss how a common plastic surgery procedure can affect normal structure and function of the integumentary system; Discuss the main stages of embryological development and the development of the Integumentary system; Describe the process of neoplasia and compare and contrast benign and malignant neoplasias; Identify and describe immunological and hypersensitivity responses.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and online interactive demonstrations.

Required Reading: Robbins basic pathology. Kumar, V., Abbas, A.K., Fausto, N., & Mitchell, R.N. (2010). (9th ed.) Philadelphia, PA: Saunders Elsevier. Principles of anatomy and physiology. Tortora, G. J., & Derrickson B. H. (2009). (12th ed.) Hoboken, NJ: Wiley and Sons.

Assessment: Assignment, Written Assignment (1500 words), 35%. Test, 10 Online Tests (each test 12 minutes duration), 25%. Examination, Written Examination (2 hours), 40%.

HHD2213 DERMAL WORKPLACE ISSUES

Locations: Off-shore, City Queen.

Prerequisites: SIBBCCS403A (Recognise body structure and systems in a beauty therapy context) and SIBBCCS301A (Apply the principles of skin biology to beauty treatments) are from the diploma of beauty therapy

Description: This unit will look at various aspects of how our mental state and that of others can affect our workplace environment. Through a better understanding of themselves, students will be able to gather a better understanding of others. Students will not only examine different psychological techniques but also what to do when various issues arise. Students will consider various psychological conditions that affect workplace functioning such as stress and horizontal violence. They will also consider psychological conditions that clients may present with such as body dysmorphic disorders, terminal illness, personality disorders and how to deal with them in the workplace.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Define the different cognitive processes that they will encounter in clients and colleagues. Apply and demonstrate techniques in managing conflict, respecting individual, cultural, social and educational differences with collegues and clients. Reflect on their own cognitive and behavioural processes and the role this may play in their clinical practice. Identify and assess when a client or colleague may need emergency or professional help and how to refer or arrange this care for clients or colleague.

Class Contact: Thirty-six (36) hours for one semester comprising of lectures.

Required Reading: Introducing psychology for nurses and healthcare professionals Upton, D. (2010). New Jersey: Pearson Education.

Assessment: Reflective Journals: Students are to present a reflective journal encompassing their opinions and related arguments or agreements to each of the first 8 lectures. Protocol Workbook: Students are to select 4 issues covered in the lectures and prepare a standard protocol on how to address these issues in the workplace setting.Journal, Reflective Journal Weeks 1-4 (800 words), 20%. Journal, Reflective Journal Weeks 5-8 (800 words), 20%. Assignment, Protocol Workbook (2000 words), 60%.

HHD2214 HEALTH RESEARCH STUDY PERSPECTIVES

Locations: City King Street, City Flinders, City Queen.

Prerequisites: WRBCS408A - APPLY KNOWLEDGE OF ANATOMY AND PHYSIOLOGY TO BEAUTY THERAPY

WRBCS305A - APPLY KNOWLEDGE OF SKIN BIOLOGY TO BEAUTY TREATMENTS

WRBCS409A - APPLY KNOWLEDGE OF SKIN SCIENCE TO BEAUTY THERAPY TREATMENTS

Description: This unit provides an introductory research focus for health care professionals with an emphasis on basic quantitative paradigms. A primary aim of this introductory research subject will be to facilitate the students ability to critically analyse and evaluate selected research literature relating to health sciences with particular reference to the safe practice of applied dermal therapies. Preparatory academic skills required for the rest of the course will also be covered; these include APA referencing, writing academic essays, and sourcing appropriate information.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Interpret the findings in research papers. Recognise the quality of research design. Demonstrate an understanding of basic statistics. Recognise the difference between strong and weak research findings. Employ APA referencing when writing essays and reports. Write an essay at a University standard.

Class Contact: Thirty-six (36) hours per semester mixed mode delivery.

Required Reading: Writing clear essays. Donald, D.B., (1996). Prentice Hall. Introduction to research in the health sciences. Polgar, S. Thomas, S.A. (2003). (5th ed). Edinburgh: Churchill Livingstone.

Assessment: Examination, 1 written examination (2.5 hrs), 30%. Assignment, 1 assignment (2000 words), 50%. Other, Critique (1000 words) students are to critique a selected Article, 20%.

HHD2215 LASER FUNDAMENTALS AND SAFETY

Locations: City King Street, City Flinders, City Queen.

Description: This unit covers the fundamental of laser physics, the properties of laser, delivery systems and biological effects on the human tissue. Australian standards and relevant local government laws will be explained in relation to the use of cosmetic lasers.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the properties of light. Discuss the different types of delivery systems in relation to safety. Discuss the biological effect of light and its interaction with tissue. Discuss laser safety officer duties as required by AS/NZS 4173: 200

4. Explain the processes associated with light-based treatments. Explain the theories in relation to light-based treatment procedures in dermal therapies.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: AS/NZS 4173: 2004 (2004). Guide to the safe use of lasers in health care standards Australia (2nd ed.). Standards Australia.

Assessment: Examination, Written Examination (2 hours), 40%. Assignment, Written Assignment (1000 words), 30%. Test, 10 Online Tests (each test 12 minutes duration), 30%.

HHD2216 INDUSTRY EXPERIENCE 2

Locations: City Queen.

Prerequisites: HHD2116 - INDUSTRY EXPERIENCE 1

Description: In this unit students will explore the workplace context by examining the organisational structure and identifying and defining their role as active and accountable employees within industry. Students will develop an understanding of the key issues relating to the transition to the professional workplace, including workplace culture, professional etiquette and communications. They will gain a better understanding as to what techniques they can apply and how to apply them. Students will also be able to reflect on the integration of academic and workplace learning.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform treatments within a beauty therapy workplace to the standard of a qualified beauty therapist; Critique and assess their own participation and interaction within a beauty therapy workplace; Critique and assess the standard of treatments they offer within a beauty therapy workplace; Investigate and evaluate treatments, products or equipment used within a beauty therapy workplace; Apply the knowledge and skills learnt in the Diploma of Beauty Therapy to practice within a beauty therapy workplace

Class Contact: One hundred and ninety two (192) hours for one semester comprising one hundred and eighty (180) hours within an approved clinical setting and twelve (12) hours of workshops online or on-campus.

Required Reading: School developed manual. Values, ethics and health care. Duncan, P. (2010). London, UK: Sage.

Assessment: Learning in the workplace- 180hrs paid work within an approved beauty therapy workplace is required to be completed for this unit.Portfolio, Log book of treatments performed, 20%. Case Study, Case report on a series of treatments performed (1500 words), 30%. Other, Reflective practice journal (approx 200 words, completed fortnightly), 50%.

HHD2224 INDUSTRY PRACTICUM 1

Locations: City King Street, City Flinders, City Queen.

Prerequisites: WRBSS503B - PROVIDE PERMANENT EPILATION

WRBFS407B - PROVIDE ADVANCED FACIAL TREATMENTS

Description: In this subject students will explore the workplace context by examining the organisational structure and identifying and defining their role as an active and accountable employees within industry. They will gain a better understanding as to what techniques are best suited for particular conditions. They will also apply experiential learning. Students will also be able to reflect on the integration of academic and workplace learning.

Credit Points: 24

Learning Outcomes: Upon sucessful completion of this unit, it is expected that students will become more confident in the application of their skills obtained at the diploma level (assessed via situation analysis report). Students will be exposed to a wide range of clients and procedures so that they feel more confident in dealing with future clients (assessed via student portfolio).

Class Contact: 12 hours per week within an approved clinical setting.

Required Reading: Unit manual to be developed

Assessment: Hurdle requirement - students are required to undertake workplace-based activities to the equivalent of 450 hours.This unit has two (2) assessment modalities: Student portfolio - (the student is to develop a portfolio of reports, case studies and reflective journal entries documenting the range of procedures they have been performing 3000 words. Students are also required to assess their skill development against the core graduate attributes and identify areas for further development) 70% (P2, I2, O2, W2, A2, C2, D2) Situation analysis report - students are required to report on the workplace context in which these learning is occurring, and examine its place within industry sector (1000 words) 30% (P2, I2, W2, A2, D2)

HHD2273 CLINICAL DIAGNOSIS & MANAGEMENT 3

Locations: St Albans, City Flinders.

Prerequisites: HHD2172 - CLINICAL DIAGNOSIS & MANAGEMENT 2

Description: Clinical presentations of common and life-threatening diseases affecting the respiratory, gastrointestinal and endocrine systems will be discussed. The unit features common clinical scenarios with clinical examination of those scenarios, and the common laboratory and radiological tests used in the investigations of those systems. Particular emphasis will be given to conditions that are of special interest to osteopaths.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe common and serious clinical scenarios in the respiratory, gastrointestinal and endocrine systems; Demonstrate appropriate examination skills relevant to the respiratory, gastrointestinal and endocrine systems; Recognise symptoms or signs that warrant referral to another practitioner including those that require immediate referral; Describe and use effectively communication skills involved in the consultative process; Discuss models of clinical judgment used by practising General Practitioners in relation to their own clinical experience; Explain the appropriate applications of, and typical pathological findings from widely employed laboratory, radiological and other special investigations of the respiratory, gastrointestinal and endocrine systems.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, practical classes and tutorials.

Required Reading: Bates' guide to physical examination and history taking. Bickley, L. S. (2008). (10th ed.). Lippincott Williams & Wilkins. HHD2273 CD&M 3 unit manual. Fitzgerald, K., & Kiatos, J. (2006). Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.

Assessment: 90% attendance at practical classes (hurdle requirement).Examination, One practical examination (hurdle requirement), 35%. Examination, one 2-hour written examination (hurdle requirement), 65%.

HHD2304 COOPERATIVE PLACEMENT

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD2224 - INDUSTRY PRACTICUM 1

Description: Students will acquire a greater understanding of their future career and study plans and will significantly enhance the prospects of achieving successful graduate employment outcomes (assessed via situation analysis report). The student will be able to begin to critically evaluate their own technical and generic skills and compare them with what extra knowledge and skill is required as a dermal therapist (assessed via student portfolio). Students will be able to identify the benefits of developing networks and professional contacts within the industry (assessed via student portfolio).

Credit Points: 48

Learning Outcomes: Students will acquire a greater understanding of the limitations beauty therapy procedures and differences with dermal therapy procedures. Students will begin to incorporate the knowledge they have learnt in the previous semester into their work practices.

Class Contact: 12 hours per week within an approved clinical setting.

Required Reading: School Manual to be developed

Assessment: Hurdle requirement - students are required to undertake workplace-based activities to the equivalent of 450 hours.This unit has two (2) assessment modalities: Student portfolio - (the student is to develop a portfolio of reports, case studies and reflective journal entries documenting the range of procedures they have been performing 3000 words. Students are also required to assess their skill development against the core graduate attributes and identify areas for further development) 70% (P2, I2, O2, W2, A2, C2, D2)Situation analysis report - students are required to report on the workplace context in which these learning is occurring, and examine its place within industry sector (1000 words) 30% (P2, I2, W2, A2, D2).

HHD3112 LIGHT BASED HAIR REDUCTION

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD2215 - LASER FUNDAMENTALS AND SAFETY

HHD2212 - DERMAL SCIENCE 2

Description: This unit will provide students with skills and knowledge required to assess, design and plan hair reduction treatments safely utilizing different Class 4 Lasers and intense pulsed light (IPL) for the reduction of unwanted hair on areas of the face or body.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain codes of conduct in laser procedures as outlined in AS/NZS 4173: 2004;

2. Explain the processes, including the physics, associated with laser and light based treatments for hair reduction;

3. Perform hair reduction treatments using laser and intense pulsed light (IPL) techniques as appropriate;

4. Appropriately and safely develop treatment plans for hair reduction in relation to different wavelengths and its relation to Fitzpatrick photo skin type;

5. Manage light-based and laser treatments for hair reduction with safety and confidence.

Class Contact: On Campus Seventy - eight (78) hours for one semester comprising forty-eight (48) hours of face-to-face lectures and tutorials and thirty (30) hours of supervised attendance at the Dermal Teaching Clinic. Online Seventy - eight (78) hours for one semester comprising forty-eight (48) hours of online lectures and tutorials and thirty (30) hours of supervised attendance at the Dermal Teaching Clinic to be completed as 1-2 weeks intensive practicum on campus per semester. Practical exams will be included in the 1-2 weeks on campus.

Required Reading: Reading materials will be provided by the lecturer in line with the different student projects.

Assessment: Assignment, Written Assignment (1500 words), 25%. Examination, Written Examination (2 hours), 35%. Test, 12 Online Tests (each test 10 minutes duration), 20%. Practicum, Practical skills assessments, 20%.

HHD3113 NUTRITION FOR DERMAL THERAPIES

Locations: City Queen.

Prerequisites: HHD2212 - DERMAL SCIENCE 2

Description: In this unit students will further their understanding of the role of various vitamins, minerals, food groups and nutritional supplements in promoting well-being. Students will also study the beneficial and deleterious effects of various diets on skin health and the relationship of nutritional eating patterns to eating disorders. Topics include carbohydrates, lipids, proteins, energy balance, water soluble, vitamins, fat soluble vitamins, minerals, dieting. The advantages and disadvantages of popular diets are discussed along with referal and client management for specific dieting needs in respect to vitamins and minerals the effects of excessive amounts of vitamins and minerals and the relationship between dieting disorders and skin conditions, referrals, nutritional status of the skin.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Describe and discuss various common conditions, which may result from, or result in, important nutritional imbalances, which can adversely affect skin;
2. Discuss the nutritional implications of various eating disorders;
3. Describe and discuss the role of various macro and micro nutrients in nutritional wellbeing;
4. Identify and describe factors that promote nutritional well-being, conditions in which it is appropriate to provide nutritional advice to clients;
5. Identify and describe situations in which is necessary to refer clients to specialist health practitioners.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: Food and nutrition Wahlqvist, M. L. (Ed.). (2011). (3rd ed.). Sydney, Australia: Allen and Unwin

Assessment: Assignment, Written Assignment (2000 words), 50%. Examination, Written Examination (2 hours), 50%.

HHD3114 WORKPLACE ISSUES IN DERMAL PRACTICE

Locations: City King Street, City Flinders, Off-shore, City Queen, Other.

Description: This unit will consider the individual's role, those of fellow work colleagues and those of clients within a workplace with an emphasis on psychologically based issues that can arise. Through a better understanding of themselves, students will be able to gather a better understanding of others. Students will not only examine different psychological techniques but also what to do when various issues arise. Students will consider various psychological conditions that affect workplace functioning such as stress and horizontal violence. They will also consider psychological conditions that clients may present with such as body dysmorphic disorder, terminal illness, personality disorders and how to deal with them

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate the ability to create workplace protocols to deal with psychological issues arising with clients and/or fellow workmates Develop an understanding of a the major psychological principles and how they explain human cognitive processes Evaluate and implement client referral for psychological support or arranging emergency help. Demonstrate an understanding of belief systems and concepts of self Discuss the psychology of beauty Discuss strategies for negotiations, conflict resolution and managing stress. Analyse varying communication styles Develop a basic understanding of common psychological disorders.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and group discussions, supported by online tutorials and WebCT discussion groups as required.

Required Reading: Introducing Psychology for Nurses and Healthcare Professionals Upton, D. (2010) 1st Pearson Education

Assessment: Journal, Approx 2500 words - Students are to present a reflective journal encompassing their opinions and related arguments or agreements to each lecture, 45%. Assignment, 55% Protocol workbook (2500 words - students are to select five issues covered in the lectures and prepare a standard protocol on how to address these, 55%. Journals are a reflective and opinion based in nature. The student does not need to engage in any referencing or external research

HHD3115 WOUND CARE FOR DERMAL PRACTICE

Locations: City Queen.

Prerequisites: HHD2212 - DERMAL SCIENCE 2

HNB2102 - HEALTH PRIORITIES & NURSING 2

RBM2104 - PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 1

Description: Students will cover topics such as infection, infectious processes and infection control in healthcare settings as well as abnormal and atypical wound repair and iatrogenic complications in the treatment of wounds. Students will practice and perform aseptic techniques including hand hygiene for clinical practice, donnning and doffing clean and sterile gloves, wound cleansing and redressing and wound bandaging techniques.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Identify and explain infectious processes as well as evaluate infectious control methods employed in a health care setting. Recognise and respond to infections and other adverse wound healing scenarios Assess and classify a variety of wounds Recognise different bacteria based upon the performance of stage one bacterial identification methods Describe and perform aseptic techniques. Discuss the role of a dermal clinician in the treatment of a range of wound care scenarios. Discuss when the dermal clinician can provide supportive care and when to refer to another health professional.

Class Contact: On Campus Thirty-six (36) hours for one semester comprising face-to-face lectures, tutorials and practical demonstrations. Online Thirty-six (36) hours for one semester comprising online lectures and tutorials as well as one week intensive practicum on campus. Practical exams will be included in the on campus week. .

Required Reading: Microbiology and infection control for health professionals Bishop. P. & Lee. G. (2009). (4th ed.). Frenchs Forest, NSW: Pearson Education. Wound Care: A collaborative practice manual for health professionals Sussman. C & Bates-Jensen. B (2007). (3rd ed.). Philadelphia, PA: Lippincott, Williams and Wilkins.

Assessment: Practicum, 2 Practical Assessments, 20%. Assignment, Written Assignment (2000 words), 40%. Examination, Written Examination (1.5 hours), 30%. Test, 12 Online Tests (each test 10 minute duration), 10%.

HHD3116 LYMPH AND ADIPOSE BIOLOGY

Locations: City Queen, Other.

Prerequisites: HHD2212 - DERMAL SCIENCE 2

Description: This unit builds on knowledge gained from HHD2112 Dermal Science 1 and HHD2212 Dermal Science 2 with a focus on the lymphatic system and adipose tissue and how they relate to Dermal Therapies. The unit covers lymphatic system biology and immunology and this knowledge is then applied to practical scenarios using manual lymphatic drainage techniques to enhance surgical outcomes and aid improvement of lymphatic conditions. Adipose biology and endocrinology are covered with specific reference to adipose disorders likely to be encountered in clinical practice. A minimum of thirty (30) supervised hours are to be completed at the University's Dermal Teaching Clinic.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: 1.Explain the structure and function of the lymphatic system and immunology in relation to the lymphatic system. 2.Apply knowledge of the lymphatic and immune systems to the development and design of effective treatment plans relevant to the Dermal Clinician. 3.Explain the structure and function of the adipose organ and endocrinology in relation to the adipose organ. 4.Assess effective adipose treatments using evidence based research 5.Students will perform treatments at the level of a professional dermal therapist.

Class Contact: On Campus Seventy-eight (78) hours for one semester comprising forty-eight (48) hours of face-to-face lectures and tutorials and thirty (30) hours supervised attendance at the Dermal Teaching Clinic. Online Seventy-eight (78) hours for one semester comprising forty-eight (48) hours of online lectures and tutorials and thirty (30) hours supervised attendance at the Dermal Teaching Clinic to be completed as 1-2 weeks intensive practicum on campus. Practical exams will be included in the 1-2 weeks on campus.

Required Reading: The lymphatic continuum revisited. Rockson, S. (Ed.). (2008). Boston: Blackwell. Cellulite pathophysiology and treatment. Goldman, M., & Hexsel., D. (Ed.). (2010). NY: Taylor and Francis.

Assessment: Practicum, Practical Examination (1 hour), 30%. Assignment, Written Assignment (1500 words), 35%. Examination, Written Examination (1.5 hours), 35%. Hurdle requirement; Supervised placement comprising successful completion of 30 hours at Dermal Teaching Clinic. Attendance and participation in all activities required in the Dermal Teaching Clinic.

HHD3124 INDUSTRY PRACTICUM 2

Locations: City King Street, City Flinders, City Queen.

Description: In this subject students will explore the workplace context by examining the organisational structure and identifying and defining their role as active and accountable employees within industry. Students will develop an understanding of the key issues relating to the transition to the professional workplace, including workplace culture, professional etiquette and communications. They will gain a better understanding as to what techniques they can apply and experiential learning in how to apply them. Students will also be able to reflect on the integration of the academic and workplace learning.

Credit Points: 24

Learning Outcomes: Students will feel greater confidence in the application of their skills obtained after completion of Industrial Practice 1(assessed via situation analysis report). Students will be further exposed to a wide range of clients and procedures so that they feel more confident in dealing with future clients (assessed via student portfolio).

Class Contact: 12 hours per week within an approved clinical setting.

Required Reading: School developed manual

Assessment: Hurdle requirement - students are required to undertake workplace-based activities to the equivalent of 450 hours.This unit has two (2) assessment modalities: Student portfolio - (the student is to develop a portfolio of reports, case studies and reflective journal entries documenting the range of procedures they have been performing 3000 words. Students are also required to assess their skill development against the core graduate attributes and identify areas for further development) 70% (P2, I2, O2, W2, A2, C2, D2)Situation analysis report - students are required to report on the workplace context in which these learning is occurring, and examine its place within industry sector (1000 words) 30% (P2, I2, W2, A2, D2)

HHD3134 DERMAL SCIENCE

Locations: City King Street, City Flinders, Off-shore, City Queen.

Prerequisites: HHD2204 - DERMAL ANATOMY AND PHYSIOLOGY

Description: The unit will introduce students to theoretical aspects of integumentary system embryology, structure and function, patho -physiology, immunology, cellular damage, allergy, inflammation, wound repair, neoplasia and tissue responses to stress relevant to the practice of Dermal Therapy. The unit will provide important underpinning knowledge that students will require in their practical applications throughout the degree program. Knowledge to be developed will include: wound repair, integumentary system biology, embryology and biochemistry, inflammatory response and associated damage, infection, immunity and allergy and neoplasia.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Identify and discuss inflammation and wound healing processes. Apply knowledge of inflammation and wound healing processes to the understanding of management of optimal wound healing outcomes develop and demonstrate knowledge of Inflammation and wound healing relevant to the practice of dermal therapies Describe skin biochemistrty. Describe the role of the dermal clinician in optimising wound healing outcomes for patients. Discuss when the dermal clinician can provide supportive care and when to refer to another health professional. Discuss how a common plastic surgery procedure can affect normal structure and function of the integumentary system Discuss the embryological development of the Integumentary system Compare and contrast a variety of cell adaptations Describe the process of neoplasia and compare and contrast benign and malignant neoplasias Describe immunological and allergy processes

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and online interactive demonstrations.

Required Reading: Robbins basic pathology. Kumar, V., Abbas, A.K., Fausto, N., Mitchell, R.N. (2007). (8th Ed.) Philadelphia, PA: Saunders Elsevier. Principles of anatomy and physiology. Tortora, G. J., Derrickson B. H. (2008). (12th Ed.) Wiley.

Assessment: Assignment, 1 Written assignment (2000 words), 35%. Test, 10 Topic tests (2.5% each), 25%. Examination, Written examination (2.5hr), 40%.

HHD3171 PROFESSIONAL ETHICS

Locations: City Flinders.

Prerequisites: HHO2171 - OSTEOPATHIC SCIENCE 3

HHO2272 - OSTEOPATHIC SCIENCE 4

HHU2271 - CLINICAL PRACTICUM 2

HHD2273 - CLINICAL DIAGNOSIS & MANAGEMENT 3

HHD2172 - CLINICAL DIAGNOSIS & MANAGEMENT 2

Description: Definitions of the law. The legal basis of Osteopathic Practice in Australia. Professional Associations and the norms of conduct expected by the professional bodies- the Registration Boards and the Australian Osteopathic Association- and by colleagues in the Osteopathic and Allied professions. The relationship of Osteopathy with other health care professions in Australia. Public health laws and the place of Osteopathy within public health policy. The legal standing of Osteopathy in Australia in relation to Medicare and third party healthcare payers. Physician- patient relationships including confidence, consent and disclosure. Cultural, religious and sexual issues in treatment. Groups with special needs. Business ethics and professional practice. The ethics of advertising and promotion. Ethical issues in Osteopathic research

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the legal framework in Australia in which Osteopathy operates, including Association and Registration Board policies. Evaluate the place of Osteopathy within the Australian and other healthcare systems. Debate the ethical requirements of practice in a multicultural society. Discuss the requirements for research and business ethics.

Class Contact: Twelve (12) hours for one semester comprising lectures and workshops.

Required Reading: An ethical framework for complementary and alternative therapists. Stone, J. (2002). London: Routledge.

Assessment: Test, one 20 minute quiz, 20%. Presentation, in class presentation of ethical case and associated issues, 80%. 90% attendance is required at workshops (hurdle requirement).

HHD3174 CLINICAL DIAGNOSIS & MANAGEMENT 4

Locations: City Flinders.

Prerequisites: HHD2273 - CLINICAL DIAGNOSIS & MANAGEMENT 3

OR EQUIVALENT.

Description: The clinical examination of the musculoskeletal system of the human body in detail. Students will be specifically trained in the advanced examination of the joints and the associate muscles at the shoulder, elbow, wrist, hand, hip, knee, ankle and foot. Key diagnostic procedures, tests and investigations used to diagnose pathology of the joints, bones and connective tissues will be discussed. Students will be trained in the use of a detailed diagnostic algorithm for the diagnosis of musculoskeletal conditions. These skills will be contextualised in terms of the main diseases affecting the musculoskeletal system. Skills required for advanced usage of typical equipment employed in the musculoskeletal examination will be refined.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Use at proficiency level the vocabulary of the musculoskeletal examination; Discuss the fundamentals of history as they pertain to musculoskeletal disease; Explain key diagnostic procedures, tests and investigations employed in rheumatology; Conduct a competent examination of the following joints and their associated musculature and accessory structures such as bursae, menisci and ligaments: shoulder, elbow, wrist, hand, hip, knee, ankle and foot; Use a diagnostic algorithm to arrive at a differential diagnosis; Recognise the main classes of bone tumours and their specific clinical manifestations; Integrate knowledge previously presented in anatomy and physiology and apply this integrated knowledge to the living body; Demonstrate competent usage of the basic tools associated with clinical examinations of the shoulder, elbow, wrist, hand, hip, knee, ankle and foot.

Class Contact: Three (3) hours per week or equivalent for one semester comprising lectures and practical tutorials. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Kiatos, J. (2006). HHD3174 CD&M 4 unit manual. Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit. Newman Dorland, W. A. (2003). Dorland's illustrated medical dictionary (30th ed.). W. B. Saunders Co.

Assessment: One practical examination (40%); one 2-hour written examination (60%).

HHD3204 LASER SAFETY AND LIGHT BASED TREATMENTS

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD3134 - DERMAL SCIENCE

Description: This unit covers Australian standards in laser safety and where applicable relevant government laws relating to the use of cosmetic lasers. Students are also introduced to how lasers work and the practical applications of treating various skin conditions using low-level lasers. Other newer light-based treatments such as phototherapy and infra-red based therapy are also discussed with regard to safety, efficacy and dermal applications.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform laser safety officer duties as required by AS/NZS 4173: 2004; Explain the processes associated with light-based treatments; Demonstrate introductory handling of low-level light-based dermal modalities; Explain the theories in relation to light-based treatment procedures in dermal therapies; Explain the procedures associated with low-level light-based treatments; Discuss the safety requirements essential in low-level light-based clinical settings.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials and clinical laboratories.

Required Reading: AS/NZS 4173: 2004 (2004). Guide to the safe use of lasers in health care standards Australia (2nd ed.). Standards Australia.

Assessment: Examination, 2.5 hours written examination, 35%. Assignment, Written (2000 words), 25%. Exercise, Reading exercises (weekly) mini quizzes (15%); Analysis of an article (15%), 30%. Other, Practical skills assessments, 10%.

HHD3212 DERMAL SCIENCE 3

Locations: City Queen.

Prerequisites: HHD2212 - DERMAL SCIENCE 2

Description: This unit will build on the knowledge base provided by HHD2112 Dermal Science 1 and HHD2212 Dermal Science 2 by further researching dermatology, specifically in the area of dermatological conditions. This unit will also cover the management of non-infectious dermatological conditions such as dermatitis, eczema, psoriasis, benign and pre-malignant skin lesions and skin cancers. A range of vascular and connective tissue disorders will also be considered. This unit will also expand on the microbiology knowledge gained in HHD2112 Dermal Science 1 to include the identification, biochemistry and treatment of infectious skin diseases. Knowledge of skin disorders and diseases will lead into related pharmacology and will include studies of the effects of various drugs and chemicals, both topical and oral, used in the treatment of skin conditions. The unit will introduce the student to the basic concepts of chemistry. Particular emphasis will be placed on increasing student knowledge of enzymes, pH and buffer systems in preparation for the more in depth cosmetic chemistry covered in HHD4112 Resurfacing Science.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Identify and discuss the structure of atoms, ions, molecules and compounds. Identify the types of chemical bonds and describe the basic chemistry of macromolecules Explain the mechanisms of enzyme action and the concept of pH and buffer systems. Discuss the aetiology, epidemiology, clinical features, differential diagnosis and treatments for a range of dermatological diseases and disorders. Recognise a range of dermatological conditions. Discuss the role of a dermal clinician in the treatment of a range of dermatological conditions.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, laboratory sessions and online interactive demonstrations.

Required Reading: Clinical Dermatology Weller, R., Hunter, J., Savin, J., & Dahl, M. (2008). (4th ed.). Malden, MA: Blackwell Publishing Principles of Anatomy and Physiology Tortota, G., & Derrickson, B.H., (2009). (12th ed.). Hoboken, NJ: Wiley and Sons.

Assessment: Presentation, Oral presentation (10 minutes), 20%. Assignment, Written assignment (1000 words), 20%. Test, 10 Online Tests (each test 12 minute duration), 20%. Examination, Written examination (2 hours), 40%.

HHD3213 ELECTROTHERAPY

Locations: City Queen, Other.

Prerequisites: HHD2112 - DERMAL SCIENCE 1

HHD2212 - DERMAL SCIENCE 2

HHD3115 - WOUND CARE FOR DERMAL PRACTICE

Description: This unit will build upon the underpinning knowledge of wound healing, the nervous system, fluid, electrolyte, acid-base balance and electrical theory required to safely and effectively perform electrotherapy procedures in Dermal Therapies. Students will practice evaluative skills in determining efficacy of a range of electrotherapy modalities used in relation to dermal therapies. This will require written and research skills and will also include on-going evaluation of electrotherapy treatments in progress and final evaluation of completed treatments.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain the processes associated with certain electrotherapy treatments relevant to the dermal clinician
2. Perform and manage electrotherapy treatments safely and effectively where appropriate.
3. Explain electrical theory in relation to electrotherapy procedures in dermal therapy.
4. Explain how electrotherapy procedures are related to the nervous system, fluid, electrolyte and acid base balance.
5. Explain how electrotherapy procedures are related to and can assist wound healing processes
6. Evaluate the efficacy of electrotherapy for use in dermal practice

Class Contact: On Campus Sixty-six (66) hours for one semester comprising thirty-six (36) hours of face-to-face lectures and tutorials and thirty (30) hours supervised attendance at the Dermal Teaching Clinic. Online Sixty-six (66) hours for one semester comprising thirty-six (36) hours of online lectures and tutorials and thirty (30) hours supervised attendance at the Dermal Teaching Clinic to be completed as 1-2 weeks intensive practicum on campus per semester. Practical exams will be included in the 1-2 weeks on campus.

Required Reading: Electrotherapy explained: Principles and practice Robertson, V., Ward, A., Low, J., & Reed, A. (2006). (4th ed.). Edinburgh ; Sydney : Butterworth-Heinemann Elsevier. Students can access online and other resources as determined by unit coordinator

Assessment: Hurdle requirement; Supervised placement comprising successful completion of 30 hours at Dermal Teaching Clinic. Attendance and participation in all activities required in the Dermal Teaching Clinic.Assignment, Written Assignment (1500 words), 40%. Examination, Written Exam (1.5 hours), 40%. Practicum, Practical Examination (45 minutes), 20%.

HHD3214 ELECTRICALLY BASED DERMAL TREATMENTS

Locations: City King Street, City Flinders, Off-shore, City Queen.

Prerequisites: HHD2204 - DERMAL ANATOMY AND PHYSIOLOGY

HHD3134 - DERMAL SCIENCE

Description: This unit will enable on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques used to support the clinical procedures will be used this includes a variety of electrotherapies. This unit will also build upon the underpinning knowledge of the nervous system, fluid electrolyte and acid base balance and electrical theory required to safely and effectively perform electrotherapy procedures.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the processes associated with certain electrically-based dermal techniques. Perform electrically-based techniques where appropriate. Explain electrical theory in relation to electrotherapy procedures in dermal therapy. Perform and manage various electrically-based dermal modalities with safety and confidence. Explain how electrotherapy procedures are related to the nervous system, fluid, electrolyte and acid base balance.

Class Contact: Sixty-six (66) hours for one semester comprising of 36 hours of mixed mode lectures and tutorials, and 30 hours of clinical placements.

Required Reading: Low, J., & Reed, A. (2000). Electrotherapy explained: Principles and practice (4th ed.). Butterworth Heinemann.

Assessment: Assignment, One written essay (2000 words), 30%. Examination, One written (2.5 hours), 30%. Exercise, 10 mini quizzes worth 1% each, 10%. Laboratory Work, Report and Practical Performance**, 30%. **Assesses student ability to demonstrate specific clinical application/s of certain electrically based procedures according to industry.

HHD3215 ADVANCED HEALTH RESEARCH

Locations: Off-shore, City Queen.

Prerequisites: HHD2113 - HEALTH RESEARCH AND DERMAL STUDIES

Description: This unit extends the knowledge gained in HHD2113 - Health Research and Dermal studies and introduces new concepts in qualitative research and case reports. Various forms of qualitative methods will be considered, as well as the steps involved in managing, analyzing and reporting a case study. Comparisons between the different types of research (quantitative, qualitative and case studies) will also be considered so that best practices can be identified.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Examine different forms of research design and the implications this will have on validity of research. Analyse the best method for data collection for particular research studies. Critically examine the differences between quantitative, qualitative and case study research study designs and the appropriateness of using each in different circumstances. Design a personal research project.

Class Contact: Thirty-Six (36) hours for one semester comprising lectures.

Required Reading: Basics of social research: Qualitative and quantitative approaches Neuman, L. W. (2004). (2nd ed.). Boston, MA: Pearson Education.

Assessment: Project, Research Assignment (2000 words), 60%. Exercise, Article Critique (1500 words), 40%.

HHD3216 DERMAL PROFESSIONAL PRACTICE

Locations: Off-shore, City Queen.

Prerequisites: HHD2213 - DERMAL WORKPLACE ISSUES

Description: This unit is an integrating unit for the course and has been designed to provide students with a framework to link the main elements of the course. The unit enables students to enhance their critical thinking and integration of knowledge. Particular emphasis will be given to ethical and legal issues and dilemmas confronting dermal therapies, networking with medical practitioners and other health professionals including referrals and approaches to establishing effective and safe working relationships and presenting research findings and clinical results.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify and describe legal and ethical issues related to dermal therapy practice and generate appropriate solutions or refer them to the appropriate professionals. Record client information in the appropriate format with appropriate levels of privacy and where appropriate communicate this information to allied heathcare professionals and medical practitioners. Identify and describe the major components of our legal system and how it functions especially in relation to health law. Demonstrate public speaking abilities by planning a research presentation and expressing the findings to an audience.

Class Contact: Thirty-six (36) hours for one semester comprising lectures.

Required Reading: Values in professional practice: lessons for health, social care and other professionals. Pattison, S., & Pill, R. (2004). Oxford, UK: Radcliffe Medical Press.

Assessment: Assignment, Problem solving exercise (500 words), 10%. Examination, Multiple Choice Exam (100 MCQs), 50%. Presentation, Class presentation (A 20 minute presentation to the class on a set topic), 40%.

HHD3224 DERMATOLOGY

Locations: City King Street, City Flinders, Off-shore, City Queen.

Prerequisites: HHD3134 - DERMAL SCIENCE

Description: This unit will build on the knowledge base covered in Dermal Anatomy and physiology; Dermal science by further researching cosmetic dermatology, specifically in the area of dermatological conditions that develop as a result of cosmetic substances put on the skin. This unit will also cover the management of non-infectious dermatological conditions such as dermatitis, eczema, psoriasis, benign and pre-malignant skin lesions and skin cancers. A range of vascular and connective tissue disorders will also be considered. This unit will also expand on the microbiology knowledge gained in Dermal anatomy and Physiology to include the identification, biochemistry and treatment of micro-organisms; specifically viruses and bacteria. Knowledge of skin disorders and diseases will lead into related pharmacology and will include studies of the effects of various drugs and chemicals, both topical and oral, on the skin. The unit will introduce the student to the basic concepts of chemistry. Particular emphasis will be placed on increasing student knowledge of enzymes, pH and buffer systems in preparation for the more in depth cosmetic chemistry covered in HHD3234- Peels Procedure.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students are expected to be able to: Identify and discuss the structure of atoms, ions, molecules and compounds. Describe the basic chemistry of macronutrients Identify the types of chemicals bonds Explain the mechanisms of enzyme action and inhibition Discuss the concept of pH and buffer systems and how these relate to the practice of dermal therapies. Discuss the aetiology, epidemiology, clinical features, differential diagnosis and treatments for a range of dermatological diseases and disorders. Recognise a range of dermatological conditions. Discuss the role of a dermal clinician in the treatment of a range of dermatological conditions. Discuss when the dermal clinician can provide supportive care and when to refer to another health professional.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials, laboratory sessions and online interactive demonstrations.

Required Reading: Tortota, G., & Derrickson, B.H. (2009). Principles of Anatomy and Physiology (12th edn), Wiley. Weller, R.,Hunter, J., Savin, J., & Dahl, M, (2008) Clinical Dermatology. Blackwell Publishing.

Assessment: Presentation, 1 Seminar presentation, presenting findings from the written assignment, 20%. Assignment, 1 Assignment (Essay 2000 words), 25%. Test, 10 Topic tests (2% each), 20%. Examination, Written examination (2.5hrs), 35%.

HHD3234 PEELS PROCEDURE

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD2204 - DERMAL ANATOMY AND PHYSIOLOGY

HHD3134 - DERMAL SCIENCE

HHD3224 - DERMATOLOGY

Description: This unit expands on the dermal techniques covered in Electrically Based Dermal Treatments and sequencing as part of case management. This will occur through the on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques used to support the clinical procedures will be used this includes chemical peels and microdermabrasion. This unit will also cover the underpinning knowledge of chemistry, pharmacology and toxicology required to safely and effectively perform procedures using chemical preparations.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain the processes associated with peels procedures and microdermabrasion;
2. Correctly perform peels procedures and microdermabrasion where appropriate;
3. Evaluate and reflect on peels procedures and microdermabrasion performed in the clinic;
4. Explain the theory in relation to peels and microdermabrasion procedures in dermal therapy;
5. Perform and manage various chemically-based dermal modalities with safety and confidence.

Class Contact: Thirty-six (36) hours or equivalent for one semester comprising lectures, tutorials, and clinical placements.

Required Reading: As no texts appropriate to the content of this unit are currently available, suitable reading material will be provided by the unit coodinator.

Assessment: Practicum, Practical assessments within the teaching clinic mid and end-of-semester, 10%. Case Study, Report (1500 words), 15%. Examination, Written 2.5 hours, 40%. Exercise, 2 reading exercises involving discussion and analysis of an article of relevance to the unit (1000 words each), 20%. Test, Weekly topic tests, 15%.

HHD3270 PROFESSIONAL ETHICS

Locations: City Flinders.

Prerequisites: HHO3175 - OSTEOPATHIC SCIENCE 5

Description: Definitions of the law. The legal basis of osteopathic practice in Australia. Professional associations and the norms of conduct expected by the professional bodies - the Registration Boards and the Australian Osteopathic Association - and by colleagues in the Osteopathic and allied professions. The relationship of osteopathy with other health care professions in Australia. Public health laws and the place of osteopathy within public health policy. The legal standing of osteopathy in Australia in relation to Medicare and third party healthcare payers. Physician-patient relationships including confidence, consent and disclosure. Cultural, religious and sexual issues in treatment. Groups with special needs. Business ethics and professional practice. The ethics of advertising and promotion.Ethical issues in osteopathic research.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss the legal framework in Australia in which osteopathy operates; Evaluate the place of osteopathy within the Australian and other healthcare systems; Debate the ethical requirements of practice in a multicultural society; Evaluate various Boards' and Associations' codes of conduct; Discuss the requirements for research and business ethics.

Class Contact: One (1) hour per week or equivalent for one semester comprising lecture workshops.

Required Reading: Stone, J. (2002). An ethical framework for complementary and alternative therapists. London: Routledge.

Assessment: Test, One 20 minute quiz (20%), 20%. Presentation, In class presentation of ethical case and associated issues, 80%. Assessement will comprise of one 20 minute quiz (20%) and an in class presentation of an ethical case and associated issues (80%).

HHD3275 CLINICAL DIAGNOSIS AND MANAGEMENT 4 (NEUROLOGY)

Locations: City Flinders.

Prerequisites: HHD2273 - CLINICAL DIAGNOSIS & MANAGEMENT 3

Description: Neurological Assessment concentrates on a detailed clinical examination of the nervous system. Students will be trained in the advanced examination of the following neurological systems, structures and conditions: sensory, motor, cranial nerves, cerebral cortex, basal ganglia, cerebellum, upper and lower motor neurons, skeletal muscles, nerve damage in the upper and lower limb. The unit will also cover the basic algorithms employed in the diagnosis of neurological disease and ddvanced training in the use of equipment employed in the neurological clinical examination. The unit also includes the study of the key diagnostic procedures, tests and investigations used to diagnose pathology of the nervous system as well as the performance of a rapid, clinical, neurological screening test.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Competently use the vocabulary of the neurological examination; Explain the fundamentals of the clinical history as it pertains to neurological disease; Explain the key diagnostic procedures, tests and investigations employed in neurology; Competently use standard diagnostic equipment (e.g., stethoscope, otoscope,ophthalmoscope, reflex hammer, tuning fork) to conduct a rapid screening test of the nervous system; Competently use standard diagnostic equipment to carry out the detailed examination of the key components of the nervous system (sensory, motor, cranial nerves, cerebral cortex, basal ganglia, cerebellum, upper and lower motor neurons, skeletal muscles, nerve damage in the upper and lower limb); Use a basic diagnostic algorithm to arrive at a differential diagnosis; Predict basic abnormal signs and symptoms that may be encountered when named structures are affected by pathology; Recognise the main classes of headache and their specific clinical manifestations.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials and practicals.

Required Reading: HHD3275 Clinical Diagnosis and Management 6 Lecture Manual. Kiatos, J. (2011),

Assessment: 90% attendance at practical sessions is a hurdle requirement. All assessment below are hurdle requirements for completing this unit.Examination, One 15-minute final practical exam, 50%. Examination, 2 hour final written exam, 50%.

HHD4104 DERMAL CLINICAL PRACTICE 1

Locations: City King Street, City Flinders, Off-shore, City Queen.

Prerequisites: HHD2101 - DERMAL HEALTH SCIENCE 3

Description: Students will develop sterile techniques including dressings, and setting up for minor cosmetic or aesthetic procedures. Topics include wound management, infection, infection control, asepsis, sterilization, complications of wound healing, wound redressing, compression bandages and equipment, eye toilets, complications from bandaging and eye toilets.

Credit Points: 6

Learning Outcomes: On successful completion of this unit students are expected to be able to: Identify and explain infectious processes. Recognise and respond to infections and other adverse wound healing scenarios Asses and classify a variety of wounds Identify and evaluate a variety of infection control methods employed within a health care setting. Describe various virulence and pathogenic factors associated with microorganisms. Recognise different bacteria based upon the performance of stage one bacterial identification methods Perform sampling and plating techniques. Describe and employ aseptic techniques. Discuss the role of a dermal clinician in the treatment of a range of wound care scenarios. Discuss when the dermal clinician can provide supportive care and when to refer to another health professional.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials, laboratory sessions and online interactive demonstrations.

Required Reading: Microbiology and infection control for health professionals. Bishop, P., Lee. G (2006). Pearsons Education.

Assessment: Practicum, 3 Practical Assessments (10% each) (Students are to perform selected procedures taught within the unit to professional dermal therapist standards), 30%. Assignment, Essay (2000 words), 35%. Examination, Written examination (2.5hrs), 35%.

HHD4112 RESURFACING SCIENCE

Locations: City Queen, Other.

Prerequisites: HHD2212 - DERMAL SCIENCE 2

HHD3115 - WOUND CARE FOR DERMAL PRACTICE

HHD3212 - DERMAL SCIENCE 3

Description: This unit will cover the underpinning knowledge of chemistry, pharmacology and toxicology required to safely and effectively perform procedures using chemical preparations. This subject uses knowledge gained in HHD2112 Dermal

Science 1 HHD2212 Dermal Science 2, HHD3212 Dermal Science 3 and HHD3115 Wound Care for Dermal Practice and extends this to understanding the wound healing process and barrier function in various resurfacing procedures. Practical application of resurfacing techniques will be undertaken and students will develop skills in case management and recording to meet professional and legal requirements. A minimum of thirty (30) supervised hours are to be completed at the University's Dermal Teaching Clinic

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the chemical, pharmacological and toxicological implications of using specific preparations in Dermal Therapies. Explain the chemistry of specific chemical preparations and the effects they have on the skin. Apply knowledge of skin histology and wound healing to resurfacing treatments. Devise effective treatment protocols using various resurfacing techniques. Document case information to meet professional and legal requirements. Assess and analyse effective resurfacing treatments using evidence based research. Students will perform treatments at the level of a professional dermal therapist

Class Contact: On Campus Seventy-eight (78) hours for one semester comprising forty-eight (48) hours of face-to-face lectures and tutorials and thirty (30) hours supervised attendance at the Dermal Teaching Clinic. Online Seventy-eight (78) hours for one semester comprising forty-eight (48) hours of online lectures and tutorials and thirty (30) hours supervised attendance at the Dermal Teaching Clinic to be completed as 1-2 weeks intensive practicum on campus. Practical exams will be included in the 1-2 weeks on campus.

Required Reading: Students can access online and other resources as determined by the unit coordinator.

Assessment: Hurdle requirement; Supervised placement comprising successful completion of 30 hours at Dermal Teaching Clinic. Attendance and participation in all activities required in the Dermal Teaching Clinic.Case Study, Media recording and written report (1500 words), 45%. Practicum, Practical Exam (1 hour), 25%. Examination, Written Examination (1.5 hours), 30%.

HHD4113 ADVANCED LASER AND LIGHT 1

Locations: City Queen, Other.

Prerequisites: HHD3212 - DERMAL SCIENCE 3

HHD3112 - LIGHT BASED HAIR REDUCTION

Description: This unit builds on and consolidates knowledge and techniques covered in the HHD2215 Laser Fundamentals and Safety and HHD3112 Light Based Hair Reduction, as well as sequencing as part of case management. Students will be monitored through the on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques to support clinical procedures will include class 3b, class 4 lasers and intense pulsed light (IPL).

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain codes of conduct in laser procedures as outlined in AS/NZS 4173: 2004;

2. Explain the processes, including the physics, associated with laser and light based treatments for dermatological conditions appropriate for phototherapy;

3. Perform treatments techniques as appropriate for dermatological conditions using intense pulsed light (IPL), class 3B and class 4 lasers;

4. Appropriately and safely develop treatment plans for dermatological conditions in relation to different wavelengths and its relation to Fitzpatrick photo skin type;

5. Manage light-based and laser treatments for specific dermatological conditions with safety and confidence.

Class Contact: On Campus Sixty- six (66) hours for one semester comprising thirty-six (36) hours of face-to-face lectures and tutorials and thirty (30) hours of supervised attendance at the Dermal Teaching Clinic. Online Sixty- six (66) hours for one semester comprising thirty-six (36) hours of online lectures and tutorials and thirty (30) hours of supervised attendance at the Dermal Teaching Clinic to be completed as 1-2 weeks intensive practicum on campus. Practical exams will be included in the 1-2 weeks on campus.

Required Reading: Online Journal articles are determined by unit coodinator Laser dermatology: Pearls and problems Goldberg, D. (2008). Malden, MA: Blackwell Publishing.

Assessment: Assignment, Written Assignment (2000 words), 25%. Examination, Practical Examination (1 hour), 20%. Examination, Written Examination (1.5 hours), 35%. Test, 12 Online Tests (each test 10 minute duration), 20%. Hurdle requirement; Supervised placement comprising successful completion of 30 hours at Dermal Teaching Clinic. Attendance and participation in all activities required in the Dermal Teaching Clinic.

HHD4114 ADVANCED HEALTH RESEARCH PERSPECTIVES

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD2214 - HEALTH RESEARCH STUDY PERSPECTIVES

Description: This subject extends the knowledge gained in Health Research and Study Perspectives and introduces new concepts in qualitative research and case reports. Various forms of qualitative methods will be considered, as well as the steps involved in managing, analyzing and reporting a case study. Comparisons between the different types of research (quantitative, qualitative and case studies) will also be considered so that best practices can be identified.

Credit Points: 12

Learning Outcomes: Students will have a fuller understanding of research methodology by examining different forms of research design. Students will be able to make decisions on the best format to collect and analyse data for a particular experiment. Students will have greater knowledge of the positives and negatives of using quantitative methods versus qualitative methods versus case studies.

Class Contact: 3 hours per week or equivalent.

Required Reading: Neuman, L. W. (2004). Basics of Social Research: Qualitative and Quantitative Approaches. Boston: Pearson Education.

Assessment: 60% Research design assignment (students are to collect background research and design an experiment 3000 words)40% Article Critique (students are to critique two selected article 2000 words

HHD4115 POST OPERATIVE MICROPIGMENTATION

Locations: City Queen, Other.

Prerequisites: HHD2112 - DERMAL SCIENCE 1

HHD2212 - DERMAL SCIENCE 2

HHD3115 - WOUND CARE FOR DERMAL PRACTICE

Description: This unit will give students the underpinning knowledge and practical skills to perform a range of cosmetic and reconstructive micropigmenation procedures. Topics will include infection control in skin penetration techniques, indications and contraindications for micropigmentatio procedures, complications and the management of adverse events that arise from micropigmentation procedures, as well as the implications of using pigments in skin penetration for wound repair.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss and demonstrate an understanding of indications and contra-indications for micropigmentation. Assess, recommend and perform appropriate micropigmentation techniques for a range of cosmetic and reconstructive procedures. Assess the implications for infection control in the use of skin penetration techniques.

Discuss and assess the implications for wound repair when using pigments inserted into the skin with skin penetration techniques. Demonstrate knowledge of anatomy and physiology to design and undertake micropigmentation procedures. Perform a range of cosmetic and reconstructive micropigmenation procedures to the standard of a professional dermal clinician.

Class Contact: On Campus Sixty-six (66) hours for one semester comprising thirty- six (36) hours of face-to-face lectures, tutorials and practical demonstrations and thirty (30) hours supervised attendance at the Dermal Teaching Clinic for the semester. Online Sixty-six (66) hours for one semester comprising thirty-six (36) hours of online lectures, tutorials and practical demonstrations and thirty (30) hours of supervised attendance at the Dermal Teaching Clinic to be completed as 1-2 weeks intensive practicum on campus. Practical exams will be included in the 1-2 weeks on campus.

Required Reading: Dermatologic complications with body art: Tattoos, piercing & permanent makeup. De Cuyper. C & Perez-Cotapos. S. (2009). Springer Link (electronic book)

Assessment: Hurdle requirement; Supervised placement comprising successful completion of 30 hours at Dermal Teaching Clinic. Attendance and participation in all activities required in the Dermal Teaching Clinic.Practicum, Practical Examination (1 hour), 60%. Assignment, Major Assignment (1500 words), 40%.

HHD4124 LYMPHATIC PROCEDURES

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD3224 Dermatology; HHD3234 Peels Procedures.

Description: This subject builds on dermal techniques covered in Electrically Based Dermal Treatments and sequencing as part of case management. This will occur through the on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques used to support the clinical procedures will be used; this includes manual lymphatic drainage and machine based lymphatic drainage treatments.

Credit Points: 6

Learning Outcomes: The student will feel confident in the understanding of how certain techniques work and where appropriate how to perform them. Knowledge of the principles of manual lymph drainage and machine based lymph drainage will enable the student to perform these procedures with greater safety and confidence. By performing a range of lymph drainage and machine based treatments the student will be more effective in dealing with clients and achieving desired outcomes.

Class Contact: 3 hours per week or equivalent.

Required Reading: Silent Waves theory and practice of lymph drainage therapy: An osteopathic lymphatic technique, Chikly, B., (2003) Internal health and Healing Publishers Endermology training manual (Discipline developed).

Assessment: 50%Practical Assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards)30% Written Examination (2.5 hours duration)20% Reading exercises (Composed on a series of short answer questions relating to selected journal articles)

HHD4134 LASER AND LIGHT PROCEDURES

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD3204 - LASER SAFETY AND LIGHT BASED TREATMENTS

HHD3224 - DERMATOLOGY

Description: This unit builds on techniques covered in the Laser Safety and Light Based Treatments and sequencing as part of case management. Students will be monitored through the on-going evaluation of treatments in progress and final evaluation of completed treatments. Practical application of advanced dermal treatment techniques will be undertaken. Specific techniques to support clinical procedures will include class 3b, class 4 lasers and IPL. This unit will also cover the underpinning knowledge of laser physics required to safely and effectively perform and manage laser and IPL procedures.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain codes of conduct in laser procedures as outlined in AS/NZS 4173: 2004;

2. Explain the processes, including the physics, associated with laser and light based dermal treatments;

3. Perform dermal treatments using laser techniques as appropriate;

4. Appropriately and safely perform class 3B and class 4 lasers and IPL for a variety of dermal conditions;

5. Perform and manage light-based and laser dermal therapy treatments with safety and confidence.

Class Contact: 3 hours per week or equivalent.

Required Reading: Reading materials will be provided by the lecturer in line with the different student projects.

Assessment: Assignment, 2000 words written assignment, 25%. Examination, 2.5 hours Written Examination, 35%. Exercise, Reading, 30%. Practicum, Practical skills assessments, 10%.

HHD4144 INDEPENDENT RESEARCH 1

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD2214 - HEALTH RESEARCH STUDY PERSPECTIVES

Description: Students will be guided through the processes of developing a research project with specific emphasis on appropriate research design, seeking ethics approval and development of proposals. Aspects of methodology such as subject selection, use of appropriate tools and record keeping will also be discussed.

Credit Points: 12

Learning Outcomes: Students will gain experience in how to prepare and plan for a research project, by going through the process of developing a research proposal and making an application for ethics approval so that they are better prepared for future postgraduate study or for planning their own future research. (assessed via proposal and ethics).

Class Contact: 1 hour lecture and 2 hours of tutorial per week.

Required Reading: How to Write Health Science Papers, Dissertations and Theses by Shane A Thomas (2004) Churchill Livingston.

Assessment: This unit has two (2) assessment items: Research Proposal (Students are to prepare a research proposal. 2000 words) 50% (P3, I3, W3, A3, C3, D3)Ethics document (students are to prepare and submit an ethics document

HHD4185 CLINICAL DIAGNOSIS AND MANAGEMENT 5

Locations: City Flinders.

Description: This unit comprises two modules: Module 1: Clinical Neurology; and Module 2: Diagnostic Imaging. The aims of this unit are to develop in students an integrated understanding of the nervous system, neuroanatomy and neurophysiology, neural function and the ability to apply this knowledge to clinical cases; and to instruct students in the reading of radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of congenital anomalies and normal variants, traumatic injuries, scoliosis and infections.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Explain the gross and developmental anatomy of the nervous system (module 1); Explain the functioning of the nervous system at gross and neural levels (module 1); Apply knowledge in clinical neurology to clinical cases commonly seen in osteopathic practice (module 1); Identify normal and pathological anatomy on diagnostic images (module 2); Competently read radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of congenital anomalies and normal variants, traumatic injuries,scoliosis and infections (module 2); Recognise particular disease states from the identification of abnormalities on scans (module 2).

Class Contact: Ninety-six (96) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 80%attendance.

Required Reading: Chew, F. (1997). Skeletal radiology: The bare bones (2nd ed.). Baltimore, MD: Williams & Wilkins. Eisenberg, R. L., & Johnson, N. M. (2003). Comprehensive radiographic pathology (3rd ed.). St Louis, MO: Mosby.Hughes, J., & Hughes, M. (1997). Imaging: Picture tests. Edinburgh: Churchill Livingstone. Mace, J. D., & Kowalczyk, N. (1994). Radiographic pathology for technologists (2nd ed.). St Louis, MO: Mosby. Redhead, D. N. (1995). Imaging: Colour guide. Edinburgh: Churchill Livingstone. Yochum, T. R., & Rowe, L. R. (2005). Yochum and Rowe's essentials of skeletal radiology (3rd ed., Vols. 1-2). Baltimore, MD: Lippincott Williams & Wilkins. Bear, M. F., Connors, B. W., & Paradiso, M. A. (2001). Neuroscience: Exploring the brain (2nd ed.). Philadelphia: Lippincott Williams & Wilkins. Nolte, J. (2002). The human brain: An introduction to its functional anatomy (5th ed.). St Louis, MO: Mosby.

Assessment: One mid-semester MCQ examination (Clinical Neurology 5%) One 1-hour laboratory examination (Clinical Neurology, 15%, hurdle requirement); one 15-minute oral examination (Diagnostic Imaging, 25%, hurdle requirement); one 1-hour written slide examination (Diagnostic Imaging, 25%, hurdle requirement); one 3-hour final written examination (Clinical Neurology, 30%, hurdle requirement).

HHD4186 CLINICAL DIAGNOSIS AND MANAGEMENT 5 (RHEUMATOLOGY)

Locations: City Flinders.

Prerequisites: HHD3275 - CLINICAL DIAGNOSIS AND MANAGEMENT 4 (NEUROLOGY)

Description: The detailed clinical examination of the musculoskeletal system of the human body to detect the presence of key rheumatologic diseases. Key diagnostic procedures, tests and investigations used to diagnose pathology of the joints, bones and connective tissues. The use of a detailed diagnostic algorithm for the diagnosis of rheumatologic conditions. Skills required for advanced use of typical clinical diagnostic equipment employed in the musculoskeletal examination will be refined.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use at proficiency level the vocabulary of the rheumatologic examination; Discuss the fundamentals of the patient history as they pertain to musculoskeletal disease; Explain key diagnostic procedures, tests and investigations employed in rheumatology; Conduct a competent examination of the body recognising the key manifestations of the studied conditions; Use a diagnostic algorithm to arrive at a differential diagnosis; Recognise the main classes of bone tumours and their specific clinical manifestations; Integrate knowledge previously presented in anatomy and physiology and apply this integrated knowledge to the living body; Demonstrate competent usage of the basic tools associated with clinical examinations of the musculoskeletal system and other systems affected by rheumatologic disease.

Class Contact: Twenty-four (24) hours for one semester comprising lectures, and practical classes.

Required Reading: Dorland's illustrated medical dictionary. Dorland, W. A. N., (2003) (31st ed.). Saunders. Clinical Diagnosis and Management 5 (Rheumatology) lecture manual. Kiatos, J. (2011).

Assessment: Practical sessions have a hurdle requirement of at least 90% attendance.Examination, Final written examination (hurdle requirement), 50%. Examination, Final practical examination (hurdle requirement), 50%.

HHD4204 DERMAL CLINICAL PRACTICE 2

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD4104 - DERMAL CLINICAL PRACTICE 1

Description: In this unit students will begin to focus on a specific range of medical and therapeutic procedures with a view to specialisation of peri-operative support using clinical dermal therapy techniques. Topics include: procedures in reconstructive, plastic and cosmetic surgery; complications of reconstructive, plastic and cosmetic procedures; latex allergy; gloving and gowning; managing fragile skin and record keeping.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the processes expected in typical dermal therapy procedures; Correctly perform first aid procedures in the clinic as required; Explain and justify techniques for managing latex allergies within a dermal clinical setting; Explain the importance of sterile gloving and gowning in a medical setting; Perform and manage basic record keeping requirements in a medical setting.

Class Contact: Thirty-six (36) hours or equivalent for one semester comprising lectures, tutorials, and clinical placements.

Required Reading: Grabb and Smith's plastic surgery Thorne, C. H., Bartlett, S. P., Beasley, R. W., Aston, S. J., Gurtner, G. C., & Spear, S. L. (2006). (6th ed.). Lippincott Williams & Wilkins.

Assessment: Assignment, Written (2000 words), 40%. Examination, Written 2.5-hours, 40%. Test, Weekly topic tests, 20%.

HHD4212 PLASTIC AND RECONSTRUCTIVE PROCEDURES

Locations: City Queen.

Prerequisites: HHD3115 - WOUND CARE FOR DERMAL PRACTICE

HNB2102 - HEALTH PRIORITIES & NURSING 2

RBM2104 - PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 1

Description: In this unit students will begin to focus on a specific range of medical and therapeutic procedures with a view to specialisation of peri-operative support using clinical dermal therapy techniques. Topics include: procedures in reconstructive, plastic and cosmetic surgery; complications of reconstructive, plastic and cosmetic procedures; Surgical aseptic technique and the considerations and implications for wound repair before, during and after surgery such as co-morbidities and medications.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the processes expected in typical cosmetic and reconstructive procedures; Explain the importance of sterile gloving and gowning in a medical setting; Discuss the impact of medications, diseases/disorders and other conditions arising from surgery that may impact wound repair after plastics procedures. Discuss the role that the dermal clinican has in patient care pre and post operatively. Perform and manage basic record keeping requirements in a medical setting

Class Contact: On Campus Thirty-six (36) hours for one semester comprising face-to-face lectures and tutorials and placement in an approved healthcare, plastic surgery, cosmetic surgery or dermal therapy practice. Online Thirty-six (36) hours for one semester comprising online lectures and tutorials and placement in an approved healthcare, plastic surgery, cosmetic surgery or dermal therapy practice.

Required Reading: This is an ebook available from the Victoria University Library Plastic and reconstructive surgery. Seimionow, M., & Eisenmann-Klein, M. (2010). London, UK: Springer.

Assessment: Hurdle Requirement: Students must complete a placement (minimum of 4 hours) with a plastic surgeon to observe plastics procedures related to this unit.Assignment, Written Assignment (2000 words), 50%. Examination, Written Examination (1.5 hours), 40%. Test, 12 Online Tests (each test 10 minute duration), 10%.

HHD4213 DERMAL CLINICAL PRACTICUM

Locations: City Queen, Other.

Prerequisites: HHD2115 - PERMANENT HAIR REMOVAL

HHD3112 - LIGHT BASED HAIR REDUCTION

HHD3115 - WOUND CARE FOR DERMAL PRACTICE

HHD3116 - LYMPH AND ADIPOSE BIOLOGY

HHD3213 - ELECTROTHERAPY

Description: HHD4213 integrates dermal therapies theory and practice and gives students the opportunity to enhance their understanding by applying their skills in the clinical setting. HHD4213 will also assist in transitioning students into professional clinical practice through engaging with community and industry sectors in external and internal placements in approved healthcare, plastic and cosmetic surgery practices or dermal therapy clinics. The unit reinforces aspects of aseptic procedures, history taking, principles of diagnosis, treatment protocols, the range of treatment skills covered in the course thus far, legal issues and interpersonal and professional communication skills as well as reflective and evidence based practices.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply theorectical knowledge gained from previous study in dermal therapies to clinical practice and cases that typically present within professional practice Communicate case material in a professional style sufficient to facilitate accurate, efficient and effective handover; Work effectively within a team environment including mentoring junior students within the teaching clinic; Perform all treatments and other activities within the dermal teaching clinic to the standard of a qualified clinician. Reflect on current clinical practices and apply evidence based practice to dermal clinical therapies.

Class Contact: On Campus Seventy-two (72) hours for one semester comprising twelve (12) hours of face-to-face tutorial/discussion groups and sixty (60) hours of supervised attendance at the Dermal Teaching Clinic and placement in an approved healthcare, plastic/cosmetic surgery practice or dermal therapy clinic. Online Seventy-two (72) hours for one semester comprising twelve (12) hours of online tutorials/ discussion groups and sixty (60) hours supervised attendance at the Dermal Teaching Clinic and placement in an approved healthcare, plastic/cosmetic surgery practice or dermal therapy clinic. 1-2 weeks intensive placement may be arranged on campus per semester. Practical exams will be included in the 1-2 weeks on campus.

Required Reading: Values, ethics and healthcare. Duncan. P. (2010). London, UK: Sage.

Assessment: Hurdle requirement; Supervised placement comprising successful completion of 60 hours completed at the dermal teachin clinic and within an approved healthcare, plastic/cosmetic practice or dermal therapy clinic.Practicum, Practical Assessments (minimum 10), 50%. Journal, Reflective journal (10 entries min 200 words each), 50%.

HHD4214 NUTRITION AND DERMAL THERAPIES

Locations: City King Street, City Flinders, Off-shore, City Queen.

Prerequisites: HHD3224 - DERMATOLOGY

Description: In this subject students will further their understanding of the role of various vitamins and minerals food groups and nutritional supplements in promoting well-being. Students will also study the beneficial and deleterious effects of various diets on skin health and the relationship of nutritional eating patterns to conditions such as anorexia and bulimia. Topics include carbohydrates, lipids, proteins, energy balance, water soluble, vitamins, fat soluble vitamins, minerals, dieting, how to recognise the relationship between dieting disorders and skin conditions, referrals, nutritional status of the skin, discussions on popular diets, advantages and disadvantages, client management of specific dieting needs in respect of vitamins and minerals the effects of excessive amounts of vitamins and minerals.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe and discuss various common conditions, which may result from, or result in, important nutritional imbalances, which can adversely affect skin; Discuss the nutritional implications of various eating disorders; Describe and discuss the role of various macro and micro nutrients in nutritional wellbeing; Identify and describe factors that promote nutritional well-being, conditions in which it is appropriate to provide nutritional advice to clients; Identify and describe situations in which is necessary to refer clients to specialist health practitioners.

Class Contact: Thirty-six (36) hours for one semester consisting of mixed mode lectures and tutorials.

Required Reading: Malhqvist, M. L. (Ed.). (2002). Food and nutrition (2nd ed.). Sydney, Australia: Allen and Unwin.

Assessment: Assignment, 1 written assignment (2000 words), 60%. Examination, Written examination (2.5 hrs), 40%.

HHD4224 DERMAL CLINICAL PRACTICE 3

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD4104 - DERMAL CLINICAL PRACTICE 1

HHD3214 - ELECTRICALLY BASED DERMAL TREATMENTS

HHD4124 - LYMPHATIC PROCEDURES

HHD3204 - LASER SAFETY AND LIGHT BASED TREATMENTS

HHD4134 - LASER AND LIGHT PROCEDURES

Description: This unit integrates dermal therapies theory and practice and gives students the opportunity to enhance their understanding by applying their skills in the clinical setting. The unit reinforces aspects of aseptic procedures, history taking, principles of diagnosis, treatment protocols, the range of treatment skills covered in the course thus far, legal issues and interpersonal and professional communication skills.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply theorectical knowledge gained from previous study in dermal therapies to clinical practice and cases that typically present within the clinic; Communicate case material in a professional style sufficient to facilitate accurate, efficient and effective handover; Work effectively within a team environment including mentoring junior students within the clinic; Perform all treatments and other activities within the dermal teaching clinic to the standard of a qualified clinician.

Class Contact: Fifty-two (52) hours for one semester comprising lectures, tutorials, and clinical placements in an approved clinical setting as per rotating roster.

Required Reading: Caring for patients from different cultures Galanti, G.-A. (2008). (4th ed.). Philadelphia: University of Pennsylvania Press.

Assessment: Practicum, Practical Assessments (Students are to perform selected procedures taught within the unit to professional dermal therapist standards), 50%. Assignment, Protocol handbook selected treatments covered in the course (3000 words), 50%.

HHD4234 PROFESSIONALISM IN DERMAL PRACTICE

Locations: City King Street, City Flinders, Off-shore, City Queen.

Prerequisites: HHD3114 - WORKPLACE ISSUES IN DERMAL PRACTICE

Description: This unit is an integrating unit for the course and has been designed to provide students with a framework to link the main elements of the course. The unit enables students to enhance their critical thinking and integration of knowledge. Particular emphasis will be given to: 1) Ethical and legal issues and dilemmas confronting dermal therapies. 2) Networking with medical practitioners and other health professionals including referrals and approaches to establishing effective and safe working relationships. 3) Presenting research findings and clinical results.

Credit Points: 12

Learning Outcomes: On succesful completion of this unit, students are expected to be able to: Identify and describe legal and ethical issues related to dermal therapy practice and generate appropriate solutions or refer them to the appropriate professionals. Record client information in the appropriate format with appropriate levels of privacy and where appropriate communicate this information to allied heathcare professionals and medical practitioners. Identify and describe the major components of our legal system and how it functions especially in relation to health law. Demonstrate public speaking abilities by planning a research presentation and expressing the findings to an audience.

Class Contact: Thirty-six (36) hours for one semester consisting of mixed-mode delivery.

Required Reading: Life Branding! Michail, J. (2002) Brolga Publishing

Assessment: Assignment, Problem solving exercises (3000 words), 30%. Examination, Multiple Choice Exam (100 MCQs), 30%. Presentation, Class presentation (A 20 minute presentation to the class on a set topic), 40%.

HHD4244 INDEPENDENT RESEARCH 2

Locations: City King Street, City Flinders, City Queen.

Prerequisites: HHD4144 - INDEPENDENT RESEARCH 1

Description: Students will be guided through the processes of developing a research project with specific emphasis on data collection, the use of appropriate statistical analyses and report writing.

Credit Points: 12

Learning Outcomes: Students will have gained greater experience in how to undertake a research project so that they are better prepared for future postgraduate study, specifically relating to data collection and report writing. Students will also have a much deeper understanding of their chosen topic.

Class Contact: 3 hours per week or equivalent.

Required Reading: How to Write Health Science Papers, Dissertations, and Theses by Shane A. Thomas (2004) Churchill livingston

Assessment: 100% - Research project report (Students will write a report as if it were to be submitted to a Journal. 5000 words)

HHD4286 CLINICAL DIAGNOSIS AND MANAGEMENT 6

Locations: City Flinders.

Prerequisites: HHD4185 - CLINICAL DIAGNOSIS AND MANAGEMENT 5

Description: This unit comprises three modules: Module 1: Neurological Assessment; Module 2: Diagnostic Imaging 2; and Module 3: Pharmacology 1. Module 1: Neurological Assessment concentrates on a detailed clinical examination of the nervous system. Students will be trained in the advanced examination of the following neurological systems, structures and conditions: sensory, motor, cranial nerves, cerebral cortex, basal ganglia, cerebellum, upper and lower motor neurons, skeletal muscles, nerve damage in the upper and lower limb. The study of the key diagnostic procedures, tests and investigations used to diagnose pathology of the nervous system. The performance of a rapid, clinical, neurological screening test. The basic algorithm employed in the diagnosis of neurological disease. Advanced training in the use of equipment employed in the neurological clinical examination. Module 2: Diagnostic Imaging 2 extends the reading of radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of arthritides, primary and secondary tumours, tumour-like disorders, metabolic, vascular, and endocrine diseases. Information on diagnostic images will include normal and pathological anatomy, and pathological features associated with particular disease states. Module 3: Pharmacology 1 introduces the development and testing process for drugs. The scheduling system. Trends in drug research. The approval process and the Pharmaceutical Benefits Scheme. Generic drugs versus brands. Reasons for differences in prescribing habits. Pharmacokinetics, pharmacodynamics and other pharmacological terms and concepts. Drug histories and documentation. Overview of major common drugs, herbals and supplements seen in practice, with emphasis on the implications for the osteopath; drugs used for the control of pain, inflammation, and for treatment of arthritic conditions, including opioid and non-opioid analgesics, NSAIDs, corticosteroids and DMARDs. Oral contraceptives and derivatives such as HRT. Drugs used in infection control; antibiotics, antivirals and antifungals.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Competently use the vocabulary of the neurological examination (module 1); Explain the fundamentals of the clinical history as it pertains to neurological disease (module 1); Explain the key diagnostic procedures, tests and investigations employed in neurology (module 1); Competently use standard diagnostic equipment (e.g., stethoscope, otoscope,ophthalmoscope, reflex hammer, tuning fork) to conduct a rapid screening test of the nervous system (module 1); Competently use standard diagnostic equipment to carry out the detailed examination of the key components of the nervous system (sensory, motor, cranial nerves, cerebral cortex, basal ganglia, cerebellum, upper and lower motor neurons, skeletal muscles, nerve damage in the upper and lower limb) (module 1); Use a basic diagnostic algorithm to arrive at a differential diagnosis (module 1); Predict basic abnormal signs and symptoms that may be encountered when named structures are affected by pathology (module 1); Recognise the main classes of headache and their specific clinical manifestations (module 1); Distinguish normal from pathological anatomy on diagnostic images (module 2); Incorporate knowledge in anatomy and physiology when reading scans (module 2); Competently read radiographs, MRI, CT, ultrasound, bone scans, and other diagnostic images for the diagnosis of arthritides, primary and secondary tumours, tumour-like disorders, metabolic, vascular, and endocrine diseases (module 2); Discuss the development, testing, approval, scheduling and subsidy processes for drugs used and sold in Australia (module 3); Explain the basic methods of drug action and of pharmacological concepts such as pharmacokinetics and dynamics (module 3); Take and document a drug history. Explain the main classes, and practical uses, of drugs, herbals and supplements relevant to osteopathic practice (module 3).

Class Contact: Eighty four (84) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Pharmacology for Health Professionals Bryant, B and Knights, K. 2nd Mosby, Australia

Assessment: Examination, Module 1(Neurology) One 15-minute final practical exam (hurdle requirement), 20%. Examination, Module 1; 2 hour final written exam (hurdle requirement), 20%. Examination, Module 2 (Diagnostic Imaging 2) 15-minute final oral exam (hurdle requirement), 20%. Examination, Module 2 ; 1 hour written examination (hurdle requirement), 20%. Examination, Module 3 (Pharmacology 1) one 2 hour written (MCQ and short answer format) examination (hurdle requirement), 20%.

HHD5186 PBL (OBSTETRICS/PAEDIATRICS/PSYCHIATRY)

Locations: City Flinders.

Description: Presentation and discussion of relevant issues, clinical presentations and serious disorders typically seen in Osteopathic practice in the areas of Obstetrics, Pediatrics and Psychiatry.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Elicit and interpret clinical features pertinent to common and serious disorders in Obstetrics, Paediatrics and Psychiatry. Interpret clinical tests and special investigations commonly used in the diagnosis and management of conditions typically seen in Obstetrics, Paediatrics and Psychiatry; Generate a primary diagnosis and a list of differential diagnoses consistent with typical presentations common in Obstetrics, Paediatrics and Psychiatry; Explain the medical management of various conditions typically presenting in osteopathic practice; Discuss how the serious and common disorders of Obstetrics, Paediatrics and psychiatry may impact on osteopathic practice; Discuss potential professional problems and explore different ways of effectively responding to them; Function as practitioners who can work independently within the scope of osteopathic practice as members of a multi-disciplinary care team.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and facilitated small group PBL discussion workshops.

Required Reading: There are no required texts as this is a problem based unit in which students are expected to develop the skills to identify appropriate sources of information.

Assessment: Report, a group report is submitted for each of the 6 IPs, Pass/Fail. Examination, a 2 hour written examination, Pass/Fail. Both assessment items must be passed to achieve an overall pass in this unit.

HHD5187 CLINICAL DIAGNOSIS AND MANAGEMENT 7

Locations: St Albans, City Flinders.

Prerequisites: HHD4286 - CLINICAL DIAGNOSIS AND MANAGEMENT 6

Description: Module 1: Diagnostic Imaging 3 reviews pathologies by region using all imaging modalities; skull, cervical spine, thoracic spine, chest, lumbar spine; abdomen including foetal screening; pelvis and hip; upper and lower limb. Module 2: Diagnosis and Management, PBL 1 concentrates on relevant issues and clinical presentations of conditions typically seen in paediatrics, obstetrics, otolaryngology, psychiatry; clinical tests and conventional medical management of those conditions; more serious disorders in obstetrics, paediatrics and psychiatry; specific areas that impact on osteopathic diagnosis and management. Module 3: Nutrition and Diet 1 considers carbohydrates, fats, proteins, vitamins, minerals; the healthy diet; diet and disease; naturopathic concepts; the role of various nutrients and nutritional status in both health and disease; the concept of food as medicine; nutritional deficiencies and eating disorders; current recommendations for nutritional management of some common disease states; methods used for assessing food safety; principles of food hygiene. The role of macronutrients and micronutrients in the body is considered and an optimal diet for Australians is described. The role of food in lifestyle diseases, and the nutritional management of these diseases, what constitutes a balanced diet and important nutritional issues for Australians will be discussed. Module 4: Pharmacology 2 includes drugs used in the treatment of skin conditions and respiratory conditions. Hypnotics, anxiolytics, antidepressants and other drugs used in psychiatric disorders. Drugs used for treating hypertension and angina: adrenoreceptor blockers, anticoagulants and lipid-lowering drugs. Other drugs with vascular effects: 5-HT agonists and sympatheticomimetics. Treatment of central nervous disorders like epilepsy and Parkinsonism. Treatment of diabetes mellitus. Thyroid and other hormones used therapeutically. Drugs used in the treatment of neoplasms. Recreational drugs and effects of substance abuse.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Distinguish amongst normal changes and typical and atypical pathological changes on diagnostic images (module 1); Determine when diagnostic images are clinically indicated (module 1); Interpret typical and atypical diagnostic images in a clinical setting (module 1); Integrate typical and atypical diagnostic images with other clinical information to guide clinical decision making (module 1); Describe the public and private health system costs associated with diagnostic images (module 1); Interpret clinical signs and symptoms pertinent to conditions typically seen in paediarics, obstetrics, otolaryngology, psychiatry, and to serious and specific disorders in obstetrics,paediatrics and psychiatry (module 2); Interpret clinical tests and special investigations commonly used in the diagnosis of conditions typically seen in obstetrics, paediatrics and psychiatry (module 2); Explain the conventional medical management of paediatric, obstetric, ENT and psychiatric conditions typically presenting in osteopathic practice (module 2); Explain serious and common disorders in obstetrics, paediatrics and psychiatry may impact on osteopathic practice (module 2); Discuss potential problems in osteopathy for the professional and the profession, and explore different ways of effectively responding to those problems (module 2); Evaluate the role of nutrients in health and disease (module 3); Recognize and respond appropriately to patients with nutritional deficiencies and eating disorders (module 3); Explain the impact of nutritional status in specific clinical conditions relevant to the practising osteopath (module 3); Relate the methods used for assessing food safety and the principles of food hygiene (module 3); Explain and predict the actions, interactions and adverse effects of the major drugs commonly seen in osteopathic practice (module 4); Explain the referrals procedures and ethical issues in cases where medications may becausing health problems (module 4); Discuss the actions, interactions and adverse effects of the drugs/supplements for the management of cardiac, gastrointestinal, respiratory and musculoskeletal conditions (module 4).

Class Contact: One hundred and eight (108) hours or equivalent normally spread over one semester comprising of lectures, tutorials and workshops. It is expected that students will complete a minimum of 24 hours per semester in self directed learning.

Required Reading: Brown, J. E. (1990). The science of human nutrition. USA: Harcourt Brace Chew, F. (1997). Skeletal radiology: The bare bones (2nd ed.). Baltimore, MD: Williams & Wilkins. Giles, L. F. G. (2003). 50 challenging spinal pain syndrome cases. Butterworth-Heinemann. Springhouse Corporation. (2004). Clinical pharmacology made incredibly easy. New York: Lippincott Williams & Wilkins. Upfal, J. (2006). The Australian drug guide (7th ed. rev.). Melbourne, Australia: Black Inc. Yochum, T. R., & Rowe, L. R. (2005). Yochum and Rowe's essentials of skeletal radiography (3rd ed., Vols. 1-2). Baltimore, MD: Lippincott Williams and Wilkins. Students should have access to a copy of the most recent MIMS or the Australian medicines handbook available from Australian Medicines Handbook Website, http://www.amh.org.au Pharmacology for Health Professionals Bryant, B. & Knights, K. 2nd Mosby, Australia

Assessment: Examination, 15-minute final oral exam (diagnostic imaging, hurdle requirement), 10%. Examination, 1-hour final written examination (diagnostic imaging, hurdle requirement), 10%. Case Study, 4 group-written cases (diagnosis and management, hurdle requirement), 20%. Assignment, written (1500 words), 10%. Examination, 1.5 hour written exam (nutrition and diet), 15%. Examination, 2 hour final written open-book examination (diagnosis and management, hurdle requirement), 10%.

HHD5287 PBL-GERONTOLOGY

Locations: City Flinders.

Prerequisites: HHD5186 - PBL (OBSTETRICS/PAEDIATRICS/PSYCHIATRY)

HHN5181 - NUTRITION FOR PRIMARY CARE

HHX5183 - DIAGNOSTIC IMAGING 3

Description: To consider the serious and common disorders in the area of gerontology and musculoskeletal medicine that may have an impact on osteopathic management, and to revise common and serious gerontological and musculoskeletal presentations in specific clinical contexts, focussing on diagnosis and comprehensive osteopathic management.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Elicit and interpret clinical signs and symptoms pertinent to conditions typically seen in gerontology and to more serious and specific disorders in musculoskeletal medicine;
2. Interpret clinical tests and special investigations commonly used in the diagnosis of conditions typically seen in gerontology and musculoskeletal medicine;
3. Generate a primary diagnosis and a list of differential diagnoses consistent with typical presentations common in gerontology and musculoskeletal medicine ;
4. Explain the medical management of various conditions in gerontology and musculoskeletal medicine typically presenting in osteopathic practice;
5. Discuss how the serious and common disorders in the areas of gerontology and musculoskeletal medicine may impact on osteopathic practice;
6. Discuss potential professional problems and explore different ways of effectively responding to them.

Class Contact: Twenty-four (24) hours for one semester comprising facilitated small group PBL discussions.

Required Reading: There are no required texts as this is a problem based unit in which students are expected to develop the skills to identify appropriate sources of information.

Assessment: Report, One group report is submitted for each of the 6 IPs, Pass/Fail. Examination, One 2 hour written examination, Pass/Fail. Both assessment items must be passed to achieve an overall pass in this unit.

HHD5288 CLINICAL DIAGNOSIS AND MANAGEMENT 8

Locations: City Flinders.

Prerequisites: HHD5187 - CLINICAL DIAGNOSIS AND MANAGEMENT 7

Description: This unit comprises two modules: Module 1: Diagnosis and Management - Problem Based Learning 2; and Module 2: Nutrition and Diet. Module 1: Diagnosis and Management - PBL 2 discusses relevant issues and clinical presentations of conditions typically seen in gerontology; clinical tests and conventional medical management of those conditions; specific areas in musculoskeletal medicine and gerontology that impact on osteopathic diagnosis and management. Module 2: Nutrition and Diet considers nutrition in pregnancy, paediatric nutrition, fad diets, traditional cuisines, sports nutrition, giving dietary advice, nutrition and cancer, nutrition and arthritis, food law and labelling, food allergy and intolerance, nutrition issues for women, nutrition and the elderly.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Elicit and interpret clinical signs and symptoms pertinent to conditions typically seen in gerontology, and to more serious and specific disorders in and musculoskeletal medicine (module 1); Interpret clinical tests and special investigations commonly used in the diagnosis of conditions typically seen in gerontology, and musculoskeletal medicine (module 1); Generate a primary diagnosis and a list of differential diagnoses consistent with typical presentations common in gerontology, and musculoskeletal medicine (module 1); Explain the medical management of various conditions typically presenting in osteopathic practice (module 1); Discuss how the serious and common disorders and the specialized areas of medical practice (gerontology, and musculoskeletal medicine) may impact on osteopathic practice (module 1); Apply knowledge, appropriate communications skills and critical reasoning skills consistent with professional osteopathic standards expected during patient consultations (module 1); Discuss potential professional problems and explore different ways of effectively responding to them (module 1); Function as practitioners within a multi-disciplinary health care team (module 1); Function as practitioners who can work independently within the scope of osteopathic practice (module 1); Evaluate the role of nutrients in health and disease (module 2) Explain the impact of nutritional status in specific clinical conditions relevant to the practising osteopath (module 2); State current recommendations for the nutritional management of some common and serious disease states (module 2); Discuss nutritional issues relevant to children, pregnant women and elderly adults (module 2).

Class Contact: Seventy-two (72) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and self-directed learning.

Required Reading: Osteopaths Registration Act. Available from Osteopaths Registration Board of Victoria Website, www.osteoboard.vic.gov.au/links.html Osteopaths Registration Regulations. (1997 & Am.). Available from Osteopaths Registration Board of Victoria Website, www.osteoboard.vic.gov.au/links.html or from Queensland Government Website, www.legislation.qld.gov.au/LEGISLTN/SLS/2002/02SL081.pdf

Assessment: Assignment, Written (1500 words) (Nutrition and Diet), 20%. Assignment, Written (2000 words) (Nutrition and Diet), 30%. Case Study, 4 group-written cases (Diagnosis and Management; hurdle requirement), 25%. Examination, 2-hour final written open-book exam (Diagnosis and Management; hurdle requirement), 25%.

HHH4101 RESEARCH METHODS

Locations: St Albans.

Description: Evaluation of the health care professionals role in the research process and the significance of research to health care. Discussion of the different trends and issues within health care research. Exploration of legal and ethical considerations in research. Examination of qualitative and quantitative research methods. Consideration of how research ideas/questions can be generated and which research methodology may be appropriate. Data analysis and Computation.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: A minimum of twenty-four (24) hours for one semester comprising lectures, seminars and self-managed learning activities.

Required Reading: Polgar, S., & Thomas, S. (1995). Introduction to research in the health science. Melbourne: Churchill Livingstone. Paton, M. Q. (1990). Qualitative evaluation and research methods. NY: Sage Publications.

Assessment: Seminar presentation with staff and peer assessment (50%); written assignment (50%). To obtain a Pass in the subject, a pass must be gained for each component of assessment. Failed assessment item (written assignment) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HHK4004 SCHOOLS OF THOUGHT IN ACUPUNCTURE

Locations: St Albans.

Description: Detailed explorations of a broad range of schools of thought from classical and contemporary Chinese medical literature, other Oriental and Western applications. Emphasis will be given to understanding these approaches and their relevance in a contemporary Australian clinical setting. Areas such as Zi wu liu zhu, ling gui ba fa, yuan wu bi lei, the application of the 'Ghost Points' and Japanese approaches are addressed. Special emphasis is given to clinical concerns connected to the notion of two important Chinese medical ideas: dispersing xie Qi and supporting zheng Qi.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: Twenty (20) hours or equivalent for one semester comprising lectures, seminars and self-managed learning activities. This subject will be delivered in its entirety before the mid-semester break to allow students to undertake their final clinical internship in China.

Required Reading: Maciocia, G. (1994). The practice of Chinese medicine: The treatment of diseases with acupuncture and Chinese herbs. Edinburgh: Churchill Livingstone. Pirog, J. E. (1996). The practical application of meridian style acupuncture. Berkeley, CA: Pacific View.

Assessment: One class presentation (50%); one assignment (1000 words) (50%). To obtain at least a Pass in the subject, normally all components of assessment must be attempted and passed. Failed assessment item (assignment) may be re-attempted and resubmitted once only. Maximum possible marks to be obtained on any resubmission will be 50%.

HHL1171 ACADEMIC SKILLS

Locations: City Flinders.

Description: This unit is designed to aid the transition of first year students into higher education, to develop their critical thinking skills, academic writing and appreciation of research.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Reflect on, and discuss, a patients perspective of the osteopathic clinical experience. Interpret and discuss literature relevant to osteopathic practice. Demonstrate an ability to express clearly and accurately information regarding an anatomy topic to their peers.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: All assessment components are hurdle requirements for successful completion of this unitEssay, Reflective piece - 1st year student as patient, 40%. Exercise, Demonstrate clear thinking skills in in-class group activities, 40%. Presentation, Presentation on an anatomical area of the body, 20%.

HHL4180 INTRODUCTION TO RESEARCH METHODS

Locations: City Flinders.

Prerequisites: HHO3275 - OSTEOPATHIC SCIENCE 6

HHS3272 - PSYCHOLOGY & SOCIAL SCIENCES 2

HHU3274 - CLINICAL PRACTICUM 4

Description: Review of scientific methods; quantitative and qualitative research paradigms; data sampling and collection; questionnaire design; outcome measures used in manual therapy research; qualitative methods: case study, grounded theory, ethnography, focus group; ethical issues and evaluation of research papers; data analysis: descriptive and inferential statistics, correlations and hypothesis testing. Students will participate in group discussions for literature critique and planning of a research project.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Evaluate different types of statistical designs;
2. Explain research methods relevant to research in osteopathy and related health fields;
3. Identify ethical requirements in the conduct of research;
4. Critically appraise literature in the field of health science;
5. Present a research proposal in an oral format to peer review.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: Statistical methods for health care research. Munro, B.H. (2005). (5th ed.). Philadelphia: Lippincott Williams & Wilkins.

Assessment: Assignment, Research assignment (journal article critque) - 1000 words., 20%. Test, Multiple choice quizzes (2), 60%. Presentation, Oral presentation of research proposal, 20%.

HHL4181 RESEARCH 1

Locations: St Albans, City Flinders.

Description: Review of scientific methods; quantitative and qualitative research paradigms; data sampling and collection; questionnaire design; outcome measures used in manual therapy research; qualitative methods: case study, grounded theory, ethnography, focus group; ethical issues and evaluation of research papers; data analysis: descriptive and inferential statistics, correlations and hypothesis testing.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Evaluate different types of statistical designs; Explain research methods relevant to research in osteopathy and related health fields; Identify ethical requirements in the conduct of research; Critically appraise literature in the field of health science; Independently write a research proposal; Present a research proposal in an oral format to peer review.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and group work or self -directed learning.

Required Reading: Statistical methods for health care research Munro, BH./2005 5th Philadelphia: Lippincott Williams & Wilkins

Assessment: All the assessment items and a satisfactory research supervisor report are hurdle requirements.Test, Written Tests (2), 60%. Assignment, Written research group proposal (3000-5000 words), 30%. Presentation, Oral Power Point presentation of proposal, 10%.

HHL4281 STATISTICAL METHODS & ANALYSIS

Locations: City Flinders.

Prerequisites: HHL4180 - INTRODUCTION TO RESEARCH METHODS

Description: Extension and consolidation of data analysis methods. Quantitative data analysis: revision of descriptive and inferential statistics, correlations and hypothesis testing, general linear model, power and effect, analysis of variance and covariance multivariate designs, nonparametric data analysis and selection of nonparametric tests, practical use of the SPSS statistical computer package.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Explain data analysis methods relevant to research in osteopathy and related health fields;
2. Describe detailed methods of qualitative and quantitative statistical analysis;
3. Use a statistical computer package (SPSS) for data analysis.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: SPSS version 16.0 for Windows. Analysis without Anguish. Coakes, S.J., Steed, L., & Dzidic, P. (2008). John Wiley & Sons, Australia.

Assessment: Assignment, Written assignment (500 words), 20%. Test, One hour multiple choice quiz, 30%. Examination, One hour computer lab using SPSS, 50%.

HHL4282 RESEARCH 2

Locations: St Albans, City Flinders.

Prerequisites: HHL4181 - RESEARCH 1

Description: Extension and consolidation of data analysis methods. Quantitative data analysis: revision of descriptive and inferential statistics, correlations and hypothesis testing, general linear model, power and effect, analysis of variance and covariance multivariate designs, nonparametric data analysis and selection of nonparametric tests, practical use of the SPSS statistical computer package. Qualitative data analysis: major qualitative methodologies, techniques in data collection and analysis.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Explain data analysis methods relevant to research in osteopathy and related health fields; Describe detailed methods of qualitative and quantitative statistical analysis; Use a statistical computer package for data analysis; Complete a written ethics application for a research proposal.

Class Contact: Sixty (60) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and self-directed learning.

Required Reading: SPSS version 16.0 for Windows. Analysis without Anguish. Coakes SJ, Steed L, Dzidic P. 2008 John Wiley & Sons, Australia

Assessment: Submission of a written ethics application (hurdle requirement); one written assignment (40%); one 2-hour written examination (60%).

HHL5182 RESEARCH PROJECT 1

Locations: City Flinders.

Prerequisites: HHL4281 - STATISTICAL METHODS & ANALYSIS

Description: Students will assist with planning and implementation of data collection for a staff-led group research project. Students will continue to search for and critique literature and discuss the relevance of this literature to the study methodology, and complete analysis appropriate to their research projects.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Independently progress the data collection and analysis phases of research;

2. Critically appraise literature in the field of health science;

3. Demonstrate an ability to work effectively in a research group.

Class Contact: Twelve(12) hours for one semester comprising lectures.

Required Reading: Reading materials will be provided by the unit coordinator in line with the student's project(s).

Assessment: Assignment, Journal article critique -1000 word limit, Pass/Fail. Laboratory Work, Satisfactory progress report from supervisor, Pass/Fail.

HHL5183 RESEARCH 3

Locations: St Albans, City Flinders.

Prerequisites: HHL4282 - RESEARCH 2

Description: Following receipt of ethics committee approval, students will complete data collection and analysis appropriate to their individual research projects and write a draft of the thesis, which in its final form will be a 12,000-20,000 word thesis of a standard consistent with publication in a peer reviewed journal.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Independently progress the data collection and analysis phases of research; Produce a working draft of a thesis.

Class Contact: Sixty (60) hours or equivalent normally spread over one semester comprising independent research, meetings with supervisors, and tutorials and workshops as required.

Required Reading: There are no set texts for this unit. Reading will be influenced by the nature of the research project undertaken by the student.

Assessment: Two satisfactory progress reports from supervisor(s) (week 5, end-of-semester) (hurdle requirement).

HHL5283 RESEARCH PROJECT 2

Locations: City Flinders.

Prerequisites: HHL5182 - RESEARCH PROJECT 1

Description: Students will continue to assist with implementation of data collection and analysis of the data for a staff-led group research project. Students will continue to search for and critique literature and discuss the relevance of this literature to the study s discussion and conclusions. Students will complete a written reflective assignment on the research experience, which should demonstrate a high standard of written communication skills and understanding of the research process. Students will present an oral Power Point presentation of their research project.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Critically appraise literature in the field of health science;

2. Engage in further research activities and research training;

3. Demonstrate critical reflection on their research experience;

4. Effectively communicate and present their research project to their peers.

Class Contact: Twelve (12) hours for one semester comprising of lectures.

Required Reading: Reading materials will be provided by the lecturer in line with the student's project(s).

Assessment: Assignment, Written reflective piece on research experience - 2000 words, Pass/Fail. Presentation, Presentation of research project, Pass/Fail. Laboratory Work, Satisfactory progress report from supervisor, Pass/Fail.

HHL5284 RESEARCH 4

Locations: St Albans, City Flinders.

Prerequisites: HHL5183 - RESEARCH 3

Description: Students having undertaken an individual research project in earlier HHL4181, HHL4282 & HHL5183 Research units will use this unit to complete the (12000-20000 word) minor thesis component of the degree. The thesis will provide evidence of independent academically rigorous research, which demonstrates the ability to define a problem, undertake a detailed literature review, develop a research design appropriate to the topic and collect and analyse, interpret and present data. The thesis should demonstrate a high standard of written communication skills consistent with publication in a peer reviewed journal. Presentation of the thesis should be in a conventional scientific format. An oral PowerPoint presentation is also required.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Independently produce a scholarly piece of original writing (thesis of 12,000-20,000 words) relevant to the discipline of health science; Engage in further research activities and research training.

Class Contact: Sixty (60) hours or equivalent normally spread over one semester comprising independent research, meetings with supervisors, and tutorials and workshops as required.

Required Reading: There are no set texts for this unit. Reading will be influenced by the nature of the research project undertaken by the studentAmerican Psychological Association. (2001). Publication manual of the American Psychological Association (5th ed.). Washington, DC: Author.ORAPA Style Sheet. (2004). Available from Dr. Abel Scribe PhD Website, www.docstyles.com/apacrib.htm

Assessment: Satisfactory progress report from supervisor(s) (hurdle requirement); one oral PowerPoint presentation of project (20%) (hurdle requirement); one minor thesis (12,000-20,000 words) (80%) (hurdle requirement). Examination of the minor thesis will be in accordance with the policies outlined by the Faculty of Health, Engineering and Science and the School of Health Sciences.

HHM4281 PHARMACOLOGY 1

Locations: City Flinders.

Description: Pharmacology 1 introduces the development and testing process for drugs. The scheduling system. Trends in drug research. The approval process and the Pharmaceutical Benefits Scheme. Generic drugs versus brands. Reasons for differences in prescribing habits. Pharmacokinetics, pharmacodynamics and other pharmacological terms and concepts. Drug histories and documentation. Overview of major common drugs, herbals and supplements seen in practice, with emphasis on the implications for the osteopath; drugs used for the control of pain, inflammation, and for treatment of arthritic conditions, including opioid and non-opioid analgesics, NSAIDs, corticosteroids and DMARDs. Oral contraceptives and derivatives such as HRT. Drugs used in infection control; antibiotics, antivirals and antifungals.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the development, testing, approval, scheduling and subsidy processes for drugs used and sold in Australia; Explain the basic methods of drug action and of pharmacological concepts such as pharmacokinetics and dynamics; Elicit and document a drug history. Explain the main classes, and practical uses of drugs, herbals and supplements relevant to osteopathic practice; Apply pharmaceutical knowledge in advising patients about medication issues.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: Pharmacology for health professionals. Bryant, B and Knights, K. (2006). (2nd.). Mosby Australia.

Assessment: Test, Mid-semester MCQ quiz, 20%. Examination, End of semester written exam (2 hours), 80%.

HHM5182 PHARMACOLOGY 2

Locations: City Flinders.

Prerequisites: HHM4281 - PHARMACOLOGY 1

Description: Pharmacology 2 includes drugs used in the treatment of skin conditions and respiratory conditions. Hypnotics, anxiolytics, antidepressants and other drugs used in psychiatric disorders. Drugs used for treating hypertension and angina: adrenoreceptor blockers, anticoagulants and lipid-lowering drugs. Other drugs with vascular effects: 5-HT agonists and sympatheticomimetics. Treatment of central nervous disorders like epilepsy and Parkinsonism. Treatment of diabetes mellitus. Thyroid and other hormones used therapeutically. Drugs used in the treatment of neoplasms. Recreational drugs and effects of substance abuse

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain and predict the actions, interactions and adverse effects of the major drugs commonly seen in osteopathic practice Explain the referrals procedures and ethical issues in cases where medications may be causing health problems Discuss the actions, interactions and adverse effects of the drugs/supplements for the management of cardiac, gastrointestinal, respiratory and musculoskeletal conditions Apply pharmaceutical knowledge in advising patients regarding medication issues

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: Pharmacology for health professionals. Bryant, B., & Knights, K. (2006). (2nd ed.). Elsevier.

Assessment: Test, Mid-semester MCQ quiz, 20%. Examination, MCQ and short answer exam - 2 hours, 80%.

HHM6800 RESEARCH THESIS (FULL-TIME)

Locations: Footscray Park.

Description: This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the investigation described in detail; results and conclusions from the study elaborated; and an extended discussion presented. Students may be required to undertake some lecture courses, as specified at the time of commencement.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: Independent research in addition to regular meetings with the student supervisors.

Required Reading: To be advised by supervisor.

Assessment: The thesis will normally be assessed by at least two expert examiners from an appropriate area of expertise.

HHM6801 RESEARCH THESIS (PART-TIME)

Locations: Footscray Park.

Description: This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the investigation described in detail; results and conclusions from the study elaborated; and an extended discussion presented. Students may be required to undertake some lecture courses, as specified at the time of commencement.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Independent research in addition to regular meetings with the student supervisors.

Required Reading: To be advised by supervisor.

Assessment: The thesis will normally be assessed by at least two expert examiners from an appropriate area of expertise.

HHN0021 COUNSELLING SKILLS FOR NATURAL MEDICINE PRACTITIONERS

Locations: St Albans.

Description: An introduction to the role of the counsellor and relationship between the client and practitioner. The following theories will be covered: Psychoanalytic, Alderian, Existential, Person Centred, Gestalt, Reality, Behavioral, Cognitive, Family systems, Ego State Therapies, as well as meditation, relaxation therapy. Ethical and legal issues of counselling.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: The equivalence of 39 hours per semester delivered in burst mode over two weeks or over one semester of 13 weeks.

Required Reading: Corey, G. (1997). Theory and Practice of Counselling and Psychotherapy. 5th Ed, Brooks/Cole Pub Co, California, USA. Corsini, R. J. & Wedding, D. (eds), (1998). 5th Edition. Current Psychotherapies. F.E. Peacock Publisher Inc. Illinois.

Assessment: Seminar presentation (15%); class participation (25%); written theory assignment (1500 words) (40%); reflective journal (20%). A pass must be gained for each component of the assessment.

HHN5181 NUTRITION FOR PRIMARY CARE

Locations: City Flinders.

Description: The main components of the diet are discussed including carbohydrates, fats, proteins, vitamins, minerals; the healthy diet; diet and disease; the role of various nutrients and nutritional status in both health and disease; the concept of food as medicine; nutritional deficiencies and eating disorders; current recommendations for nutritional management of some common disease states; the process of digestion and absorption of nutrients, examples of food/drug interactions. The role of macronutrients and micronutrients in the body is considered and an optimal diet for Australians is described. The role of food in lifestyle diseases, and the nutritional management of these diseases, what constitutes a balanced diet and important nutritional issues for Australians will be discussed. A brief discussion of dietary needs in specific conditions such as pregnancy, paediatrics and geriatrics is included.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Evaluate the role of nutrients in health and disease. Recognize and respond appropriately to patients with nutritional deficiencies and eating disorders. Explain the impact of nutritional status in specific clinical conditions relevant to the practising osteopath. Explain the nutrient composition of foods, and the assimilation of these nutrients into the body.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Report, Dietary analysis, 50%. Examination, One 1.5 hour written examination, 50%.

HHO1170 OSTEOPATHIC SCIENCE 1

Locations: City Flinders.

Description: This unit comprises three modules: Module 1: Technique; Module 2: Palpation; and Module 3: History and Principles. Module 1: Consideration of somatic dysfunction and the functioning of the individual as a whole. An introduction to osteopathic diagnosis. Basic soft tissue techniques applicable to the tissues of the musculoskeletal system. The use of leverages to induce motion within these tissues including an appreciation of barrier principles. Contraindications to osteopathic care both absolute and relative. Module 2: Development of palpatory skills and awareness of normal and abnormal tissue characteristics. Emphasis is placed on palpatory skills, osteopathic soft tissue and articulatory techniques, surface anatomy and tissue awareness. The palpation component will augment and reinforce anatomy presented in the unit Anatomy 1 HHA1171. Module 3: Development of the conceptual framework of osteopathy and an understanding of osteopathic history and philosophy.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss Osteopathic principles at a basic level Identify and palpate major anatomical structures and landmarks Demonstrate appropriate examination, soft tissue and articulatory techniques for the musculoskeletal system of the shoulder girdle, upper limb, head, neck and upper thorax. Demonstrate an understanding of the basic concepts of Osteopathy and display an understanding of Osteopathic history and philosophy.

Class Contact: Sixty -six (66) hours for one semester comprising lecture and practical classes which cover areas of Osteopathic Examination and Technique, Palpation and History & Principles of Osteopathy.

Required Reading: Palpation skills. Chaitow, L. (1997). New York: Churchill Livingstone. Anatomy, palpation and surface markings. Field, D. (2001). (3rd ed.). Baltimore, MD: Williams and Wilkins. Fundamental osteopathic techniques. Tucker, C., & Deoora, T. K. (1994). Melbourne, Australia: Research Publications. Physical examination of the spine and extremities. Hoppenfeld, S. (1976). Norwalk, CN: Appleton-Century Crofts. The philosophy of osteopathy. Kuchera, W. A. (n.d.). Kirksville, MO: Kirksville College of Osteopathic Medicine. Principles of manual medicine. Greenman, P. (2003). (3rd ed.). Baltimore, MD: Williams and Wilkins. Surface anatomy. Lumley, J. S. P. (2002). (3rd ed.). Edinburgh: Churchill Livingstone.

Assessment: Participation in practical sessions is mandatory with at least 90% attendance required (hurdle requirement). All assessment tasks below are also hurdle requirements.Test, Technique/Palpation in class Assessment, Pass/Fail. Test, History and Principles quizzes (3), Pass/Fail. Practicum, Combined practical and oral examination (OSCE format) (15 minutes Technique; 15 minutes Palpation), Pass/Fail.

HHO1171 OSTEOPATHIC SCIENCE 1

Locations: City Flinders.

Prerequisites: Nil.

Description: This unit comprises three modules: Module 1: Technique; Module 2: Palpation; and Module 3: History and Principles. Module 1: Consideration of somatic dysfunction and the functioning of the individual as a whole. An introduction to osteopathic diagnosis. Basic soft tissue techniques applicable to the tissues of the musculoskeletal system. The use of leverages to induce motion within these tissues including an appreciation of barrier principles. Contraindications to osteopathic care both absolute and relative. Module 2: Development of palpatory skills and awareness of normal and abnormal tissue characteristics. Research and presentation skills relating to the published literature on palpation. Emphasis is placed on palpatory skills, osteopathic soft tissue and articulatory techniques, surface anatomy and tissue awareness. The palpation component will augment and reinforce anatomy presented in the unit Anatomy 1. Module 3: Development of the conceptual framework of osteopathy and an understanding of osteopathic history and philosophy.

Credit Points: 12

Learning Outcomes: On successful completion of this unit,students are expected to be able to: Discuss osteopathic principles at a basic level; Identify and palpate major anatomical structures and landmarks; Demonstrate soft tissue and articulatory techniques for most areas of the musculoskeletal system of the shoulder girdle, upper limb, head, neck and upper thorax.

Class Contact: Seven (7) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Chaitow, L. (1997). Palpation skills. New York: Churchill Livingstone.Field, D. (2001). Anatomy, palpation and surface markings (3rd ed.). London: Butterworth-Heinemann.Greenman, P. (2003). Principles of manual medicine (3rd ed.). Baltimore, MD: Williams and Wilkins.Hoppenfeld, S. (1976). Physical examination of the spine and extremities. Norwalk, CN: Appleton-Century Crofts.Kuchera, W. A. (n.d.). The philosophy of osteopathy. Kirksville, MO: Kirksville College of Osteopathic Medicine.Lederman, E. (2005). The science and practice of manual therapy (2nd ed.). New York: Churchill Livingstone.Lumley, J. S. P. (2002). Surface anatomy (3rd ed.). Edinburgh: Churchill Livingstone.Tucker, C., & Deoora, T. K. (1994). Fundamental osteopathic techniques. Melbourne, Australia: Research Publications.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one in-class assessment (Technique and Palpation) (pass/fail) (hurdle requirement); paper critiques and one oral presentation (Palpation) (pass/fail) (hurdle requirement); three quizzes (History and Principles) (pass/fail) (hurdle requirement); one 30-minute combined practical and oral examination (OSCE format) (15 minutes Technique; 20 minutes Palpation) (pass/fail) (hurdle requirement).

HHO1271 OSTEOPATHIC SCIENCE 2

Locations: City Flinders.

Prerequisites: HHO1170 - OSTEOPATHIC SCIENCE 1

HHP1170 - CELL PHYSIOLOGY

HHA1171 - ANATOMY 1

Description: This unit comprises three modules: Module 1: Technique; Module 2: Palpation; and Module 3: History and Principles. Module 1: Students will continue to develop osteopathic diagnostic skills, palpatory skills including awareness of normal and abnormal tissue characteristics, and articulatory technique skills applied to the following musculoskeletal regions: thorax, lumbar, pelvis, lower limb and abdomen. Module 2: The Technique and Palpation components will augment and reinforce anatomy presented in the unit HHA127

2. Module 3: Continued development of the conceptual framework of osteopathy and an understanding of osteopathic history and philosophy.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss osteopathic principles at a level higher than basic; Name, identify and palpate the major anatomical structures and landmarks; Demonstrate appropriate osteopathic examination, soft tissue and articulatory techniques for prescribed areas of the musculoskeletal system: thorax, lumbar, abdomen, pelvis and lower limb; Adapt osteopathic soft tissue and articulatory techniques to accommodate patients needs and preferences.

Class Contact: Sixty - six (66) hours for one semester comprising lectures and practical classes.

Required Reading: Palpation skills. Chaitow, L. (1997). New York: Churchill Livingstone. Principles of manual medicine. Greenman, P. (2003). (3rd ed.). Baltimore, MD: Williams and Wilkins. Physical examination of the spine and extremities. Hoppenfeld, S. (1976). Norwalk, CN: Appleton-Century Crofts. The philosophy of osteopathy. Kuchera, W. A. (n.d.). Kirksville, MO: Kirksville College of Osteopathic Medicine. The science and practice of manual therapy Lederman, E. (2005). (2nd ed.). New York: Churchill. Anatomy Livingstone.Lumley, J. S. P. (2002). (3rd ed.). Edinburgh: Churchill Livingstone. Fundamental osteopathic techniques. Tucker, C., & Deoora, T. K. (1994). Melbourne, Australia: Research Publications.

Assessment: Test, History and Principles Quizzes (2), Pass/Fail. Assignment, Written assignment (History and Principles), Pass/Fail. Practicum, Oral/Practical 30-minute end of semester exam, (OSCE format) (15 minutes Technique; 15 minutes Palpation), Pass/Fail.

HHO1272 OSTEOPATHIC SCIENCE 2

Locations: St Albans, City Flinders.

Prerequisites: HHO1171 - OSTEOPATHIC SCIENCE 1

HHP1171 - PHYSIOLOGY 1

HHA1171 - ANATOMY 1

Description: This unit comprises three modules: Module 1: Technique; Module 2: Palpation; and Module 3: History and Principles. Module 1: Students will continue to develop osteopathic diagnostic skills, palpatory skills including awareness of normal and abnormal tissue characteristics, and articulatory technique skills applied to the following musculoskeletal regions: thorax, lumbar, pelvis and lower limb. Module 2: The Technique and Palpation components will augment and reinforce anatomy presented in the unit Anatomy 2. Module 3: Continued development of the conceptual framework of osteopathy and an understanding of osteopathic history and philosophy.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss osteopathic principles at a level higher than basic; Name, identify and palpate the major anatomical structures and landmarks; Describe the major anatomical structures and landmarks, including in plain language; Demonstrate soft tissue and articulatory techniques for prescribed areas of the musculoskeletal system: thorax, lumbar, pelvic and lower limb; Adapt osteopathic soft tissue and articulatory techniques to accommodate patients needs and preferences.

Class Contact: Seven (7) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Chaitow, L. (1997). Palpation skills. New York: Churchill Livingstone.Field, D. (2001). Anatomy, palpation and surface markings (3rd ed.). London: Butterworth-Heinemann.Greenman, P. (2003). Principles of manual medicine (3rd ed.). Baltimore, MD: Williams and Wilkins.Hoppenfeld, S. (1976). Physical examination of the spine and extremities. Norwalk, CN: Appleton-Century Crofts Kuchera, W. A. (n.d.). The philosophy of osteopathy. Kirksville, MO: Kirksville College of Osteopathic Medicine.Lederman, E. (2005). The science and practice of manual therapy (2nd ed.). New York: Churchill Livingstone.Lumley, J. S. P. (2002). Surface anatomy (3rd ed.). Edinburgh: Churchill Livingstone.Tucker, C., & Deoora, T. K. (1994). Fundamental osteopathic techniques. Melbourne, Australia: Research Publications.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one combined practical and oral mock examination (OSCE format) (Technique) (pass/fail formative assessment); three quizzes (History and Principles) (pass/fail) (hurdle requirement); one peer-assessed written assignment (History and Principles) (pass/fail) (hurdle requirement); one 40-minute combined practical and oral examination (OSCE format) (20 minutes Technique; 20 minutes Palpation) (pass/fail) (hurdle requirement).

HHO2171 OSTEOPATHIC SCIENCE 3

Locations: City Flinders.

Prerequisites: HHO1170 - OSTEOPATHIC SCIENCE 1

HHO1271 - OSTEOPATHIC SCIENCE 2

HHA1171 - ANATOMY 1

HHA1272 - ANATOMY 2

HHU1270 - CLINICAL PRACTICUM 1

HHD1271 - CLINICAL DIAGNOSIS & MANAGEMENT 1

HHY1271 - PATHOLOGY 1

HHL1171 - ACADEMIC SKILLS

Description: This unit comprises three modules: Module 1: High Velocity Low Amplitude Thrust (HVLA) Technique; Module 2: Osteopathic Examination and Technique; and Module 3: Osteopathic Science Theory. The content includes: further development of osteopathic manual soft tissue skills and the uses of leverage in treatment regimes including ST, Articulation, Muscle Energy Techniques (MET) and Harmonic techniques. Introduction to the use of high velocity thrust techniques applicable to the spine. Principles of examination of the spine and peripheral (upper extremity) regions. Stress is placed upon observation prior to palpation and the need to recognise the anatomical relationships on one region of the body to others. Osteopathic principles and application of forces to all soft tissues and joints of the body to normalise mechanics. Contraindications to the use of osteopathic techniques. Application and interpretation of tests and protocols relating to patient safety. Further exploration of the principles and practice of osteopathic medicine as distinct from allopathic and other complementary therapies. The evidence base underpinning osteopathic principles and somatic dysfunction. Common conditions and safety issues seen in osteopathic practice and the diagnosis of these conditions.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the biomechanical and Osteopathic principles underlying the use of HVLA thrust techniques to the spine and regional examination and techniques; Demonstrate with commentary and perform HVLA thrust and regional techniques safely whilst taking into consideration both patient and operator comfort; Explain and demonstrate Osteopathic and Orthopaedic examination of the Cervical and Thoracic Spine, and regions of the Upper Limb. Explain a rationale for technique selection and demonstrate appropriate and correct regional techniques, including articulation, soft tissue and MET. Identify and discuss contraindications relating to common Osteopathic conditions and their diagnosis;

Class Contact: Forty-eight (48) hours for one semester comprising of lectures and practical workshops.

Required Reading: Manipulation of the spine, thorax and pelvis: An osteopathic perspective. Gibbons, P., & Tehan, P. (2006). (2nd ed.). Edinburgh: Churchill Livingstone. Orthopedic physical assessment. Magee, D. J. (2002). (4th ed.). W. B. Saunders Co.

Assessment: 90% attendance at all practical workshops is mandatory and a hurdle requirement to pass this unit. All assessment items below are hurdle requirements for successful completion of this unit.Test, Formative assessment on safety relating to HVLA techniques, Pass/Fail. Examination, End of semester Practical exam (15 mins + 15 mins), Pass/Fail. Examination, 2 hr written exam (Osteopathic Theory), Pass/Fail.

HHO2173 OSTEOPATHIC SCIENCE 3

Locations: St Albans, City Flinders.

Description: This unit comprises three modules: Module 1: High Velocity Low Amplitude Thrust Technique; Module 2: Peripheral Joint Technique; and Module 3: Osteopathic Science Theory. The content includes: further development of osteopathic manual soft tissue skills and the uses of leverage in treatment regimes. Continued refinement of treatment approaches to effect reflex and structural changes in muscle. Introduction to the use of high velocity thrust techniques applicable to the spine and periphery. Principles of examination of the peripheral regions. Stress is placed upon observation prior to palpation and the need to recognise the anatomical relationships on one region of the body to others. Osteopathic principles and application pf forces to all soft tissues and joints of the body to normalise mechanics. Contraindications to the use of osteopathic techniques. Application and interpretation of tests and protocols relating to patient safety. Further exploration of the principles and practice of osteopathic medicine as distinct from allopathic and other complementary therapies. The evidence base underpinning osteopathic principles and somatic dysfunction. Common conditions seen in osteopathic diagnosis and the diagnosis of these conditions.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the biomechanical principles underlying the use of HVLA thrust techniques to the spine; Demonstrate with commentary and perform HVLA thrust techniques to the spine safely whilst taking into consideration both patient and operator comfort; Explain the principles of regional peripheral examination; Demonstrate with commentary and perform examinations of the peripheral regions; Discuss presentations of common osteopathic conditions and their diagnosis; Explain the major contraindications to osteopathic treatment in relation to the various techniques taught; Discuss the requirements and considerations for patient and operator safety and comfort; Contrast principles and practices of osteopathic medicine from allopathic and other forms of complementary medicine.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Manipulation of the spine, thorax and pelvis: An osteopathic perspective. Gibbons, P., & Tehan, P. (2010). (3rd ed.). Edinburgh: Churchill Livingstone. Orthopedic physical assessment. Magee, D. J. (2008). (5th ed.). W. B. Saunders Co.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Practicum, One 20 minute practical examination (HVLA) (hurdle requirement), Pass/Fail. Practicum, One 15 minute practical examination (Peripheral Assessment) (hurdle requirement), Pass/Fail. Examination, One 3 hour written examination (Osteopathic Science Theory) (hurdle requirement)., Pass/Fail.

HHO2272 OSTEOPATHIC SCIENCE 4

Locations: City Flinders.

Prerequisites: HHO2171 - OSTEOPATHIC SCIENCE 3

Description: This unit comprises three modules: Module 1: High Velocity Low Amplitude Thrust Technique; Module 2: Osteopathic Examination and Technique; Module 3: History and Principles. The content includes: further development of osteopathic manual soft tissue skills and the uses of leverage in treatment regimes including ST, Articulation, MET and Harmonic techniques. Continued instruction into the use of high velocity thrust techniques applicable to the spine, and examination of the spine and peripheral (lower extremity) regions. Stress is placed upon observation prior to palpation and the need to recognise the anatomical relationships on one region of the body to others. Contraindications to the use of osteopathic techniques. Application and interpretation of tests and protocols relating to patient safety. Further exploration of the principles and practice of osteopathic medicine as distinct from allopathic and other complementary therapies. The evidence base underpinning osteopathic principles and somatic dysfunction. Introduction to the osteopathic case history, examination and tissue diagnosis. Development of the conceptual framework of osteopathy and an understanding of osteopathic history and philosophy. Current scientific and popular issues in Osteopathy, including issues relevant to Australia.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply the biomechanical principles, and perform HVLA thrust techniques to the spine safely whilst taking into consideration both patient and operator comfort Explain and demonstrate Osteopathic and Orthopaedic examination of the Lumbar Spine and Pelvis, and regions of the Lower Limb. Explain a rationale for technique selection and demonstrate appropriate and correct regional techniques, including articulation, soft tissue and MET. Discuss the traditional osteopathic principles, philosophy; and Osteopathic concepts and theories in terms of currently-available scientific evidence. Discuss the extent of the evidence-based approach to medicine and the limited support currently available to the manual therapies;

Class Contact: Forty-eight (48) hours for one semester comprising lectures and practical workshops.

Required Reading: Osteopathic examination & technique - Notes. Fitzgerald, K Manipulation of the spine, thorax and pelvis: An osteopathic perspective Gibbons, P., & Tehan, P. (2006). (2nd ed.). Edinburgh: Churchill Livingstone. Orthopedic physical assessment Magee, D. J. (2002). (4th ed.). W. B. Saunders Co.

Assessment: 90% attendance is mandatory and a hurdle requirement. Passing all assessment items below is a hurdle requirement for successful completion of this unit.Test, Formative assessment on safety relating to HVLA techniques, Pass/Fail. Examination, End of semester Practical exams, Pass/Fail. Test, 3 quizzes- history and principles, Pass/Fail.

HHO2274 OSTEOPATHIC SCIENCE 4

Locations: St Albans, City Flinders.

Prerequisites: HHO2173 - OSTEOPATHIC SCIENCE 3

Description: This unit comprises four modules: Module 1: High Velocity Low Amplitude Thrust Technique; Module 2: Peripheral Joint Technique; Module 3: Osteopathic Case history Taking; and Module 4: History and Principles. The content will include: Further development of osteopathic manual soft tissue skills and the uses of leverage in treatment regimes. Continued refinement of treatment approaches to effect reflex and structural changes in muscle. Introduction to the use of high velocity thrust techniques applicable to the spine and periphery. Stress is placed upon observation prior to palpation and the need to recognise the anatomical relationships on one region of the body to others. Treatment techniques of the peripheral regions and refinement of peripheral examination techniques. Osteopathic principles and application pf forces to all soft tissues and joints of the body to normalise mechanics. Contraindications to the use of osteopathic techniques. Application and interpretation of tests and protocols relating to patient safety. Further exploration of the principles and practice of osteopathic medicine as distinct from allopathic and other complementary therapies. The evidence base underpinning osteopathic principles and somatic dysfunction. Introduction to the osteopathic case history, examination and tissue diagnosis. Development of the conceptual framework of osteopathy and an understanding of osteopathic history and philosophy. Current scientific and popular issues in osteopathy, including issues relevant to Australia.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply the biomechanical principles underlying the use of HVLA thrust techniques to the spine; Demonstrate with commentary and perform HVLA thrust techniques to the spine safely whilst taking into consideration both patient and operator comfort; Justify the principles of regional peripheral examination; Demonstrate with commentary and perform examinations of the peripheral regions; Explain the possible and probable therapeutic mechanisms of common osteopathic techniques; Develop osteopathic case-note taking skills; Discuss the traditional osteopathic principles and philosophy; Evaluate traditional osteopathic concepts and theories in terms of currently-available scientific evidence; Explain current scientific concepts and theories relevant to the manual therapies in general; Discuss the extent of the evidence-based approach to medicine and the limited support currently available to the manual therapies; Evaluate scientific and magazine articles on osteopathic principles, philosophy and practice.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Manipulation of the spine, thorax and pelvis: An osteopathic perspective. Gibbons, P., & Tehan, P. (2010). (3rd ed.). Edinburgh: Churchill Livingstone.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Practicum, One 20-minute practical examination (HVLA) (hurdle requirement), Pass/Fail. Practicum, One 15 minute practical examination (Peripheral Assessment (hurdle requirement), Pass/Fail. Examination, one 3-hour written examination (Osteopathic Science Theory) (hurdle requirement), Pass/Fail. Other, Four 30 minutes quizzes (History and Principles) (hurdle requirement), Pass/Fail.

HHO3174 OSTEOPATHIC SCIENCE 5

Locations: City Flinders.

Prerequisites: HHO2171 - OSTEOPATHIC SCIENCE 3

HHO2272 - OSTEOPATHIC SCIENCE 4

HHU2271 - CLINICAL PRACTICUM 2

HHA2272 - ANATOMY 4

HHA2171 - ANATOMY 3

HHD2172 - CLINICAL DIAGNOSIS & MANAGEMENT 2

HHD2273 - CLINICAL DIAGNOSIS & MANAGEMENT 3

Description: This unit comprises three modules: Module 1: Osteopathic Diagnosis Module 2: Advanced HVLA techniques Module 3: Common Conditions of the Musculoskeletal System Module 1: Study of the components and development of diagnosis, and estimation of prognosis in osteopathic practice. Review Clinical examination from the perspective of different Osteopathic models including the Anatomical and Neurological Chaining models. Module 2: Advanced techniques, reviewing from Osteopathic Science 3 & 4, study of the principles of HVLA thrust techniques for transitional areas and peripheral areas and application of these techniques. Study of contraindications and safety issues in HVLA thrust techniques. Module 3: clinical presentations in osteopathic practice, including peripheral joint injuries and common orthopaedic complaints.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain and apply the various models of osteopathic diagnosis, treatment and prognosis. Competently assess all regions of the musculoskeletal system for somatic dysfunction; Explain the major contraindications to osteopathic treatment in relation to the various techniques taught; Competently demonstrate with commentary and perform HVLA thrust techniques to the spine and periphery safely, whilst taking into consideration both patient and operator comfort Explain common regional osteopathic conditions

Class Contact: Forty-eight (48) hours for one semester comprising lectures and practical workshops.

Required Reading: Principles of manual medicine. Greenman, P. E. (2003). (3rd ed.). Philadelphia: Lippincott, Williams & Wilkins. Manipulation of the spine, thorax and pelvis: An osteopathic perspective. Gibbons, P., & Tehan, P. (2006). (2nd ed.). Edinburgh: Churchill Livingstone Handbook of osteopathic technique. Hartman, L (1997). (3rd ed.). Chapman & Hall, Great Britain.

Assessment: Examination, Objective Structured Clinical Examination, Pass/Fail. Practical sessions have a hurdle requirement of at least 90% attendance.

HHO3175 OSTEOPATHIC SCIENCE 5

Locations: City Flinders.

Description: This unit comprises three modules: Module 1: Osteopathic Assessment; Module 2: Muscle Energy Technique; and Module 3: Osteopathic Science Theory, common conditions. Module 1: Study of the components and development of diagnosis, and estimation of prognosis in osteopathic practice. Module 2: Study of the principles, biomechanics, and safe performance of MET. Introduction, history and development, definition, classification of techniques, treatment principles, therapeutic mechanisms of MET. Myofascial approach: assessment and treatment of shortness and MTrPs in lower and upper quarter. Motor recruitment assessment and treatment in the lower and upper quarter. Assessment and treatment of the cervical, thoracic and lumbar spine, rib cage, sacral and innominate dysfunctions, and shoulder. Module 3: clinical presentations in osteopathic practice, including peripheral joint injuries and common orthopaedic complaints.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the skills and knowledge required to perform Muscle Energy Technique (MET); Discuss the therapeutic principles of MET; Explain the limitations of the MET paradigm in light of current evidence; Competently assess all regions of the musculoskeletal system for somatic dysfunction; Evaluate conditions commonly presenting in osteopathic practice for their suitability for MET; Competently and safely apply MET to any region of the musculoskeletal system; Explain the various models of osteopathic diagnosis, treatment and prognosis.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Principles of manual medicine. Greenman, P. E. (2003). (3rd ed.). Philadelphia: Lippincott, Williams & Wilkins. The muscle energy manual (Vol. 1-3). Mitchell, Jr., F. L. (1995). Michigan: MET Press. Osteopathy: Models for diagnosis, treatment and practice. Parsons, J., & Marcer, N. (2005). Edinburgh: Churchill Livingstone.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Assignment, Case study assignment (common conditions) and practical examination (osteopathic assessment) (hurdle requirement), Pass/Fail. Examination, Combined practical and oral OSCE examination (hurdle requirement) 3 stations (MET, common conditions, osteopathic assessment), Pass/Fail.

HHO3275 OSTEOPATHIC SCIENCE 6

Locations: City Flinders.

Prerequisites: HHO3174 - OSTEOPATHIC SCIENCE 5

HHU3173 - CLINICAL PRACTICUM 3

Description: This unit comprises two modules: Module 1: Introduction to Orthopaedics which will cover a range of basic orthopaedic conditions that commonly occur in practice. Module 2: Osteopathic Diagnosis & Treatment; will expand on the concepts covered in HHO3174 Osteopathic Science

5. Study of the components and development of diagnosis, and estimation of prognosis in osteopathic practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Competently apply a range of techniques, including articulation, soft tissue, HVLA and MET to a range of common musculoskeletal problems;

2. Explain and justify clinical decision making and approaches to osteopathic diagnosis, treatment and prognosis;

3. Explain and apply theoretical knowledge of basic orthopaedics.

Class Contact: Thirty (30) hours for one semester comprising lectures and workshops.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: 90% attendance at practical workshops is mandatory and a hurdle requirement for passing this unit.Examination, Objective Structured Clinical Examination, Pass/Fail. Assignment, Case Report on Orthopaedic condition, Pass/Fail.

HHO3276 OSTEOPATHIC SCIENCE 6

Locations: St Albans, City Flinders.

Prerequisites: HHO3175 - OSTEOPATHIC SCIENCE 5

Description: This unit comprises three modules: Module 1: Advanced High Velocity Low Amplitude Technique (HVLA); Module 2: Muscle Energy Technique (MET); and Module 3: Basic Orthopaedics. Module 1: Advanced techniques, reviewing from Osteopathic Science 3 & 4, study of the principles of HVLA thrust techniques for transitional areas and application of these techniques. Study of contraindications and safety issues in HVLA thrust techniques. Module 2: Study of the components and development of diagnosis, and estimation of prognosis in osteopathic practice. Module 3: Clinical presentations in osteopathic practice, including common orthopaedic complaints and their medical and osteopathic management.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Competently assess all regions of the musculoskeletal system for somatic dysfunction; Explain the major contraindications to osteopathic treatment in relation to the various techniques taught; Competently apply MET to any region of the musculoskeletal system; Competently demonstrate with commentary and perform HVLA thrust techniques to the spine safely whilst taking into consideration both patient and operator comfort; Explain HVLA of transitional regions; Explain common orthopaedic conditions and their medical management and implications for Osteopathic management

Class Contact: Four (4) hours per week or equivalent for one semester comprising lectures and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Bogduk, N. (2005). Clinical anatomy of the lumbar spine and sacrum. (4th ed.). Edinburgh: Churchill Livingstone. Gibbons, P., & Tehan, P. (2006). Manipulation of the spine, thorax and pelvis: An osteopathic perspective (2nd ed.). Edinburgh: Churchill Livingstone. Greenman, P. E. (2003). Principles of manual medicine (3rd ed.). Philadelphia: Lippincott, Williams & Wilkins. Parsons, J., & Marcer, N. (2005). Osteopathy: Models for diagnosis, treatment and practice. Edinburgh: Churchill Livingstone.

Assessment: Other, Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement);, Pass/Fail. Assignment, Assignment (Orthopaedics) (pass/fail) (hurdle requirement);, Pass/Fail. Examination, Combined practical and oral OSCE examination (pass/fail) (hurdle requirement): 3 stations (MET, common conditions, HVLA)., Pass/Fail.

HHO4181 OSTEOPATHIC SCIENCE 7

Locations: City Flinders.

Prerequisites: HHO3275 - OSTEOPATHIC SCIENCE 6

Description: Introduction to functional assessment and indirect osteopathic manual techniques including counterstrain and functional techniques. Introduction to concepts and principles of rehabilitation for specific injuries encountered in osteopathic practice. Assessment, treatment and rehabilitation of common injuries involving the ankle, calf, foot and knee. Principles and application of taping in the management of common injuries.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate an expanded range of manual therapy skills that are generally termed osteopathic indirect techniques. This includes functional and counterstrain/positional release techniques; Discuss the rationale for application of indirect osteopathic techniques; Plan and implement specific rehabilitation programs for common upper and lower limb injuries; Discuss the principles of specific rehabilitation programs and justify the importance of preventative care during rehabilitation.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, workshops and practical classes.

Required Reading: Jones strain-counterstrain. Jones, L. H., Kusunose, R. S., & Goering, E. K. (1995). (1st ed.). Jones Strain Counterstrain Incorporated. Clinical sports medicine. Brukner, K., & Khan, K. (2007). (3rd ed.). McGraw Hill.

Assessment: There is a 20 minute practical oral which is a hurdle component and is ungraded (Pass/Fail).

Other, Small group practical task & written response, 25%. Presentation, In class presentation, 75%. All assessment components must be satisfactorily completed in order to pass this unit.

HHO4187 OSTEOPATHIC SCIENCE 7

Locations: St Albans, City Flinders.

Description: Introduction to indirect techniques. Strain/counterstrain techniques and introduction to functional assessment and technique. Introduction to concepts and principles of rehabilitation for specific injuries encountered in osteopathic practice. Assessment, treatment and rehabilitation of common injuries involving the ankle, calf, foot and knee. Acute and chronic injuries and principles of taping. Presentation of patient information. Case conferencing

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate an expanded range of technical manual therapy skills that includes counterstrain/positional release techniques; Discuss specific rehabilitation program principles for common upper and lower limb injuries; Explain the factors involved in the effective management of patients; Justify the importance of preventative care during rehabilitation.

Class Contact: Forty-eight (48) hours or equivalent normally spread over one semester comprising lectures, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Jones, L. H., Kusunose, R. S., & Goering, E. K. (1995). Jones strain-counterstrain. Boise, ID: Jones Strain-CounterStrain, Inc.

Assessment: Other, Practical tasks (hurdle requirement), 25%. Presentation, In class presentation (hurdle requirement), 25%. Examination, One 20 minute practical examination (hurdle requirement), 50%.

HHO4282 OSTEOPATHIC SCIENCE 8

Locations: City Flinders.

Prerequisites: HHO4181 - OSTEOPATHIC SCIENCE 7

Description: Further development of functional and counterstrain techniques. Introduction to additional indirect manual osteopathic techniques: myofascial (MFR), and balanced ligamentous tension (BLT). Assessment, treatment and rehabilitation of injuries to the spine, pelvis and thorax. Rehabilitation after common surgical procedures to the spine, pelvis and thorax. Management of acute and chronic injuries in all age groups

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Demonstrate a range of technical skills, including functional, myofascial, and balanced ligamentous tension techniques; Discuss the application of a range of techniques as part of overall patient management, including all age groups; Explain rehabilitation principles and procedures for common conditions and surgical procedures affecting the spine, pelvis and thorax.

Class Contact: Thirty-six (36) hours over one semester, comprising lectures, workshops and practical classes.

Required Reading: Functional methods Johnston, W. L., & Friedman, H. D. (1994). 2nd Indianapolis, IL: American Academy of Osteopathy

Assessment: There is a 20 minute practical oral which is a hurdle requirement and is ungraded (Pass/Fail).

Assignment, 2000 words, 50%. Assignment, 2000 words, 50%. All assessment components need to be passed to gain an overall pass in this unit.

HHO4288 OSTEOPATHIC SCIENCE 8

Locations: St Albans, City Flinders.

Prerequisites: HHO4187 - OSTEOPATHIC SCIENCE 7

Description: Indirect techniques. Functional, fascial and Balanced Ligamentous Tension (BLT) techniques. Rehabilitation. Assessment, treatment and rehabilitation of injuries to the spine, pelvis and thorax. Rehabilitation after common surgical procedures to the spine, pelvis and thorax. Management of acute and chronic injuries. Presentation of patient information. Case conferencing.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate a range of technical skills, including fascial and balanced ligamentous tension techniques. Discuss aspects of patient management, including those that may impact on the management of infants, children, the elderly and the infirm. Explain rehabilitation procedures for common conditions and surgical procedures affecting the spine, pelvis and thorax.

Class Contact: Forty-eight (48) hours or equivalent normally spread over one semester comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Functional methods. Johnston, W. L., & Friedman, H. D. (1991). Indianapolis, IL: American Academy of Osteopathy.

Assessment: Assignment, Two (2) written assignments (2000 words each) (each 25%), 50%. Examination, One (1) 20 minute practical skills test (hurdle requirement), 50%.

HHO5183 OSTEOPATHIC SCIENCE 9

Locations: City Flinders.

Prerequisites: HHO4282 - OSTEOPATHIC SCIENCE 8

HHU4288 - CLINICAL PRACTICUM 8

Description: Visceral osteopathy and osteopathic management of conditions with visceral involvement. Introduction to principles and concepts of clinical ergonomics and ergonomic prescription in osteopathic practice. Acute and chronic orthopaedic conditions and their management. Practice management: business skills and information required for day-to-day osteopathic practice. Refinement of patient management skills - Clinical integration.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate an expanded range of technical skills, including the ability to assess and manage common visceral conditions amenable to osteopathic treatment; Recognise and evaluate ergonomic issues affecting patients' health and give appropriate ergonomic advice; Demonstrate the integration of a broad range of orthopaedic skills, including the ability to assess, manage and rehabilitate common injuries affecting the spine, pelvis and peripheral joints Identify and discuss common modes of osteopathic practice, and the basic business skills required to run a practice. Demonstrate and implement a knowledge of Osteopathic treatment planning and patient management skills.

Class Contact: Fifty-four (54) hours for one semester comprising lectures and practicals.

Required Reading: Visceral manipulation. Barral, J. P., & Mercier, P. (2008). (Revised 2008). Eastland Press, Seattle. Ergonomics for therapists. Jacobs, K. (2007). (3rd ed.). Mosby, UK. Evidence based orthopaedics - the best answers to clinical questions. Wright, J.G. (2008). (1st ed.). Saunders, UK. Healthcare and the law. McIlwraith, J., & Madden, B. (2006). (4th ed.). Lawbook Co. Australia.

Assessment: There is 20 minute practical oral which is a hurdle component and is ungraded (Pass/Fail)

Assignment, Ergonomics assignment - 1500 words, 30%. Assignment, Practice Management assignment - 1500 words, 30%. Assignment, Orthopaedics assignment - 1500 words, 40%. All assessment components must be satisfactorily completed in order to pass this unit.

HHO5189 OSTEOPATHIC SCIENCE 9

Locations: St Albans, City Flinders.

Prerequisites: HHO4288 - OSTEOPATHIC SCIENCE 8

Description: Visceral osteopathy and osteopathic management of conditions with visceral involvement. Introduction to principles and concepts of clinical ergonomics and ergonomic prescription in osteopathic practice. Acute and chronic injuries and principles of taping. Practice management : business skills and information required for day-to-day osteopathic practice. Introduction of Common Orthopaedic Conditions and their medical management. Introduction of Common Orthopaedic Conditions and their medical management. Refinement of patient management skills - Clinical integration.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate an expanded range of technical skills, including the ability to manage common visceral conditions amenable to osteopathic treatment; Recognise ergonomic issues affecting patients' health and give appropriate ergonomic advice; Discuss common modes of osteopathic practice, and the basic business skills required to run a practice. Demonstrate a greater knowledge of Osteo training planning and patient managment skills.

Class Contact: Fifty - four (54) hours comprising lectures, tutorials, workshops and practical classes. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Visceral manipulation. Barral, J. P., & Mercier, P. (1988). Seattle, WA: Eastland Press. Medicine, Patients and the Law, Brazier M & Cave E (2007). Penguin Books. Ergonomics for therapists. Jacobs, K. (Ed.). (2007). UK: Butterworth Heinemann. Clinical framework for the delivery of health services to injured workers. Victorian WorkCover Authority. (2004). www.workcover.vic.gov.au Health care and the law. Wallace, M. (2001). Sydney: Lawbook.

Assessment: Assignment, Ergonomics Assignment - 500-1000 word advice brochure, 25%. Examination, One 20 minute practical skills oral (hurdle requirement)., 50%. Assignment, Orthopaedics assignment (1500 words), 25%.

HHO5280 OSTEOPATHIC SCIENCE 10

Locations: St Albans, City Flinders.

Prerequisites: HHO5183 - OSTEOPATHIC SCIENCE 9

HHU5189 - CLINICAL PRACTICUM 9

HHO5189 - OSTEOPATHIC SCIENCE 9

Description: Introduction to cranio-sacral osteopathy. Clinical orthopaedics, consolidation of theoretical and practical orthopaedic knowledge - integrative clinical skills in management of clinical conditions. Practice Management: Business skills and information required for day-to-day osteopathic practice. Further study of History & Principles of Osteopathy. Revision of, and expansion upon osteopathic history & principles learned earlier in the course.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate an expanded range of technical skills, including the ability to assess and treat cranio-sacral conditions amenable to osteopathic treatment; Demonstrate the integration of a broad range of orthopaedic skills, including the ability to assess, manage and rehabilitate common injuries affecting the spine, pelvis and peripheral joints; Demonstrate a knowledge of the historical development of osteopathy, and apply osteopathic principles in planning management strategies for patients Discuss and be able to apply those business skills required to run a practice, including appropriate aspects of tax law and third party payer requirements. Discuss common orthopaedic conditions and their medical management and its implications for Osteopathic management of the patient.

Class Contact: Fifty-four (54) hours for one semester comprising lectures and practical classes.

Required Reading: An osteopathic approach to children. Carreiro, J. E. (2009). (2nd ed.). Churchill Livingstone, Edinburgh. Cranial manipulation: Theory and practice. Chaitow, L. (2005). (2nd ed.). Churchill Livingstone, Edinburgh. Evidence-based orthopaedics: the best answers to clinical questions. Wright, J.G. (2008), Saunders, UK.

Assessment: There is 20 minute practical oral which is a hurdle component and is ungraded (Pass/Fail)

Assignment, Clinical Orthopaedics - 1500 words, 30%. Assignment, Practice Management - 1500 words, 30%. Test, History & Principles Quizzes X 2, 40%. All assessment components must be satisfactorily completed in order to pass this unit.

HHO5281 ADVANCED OSTEOPATHIC TECHNIQUES

Locations: City Flinders.

Description: Students with at least 4 years of Osteopathic skills will undertake Advanced Osteopathic Techniques to further their understanding and use of classic Osteopathic assessment and treatment styles.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate an advanced range of classic Osteopathic Assessment and Treatment skills for conditions amenable to Osteopathic treatment; Demonstrate a knowledge of the historical development of osteopathy, and apply osteopathic principles in planning management strategies for patients.

Class Contact: Eighteen (18) hours for one semester comprising practical workshops.

Required Reading: Handbook of osteopathic technique. Hartman, L. (1997), (3rd ed.). Chapman & Hall.

Assessment: 90% attendance at workshops is a hurdle requirement to pass this unit.Examination, Practical Oral Exam, Pass/Fail.

HHP1170 CELL PHYSIOLOGY

Locations: St Albans, City Flinders.

Description: An introduction to the basic principles and concepts of human physiology. Concepts include homeostasis, cellular physiology, membrane and action potentials, hormonal and neural mechanisms of signal transduction, cell reproduction, cell differentiation and tissue formation.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify the structures within human cells and relate the structure of cell components to their function; Explain the establishment and alteration of the cell membrane potential and the hormonal and neural mechanisms of signal transduction; Describe the ways in which neurons communicate with other neurons; Explain the processes of mitosis and meiosis; Discuss the basic concepts of cells differentiation and tissue formation; Apply scientific and clinical reasoning to basic theoretical knowledge in cell physiology.

Class Contact: Twenty- four (24) hours for one semester comprising lectures, tutorials and practical classes.

Required Reading: Rhoades, A.R.,& Bell, R.D.,(2009). Medical Physiology, Principles for Clinical Medicine,3rd Edition,Wolters Kluwe/Lippincott Williams Willkins Guyton, A.C., & Hall, J.E. (2006).Textbook of medical physiology.3rd edition,Wolters Kluwe/ Lippincott Williams Willkins Medical Physiology, Principles for Clinical Medicine Rhoades, A.R.,& Bell, R.D. 3rd edition Wolters Kluwe/Lippincott Williams Willkins Textbook of medical physiology. Guyton, A.C., & Hall, J.E. (2006). (11th ed.). Philadelphia: Elsevier Science.

Assessment: Participation in tutorials/practical sessions is mandatory with at least 90% attendance required, unless well documented acceptable reasons are provided (hurdle requirement).Examination, One written test for 1 hour, 20%. Assignment, One written assignment (1500 words), 20%. Examination, One 3 hour final written examination, 60%.

HHP1171 PHYSIOLOGY 1

Locations: St Albans, City Flinders.

Description: An introduction to the basic principles and concepts of human physiology. Concepts include homeostasis, cellular physiology, blood and the body's natural defences, introduction to the nervous system, membrane and action potentials, transmission of nervous impulses, and muscle and skeletal physiology. Theoretical physiological knowledge is integrated with laboratory skills through the use of research questions and laboratory reports. Research skills development, including critical thinking and scientific writing, is incorporated throughout the unit.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss the principles and concepts of basic physiological methodology; Explain the major concepts involved in cellular physiology, the body s natural defences, blood cell development, establishment and alteration of the cell membrane potential, transmission of nervous impulses, and muscle physiology; Link theoretical physiology knowledge and laboratory skills; Apply scientific questioning to basic theoretical knowledge in physiology; Critically assess research papers and physiology research papers in particular; Produce laboratory reports and written critiques in a conventional scientific format.

Class Contact: Three (3) hours per week or equivalent for one semester comprising lectures and laboratory workshops. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Guyton, A. C., & Hall, J. E. (2006). Textbook of medical physiology (11th ed.). Philadelphia: Elsevier Science.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement); one written assignment (1200 words) (15%); five (5) laboratory practicals (3% each, total 15%); two 1-hour multiple choice question (MCQ) written examinations (10% each, total 20%); one 3-hour final written examination (50%).

HHP1272 CLINICAL PHYSIOLOGY 1

Locations: St Albans, City Flinders.

Prerequisites: HHP1170 - CELL PHYSIOLOGY

Description: This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of skeletal, smooth and cardiac muscle physiology, circulatory physiology, blood cells development and immune response. Unit content is specifically related to clinically relevant presentations in osteopathic practice. Development of critical thinking and research writing skills is continued.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the key principles and concepts of human physiology in relation to skeletal and smooth muscle physiology; Discuss the key principles and concepts of human physiology in relation to cardiac muscle and cardiovascular physiology; Discuss key principles and concepts of human physiology in blood cell development and differentiation; Explain the key processes involved in haemostasis; Explain the major mechanisms of the immune response. Use theoretical knowledge to explain clinical case presentations.

Class Contact: Twenty - four (24) hours for one semester comprising lectures, tutorials and practical classes.

Required Reading: Guyton, A. C., & Hall, J. E. (2006). Textbook of medical physiology (11th ed.). Philadelphia: Elsevier Science.

Assessment: Participation in practical sessions is mandatory with at least 90% attendance required, unless well-documented acceptable reasons are provided (hurdle requirement).Case Study, accumulation of the case study based work, 25%. Assignment, One (1) written assignment, 15%. Examination, One (1) 3 hour final examination, 60%.

HHP2171 CLINICAL PHYSIOLOGY 2

Locations: St Albans, City Flinders.

Prerequisites: HHP1272 - CLINICAL PHYSIOLOGY 1

Description: This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of respiratory and renal physiology. Development of critical thinking and research writing skills is continued. Unit content is specifically related to clinically relevant presentations in osteopathic practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the key principles and concepts of human physiology in relation to respiratory and renal physiology; Use theoretical knowledge of respiratory and renal physiology principles to explain clinical case presentations; Critically assess research papers related to respiratory and renal physiology; Produce case reports and written critiques in a conventional scientific format.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials and practical classes.

Required Reading: Guyton, A.C., & Hall, J.E.(2006).Textbook of medical physiology. (11th ed.). Philadelphia: Elsevier Science.

Assessment: Participation in tutorial sessions is mandatory with at least 90% attendance required, unless well-documented, acceptable reasons are provided (hurdle requirement).Case Study, tutorial participation & case study based work, 25%. Assignment, One (1) written assignment, 15%. Examination, One (1) 3 hour final examination, 60%.

HHP2172 PHYSIOLOGY 2

Locations: St Albans, City Flinders.

Prerequisites: HHP1171 - PHYSIOLOGY 1

Description: This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of cardiac, circulatory and renal physiology. Development of critical thinking and research writing skills is continued. Unit content is specifically related to clinically relevant presentations in osteopathic practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the key principles and concepts of human physiology in relation to cardiovascular and renal physiology; Explain the major concepts involved in cardiac, circulatory and renal physiology; Integrate theoretical cardiovascular and renal physiology knowledge with laboratory skills; Apply scientific questioning to basic theoretical knowledge of cardiovascular and renal physiology; Critically assess research papers and cardiovascular and renal physiology papers in particular; Produce laboratory reports and written critiques in a conventional scientific format.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials and laboratory classes.

Required Reading: Guyton, A. C., & Hall, J. E. (2006). Textbook of medical physiology. (11th ed.). Philadelphia: Elsevier Science.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Tutorial Participation, accumulation of the case study based work, 25%. Assignment, One (1) written assignment, 15%. Examination, One (1) 3 hour final examination, 60%.

HHP2272 CLINICAL PHYSIOLOGY 3

Locations: St Albans, City Flinders.

Prerequisites: HHP2171 - CLINICAL PHYSIOLOGY 2

Description: This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of endocrine and gastrointestinal physiology. Critical thinking in human physiology is extended through the use of clinical case studies and the clinical case report. Material is specifically related to clinically relevant presentations in osteopathic practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the key principles and concepts of human physiology in relation to gastrointestinal physiology; Discuss the key principles and concepts of human physiology in relation to metabolism and endocrinology; Use theoretical knowledge of gastrointestinal physiology, metabolism and endocrinology to explain clinical case presentations; Critically assess research papers related to endocrine and gastrointestinal physiology Produce case reports and written critiques in a conventional scientific format.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: Guyton, A.C., & Hall, J.E.(2006).Textbook of medical physiology. (11th Ed). Philadelphia: Elsevier Science.

Assessment: Participation in practical sessions is mandatory with at least 90% attendance required, unless well-documented acceptable reasons are provided (hurdle requirement).Case Study, tutorial participation & case study based work, 25%. Assignment, One (1) written assignment, 15%. Examination, One (1) 3 hours final written exam, 60%.

HHP2273 PHYSIOLOGY 3

Locations: St Albans, City Flinders.

Prerequisites: HHP2172 - PHYSIOLOGY 2

Description: This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of respiratory and gastrointestinal physiology. Critical thinking in human physiology is extended through the use of clinical case studies and the clinical case report. Material is specifically related to clinically relevant presentations in osteopathic practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the key principles and concepts of human physiology in relation to respiratory and gastrointestinal physiology; Explain the major concepts involved in respiratory and gastrointestinal physiology; Integrate theoretical knowledge on respiratory and gastrointestinal physiology with clinical cases; Apply scientific questioning to basic theoretical knowledge of respiratory and gastrointestinal physiology; Produce clinical case reports and written critiques on topics in respiratory and gastrointestinal physiology in a conventional scientific format.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorial classes.

Required Reading: Guyton, A. C., & Hall, J. E. (2006). Textbook of medical physiology (11th ed.). Philadelphia: Elsevier Science. Textbook of medical physiology. Guyton, A. C., & Hall, J. E. (2006). (11th ed.). Philadelphia: Elsevier Science.

Assessment: Participation in tutorial sessions is mandatory, with at least 90% attendance reqiored, unless well-documented acceptable reasons are provided (hurdle requirement).Case Study, accumulation of the case study based work, 25%. Assignment, written essay (2000 words), 15%. Examination, 3 hours written examination, 60%.

HHP3174 PHYSIOLOGY 4

Locations: City Flinders.

Prerequisites: HHP2273 - PHYSIOLOGY 3

Description: This unit extends the principles and concepts of basic human physiology. Aspects of cellular and systems physiology are explained in the contexts of metabolism and endocrine physiology. Critical thinking in human physiology is extended through the use of clinical case studies and the clinical case report. Material is specifically related to clinically relevant presentations in osteopathic practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the key principles and concepts of human physiology in relation to metabolism and endocrinology; Explain the major concepts involved in metabolism and endocrinology; Use theoretical knowledge on metabolism and endocrinology to explain clinical case presentations; Apply scientific questioning to basic theoretical knowledge of metabolism and endocrinology; Critically assess research and clinical report papers, and metabolism and endocrinology papers in particular; Produce clinical case reports and written critiques on topics in metabolism and endocrinology in a conventional scientific format.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials. Tutorial sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Guyton, A. C., & Hall, J. E. (2006). Textbook of medical physiology (11th ed.). Philadelphia: Elsevier Science.

Assessment: Participation in tutorial sessions with at least 90% attendance is required,unless well-documented acceptable reasons are provided (hurdle requirement); Tutorial Participation, Case study, presentations, 40%. Examination, one 3-hour written examination, 60%.

HHP3274 INTRODUCTION TO REHABILITATION

Locations: City Flinders.

Prerequisites: HHP1272 - CLINICAL PHYSIOLOGY 1

HHA1171 - ANATOMY 1

HHC2171 - BIOMECHANICS 1

HHC2272 - BIOMECHANICS 2

Description: The introduction of the concepts and principles of exercise physiology and the methodology of exercise prescription in normal and special populations. Topics include cardiovascular and muscular responses and adaptations to exercise; exercise prescription principles, exercise prescription for normal and patient populations, principles of stretching and strengthening exercises. Clinical case studies relevant to osteopathic practice are used to extend critical thinking throughout this unit.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Define the theoretical and practical concepts in exercise physiology and exercise prescription; Discuss the principles of exercise physiology and exercise prescription; Discuss the principles of prescribing exercise to special populations; Explain exercise prescription for specific patient groups; Discuss issues associated with acute sporting injuries; Develop and write exercise programs; Demonstrate an ability to competently apply selected sports medicine treatment techniques.

Class Contact: Twenty - four (24) hours per semester comprising lectures, tutorials and practical sessions.

Required Reading: Clinical sports medicine Brukner, P., & Khan, K. (2006). 3rd McGraw-Hill.

Assessment: Participation in tutorial and practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Examination, Combined oral and practical, 30%. Examination, 2-hour final written, 70%.

HHP3275 PHYSIOLOGY 5

Locations: City Flinders.

Prerequisites: HHP3174 - PHYSIOLOGY 4

Description: The introduction of the concepts and principles of exercise physiological and the methodology of exercise prescription in normal and special populations. Topics include cardiovascular and muscular responses and adaptations to exercise; exercise prescription principles, exercise prescription for normal and patient populations, principles of stretching and strengthening exercises. Clinical case studies relevant to osteopathic practice are used to extend critical thinking throughout this unit.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Define the theoretical and practical concepts in exercise physiology and exercise prescription; Discuss the principles of exercise physiology and exercise prescription; Discuss the principles of prescribing exercise to special populations; Explain exercise prescription for specific patient groups; Discuss issues associated with acute sporting injuries; Develop and write exercise programs; Show familiarity with some sports medicine techniques.

Class Contact: Two (2) hours per week or equivalent for one semester comprising lectures, tutorials and practical sessions. Tutorial and practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Brukner, P., & Khan, K. (2006). Clinical sports medicine (3rd ed.). North Ryde, Australia: McGraw-Hill.

Assessment: Participation in tutorial and practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Examination, 15-minute combined oral and practical, 30%. Examination, 2-hour final written, 70%.

HHS3171 PSYCHOLOGY & SOCIAL SCIENCES 1

Locations: City Flinders.

Description: Introduction to psychological and sociological aspects of healthcare practice. Human diversity from theoretical and practical perspectives. Models used to describe and discuss disability and cultural diversity. Relevance of gender, age, ethnicity and socio-economic status in healthcare practice. The needs of patients in the community. The needs of carers and individuals with a terminal illness, and the potential role of the Osteopath.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss psychological and sociological issues relevant to healthcare practice; Explain the psychological and social needs of patients from different communities; Describe models and provide definitions commonly used in discussions on disability and cultural diversity; Discuss the relevance of gender, ethnicity and socio-economics in healthcare practice; Identify the needs of individuals with a terminal illness; Discuss the needs of carers; Explain the potential role of the osteopath for clients with diverse backgrounds, and especially those with a terminal illness; Recognise situations when referral to another health professional is required.

Class Contact: Twelve (12) hours for one semester comprising lectures.

Required Reading: Physiotherapy: A psychosocial approach. French, S. (1998). (2nd ed.). Oxford: Butterworth Heinemann.

Assessment: Assignment, Written - Clinical Interview Analysis - 2000 words, 50%. Examination, Oral Practical Exam, 50%.

HHS3272 PSYCHOLOGY & SOCIAL SCIENCES 2

Locations: St Albans, City Flinders.

Prerequisites: HHS3171 - PSYCHOLOGY & SOCIAL SCIENCES 1

Description: Psychological and sociological aspects of healthcare practice. Communications skills required in healthcare practice. Stress management skills. Chronic diseases and health management strategies. Health enhancing and health compromising behaviours. Managing challenging situations such as stress, compliance with treatments and change in healthcare practice.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss psychological and sociological issues relevant to behavioural health risks; Identify the effects of stress on patients; Propose strategies to minimise the effects of stress on patients; Apply change management theory and strategies to improve patient wellbeing; Explain the long term benefits of interventions for health-compromising behaviours; Justify and promote health-enhancing behaviours for the individual and the group; Recognise clinical situations where referral to other health professionals is required.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: Physiotherapy: A psychosocial approach. French, S. (1998). (2nd ed.). Oxford: Butterworth Heinemann.

Assessment: Assignment, Written assignment 2000 words, 50%. Examination, Oral Practical Exam, 50%. The OSCE is to replace the written examination.

HHS4182 COUNSELLING SKILLS FOR HEALTH PROFESSIONALS

Locations: City Flinders.

Description: Interpersonal communication skills: attending and listening, feedback, empathy, probing, identifying and clarifying problems, ethics. Psychology of pain and pain management. Pain theories and measurement, psychosocial factors, placebos and expectations, descriptions and categories of pain, managing acute and chronic pain. Psychopathology, presentation, recognition, diagnosis, and an overview of the management of psychopathology.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Recognize the basic skills that are necessary for effective interpersonal communication in a therapeutic relationship; Discuss the major theoretical approaches to counselling; Develop skills to apply in health care situations; Predict the effects that psychological variables may have on pain symptomatology and pain management; Identify situations when it is necessary to refer patients to other health professionals for counselling, support or practical assistance; Demonstrate competence in using measures to assess chronic pain symptoms and behaviours; Develop treatment strategies to improve functionality of chronic pain patients; Interpret acute and pain theory theories.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: Theory and practice of counselling and psychotherapy. Corey, G. (1996). (5th ed.). California : Brooks/Cole. HHS4182 Psychology & Social Sciences 3 evidence-based practice chronic pain assignment book of readings. Melbourne, Australia: Victoria University, School of Biomedical and Health Sciences, Osteopathy Unit. School of Health Sciences. (2011).

Assessment: Test, Ten tutorial MCQ's (2% each), 20%. Assignment, Written assignment (2000 words), 40%. Examination, Oral practical exam, 40%. Each component of the assessment is a hurdle requirement. In order to successfully pass the unit, students must pass each component of the assessment.

HHS4183 PSYCHOLOGY AND SOCIAL SCIENCES 3

Locations: City Flinders.

Prerequisites: HBOS Bachelor of Science - Clinical Sciences; or equivalent.

Description: Interpersonal communication skills: attending and listening, feedback, empathy, probing, identifying and clarifying problems, ethics. Psychology of pain and pain management. Pain theories and measurement, psychosocial factors, placebos and expectations, descriptions and categories of pain, managing acute and chronic pain. Psychopathology, presentation, recognition, diagnosis, and an overview of the management of psychopathology.

Credit Points: 8

Learning Outcomes: On successful completion of this unit students are expected to be able to: Apply the basic skills that are necessary for effective interpersonal communication in a therapeutic relationship Predict the effects that psychological variables may have on pain symptomatology and pain management; Recognize behaviours and symptoms that are consistent with psychopathology; Describe strategies useful to the osteopath in the management of key psychopathologies.

Class Contact: Forty-eight (48) hours or equivalent normally spread over one semester comprising lectures, tutorials and workshops.

Required Reading: Carr, D. B., Loeser, J. D., & Morris, D. B. (Eds.). (2005). Narrative pain and suffering. Seattle, WA: IASP Press. Corey, G. (1996). Theory and practice of counseling and psychotherapy (5th ed.). California: Brooks/Cole. Oltmans, T. F., & Emery, R. E. (1998). Abnormal psychology (4th ed.). New Jersey: Prentice Hall. School of Biomedical and Health Sciences. (2008). HHS4183 Psychology & Social Sciences 3 evidence-based practice chronic pain assignment book of readings. Melbourne, Australia: Victoria University, School of Biobedical and Health Sciences, Osteopathy Unit. School of Health Sciences. (2008). HHS4183 Psychology & Social Sciences 3 workbook and tutorial book of readings. Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.

Assessment: Workshop, Workshop presentation (hurdle requirement), 20%. Assignment, Written assignment (1500 words) (hurdle requirement), 40%. Examination, 2-hour written exam (hurdle requirement), 40%.

HHS4285 IDENTIFYING PSYCHOPATHOLOGY IN CLINICAL PRACTICE

Locations: City Flinders.

Description: Psychopathology, presentation, recognition, diagnosis, and referral in healthcare. An overview of a healthcare practitioner's role in identification, management and referrals of patients who present with psychopathology.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the effects that psychological variables may have on chronic pain management and symptomatology. Identify symptoms that are consistent with common psychopathologies. Demonstrate an understanding of the range of treatments available for psychopathology. Explain when and how a patient referral is required for specialist psychiatric or psychological treatment. Describe interpersonal strategies that are helpful in the management of a patient with acute or chronic psychopathology.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: Abnormal psychology Oltmanns, T.E. & Emery, R.E. eds. (2007). (5th ed.). New Jersey/Pearson Education.

Assessment: Assignment, 2000 words, 40%. Other, Ten tutorial MCQ's (2% each), 20%. Examination, Practical Oral Exam, 40%.

HHT3100 CHINESE MEDICAL MICRO-SYSTEMS

Locations: St Albans.

Prerequisites: RBM1910 - MICROBIOLOGY FOR CHINESE MEDICINE PRACTITIONERS

HHT2205 - ACUPUNCTURE NEEDLING: THEORY AND PRACTICE 2

Description: Ear and scalp acupuncture history, theory and practice; ankylo-capsular acupuncture and skin sections theory and practice; scar therapy; the use of electronic devices including electro-acupuncture, laser and TENS in micro-system point location, diagnosis and therapy; further application of chrono-acupuncture; magneto-therapy theory and practice; combined micro-system and body acupuncture point treatment principles and protocols; discrimination in the selection and application of the various techniques of micro-systems treatments.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss the principles underpinning the application of micro-system treatment including ear acupuncture and scalp acupuncture; Explain the history and theoretical basis of the ear and scalp acupuncture micro-systems; Explain the rationale for selection of a micro-system approach; Justify micro-system point selection in the clinical situation; Devise a clinical protocol and management plan utilizing a micro-system in conjunction with other aspects of acupuncture theory (e.g., differential diagnosis; Identify functions and precautions (cautions and contraindications) relevant to points used in micro-system acupuncture; Correctly locate points relevant to micro-system acupuncture in general and to ear and scalp acupuncture in particular when performing specific needling procedures; Discuss the theory and practice of electro-acupuncture, laser acupuncture, TENS and other therapeutic technologies; Use electronic devices for point location and diagnosis in micro-systems; Explain the importance of infection control in needling procedures (including management of accidents resulting from needling; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: To be advised.

Required Reading: Shanghai College of Traditional Chinese Medicine (1981). Acupuncture: A Comprehensive Text (trans. and ed. J. O'Connor and D. Bensky). Chicago: Eastland Press.

Assessment: One combined practical and oral exam (50%) (proficiency standard hurdle requirement); one written examination (50%). All assessment items address the CGA levels as indicated in the Learning Outcomes.

HHT3103 CHINESE MEDICINE CLINICAL PRACTICE 3

Locations: St Albans, City Flinders.

Prerequisites: Satisfactory completion of year 2 of the HBAH degree; or equivalent.

Description: Topics include: assisting the practitioner during treatment; applying moxibustion, needle manipulation as required; assisting with cupping, moxibustion, Shi liao and herbs; engage in discussion about developing a tentative diagnosis and treatment principle; carrying out therapeutic procedures as requested by the CM practitioner; review of standard operating procedures in dispensing herbs (herbal identification, use of scales, accurate, safe dispensing, ordering herbs, accounting procedures). Introduction to more complex methods of processing of herbs in preparation for continuation of the clinical program. Methods of Pao Zhi, moxibustion and acupuncture skills. The notion of pathogenesis and relationship to herbal prescriptions. Materia Medica substitutions, advanced herbal recognition.

Credit Points: 16

Learning Outcomes: On successful completion of this unit, students will be able to Demonstrate skills consistent with working successfully as an assistant practitioner and as part of a team within a Chinese medicine clinic; Mentor junior students in the clinic; Further develop their Chinese medical diagnostic skills from the perspective of Si Zhen; Practice moxibustion, cupping, gua sha, shi liao and acupuncture in the clinical setting (including appropriate management of materials and equipment); Consolidate their ability to select acupuncture points, practice safe needle insertion and manipulation (and explain how this can achieve specific therapeutic outcomes; Work closely with final year students and supervisors discussing client management: diagnosis (including physical examinations as appropriate), treatment protocols, acupuncture point prescriptions and the suitability of herbal prescriptions, case history documentation (client records; Correctly identify raw herbs, scrutinize a herbal prescription (for errors, omissions, correct dosage) and fill a herbal prescription (preparation, dispensing; Explain treatment protocols and different preparation methods and uses of herbs to clients (including actions to be taken after finishing the prescription; Use the checklist of criteria on placement expectations for ongoing learning in the clinical setting; Explain the management and daily operation of the Chinese medicine clinic; Exhibit developing interpersonal skills with supervisors, fellow students and clients; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; Independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: A minimum of seventy-two (72) hours in an approved clinical setting normally spread across one entire semester (hurdle requirement).

Required Reading: Australian Acupuncture & Chinese Medicine Association Code of Ethics. (n.d.). Available from AACMA Website, http://www.acupuncture.org.au/code_of_ethics.cfm.Ferrigno, P. (Ed.). (2005). Clinical manual [CD-ROM]. Chinese Medicine Unit, School of Health Sciences, Victoria University of Technology, Australia. Infection Control Guidelines for Acupuncture - Consultation Draft, (2004). Available from Chinese Medicine Registration Board Website, http://www.cmrb.vic.gov.au/current-news/draft/InfectionControlGuidelinesAcupuncture_web.pdf.Standards of Practice for Acupuncture. Health (Infectious Diseases) Regulations, (1990 & Am.). Available from Government of Victoria Website, http://www.cmrb.vic.gov.au/registration/standards.html.

Assessment: Supervised placement comprising successful completion of required 72 clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); combined practical and oral examination (proficiency standard hurdle requirement). Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement.Additional Statments: Clinical sessions have a hurdle requirement of at least 100% attendance.

HHT3104 MAJOR CLASSICS - SHANG HAN LUN & WENG BING 1

Locations: St Albans.

Prerequisites: HHT2003 - CHINESE MEDICAL DIAGNOSIS AND PATHOGENESIS 2

HHT2200 - FORMULAE AND STRATEGIES 2

Description: Shang Han Lun and Wen Bing as part of history of ideas in Chinese medicine. Underlying theories associated with these two texts. Comparison of the Shang Han and Wen Bing treatment strategies. Onset and transmission of disease according to Shang Han and Wen Bing. The concept of Pattern Identifications by the Six Channels. The application of the Eight Guiding Principles. The concept of externally contracted diseases caused by pathogenic cold and wind. Onset and transmission of wen bing diseases. Correlation of the Four Aspects with the Triple Jiao, and Six Channels, diagnosis of Wen Bing (fever, tongue, Ban, Zhen, Miliaria Alba), Fu xie (latent disease), Wen Bing treatment strategies. Character writing of terminology.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Place in context the history and development of medical ideas encountered in the shang han and wen bing (and the Jing Gui Yao Lue, and reflect on the role of Six Meridian Theory and Theory of Wei, Qi, Ying and Xue historically and in modern practice and evidence-based research); Apply methods of pattern identification from a shang han and wen bing perspective; Discuss the specific diagnostic techniques used in wen bing; Explain the relationship between liu jing bian zheng and wei qi ying xue bian zheng (including describing the key concepts of the Six Meridian Theory and Theory of Wei, Qi, Ying and Xue as systems of differentiation of syndromes, and comparing these theories with Zang-fu Theory and the Theory of Triple Jiao); Discuss and apply principles of treatment and appropriate formulae according to Shang Han and Wen Bing (for each of the syndromes, describe the sign-symptom complexes, key formulae and their component herbs, common modifications, any special preparation, indications, cautions and contraindications and comparisons with other formulae); Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Five hours per week or equivalent for one semester comprising lectures and tutorials. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Liu, G. H. (2001). Warm disease. A clinical guide. Seattle: Eastland Press.Mitchell, C., Feng, Y., & Wiseman, N. (1999). Shang Han Lun. On cold damage. Translation & commentaries. Brookline, MA: Paradigm Publications.Study Guide compiled and translated by Greta Young on eReserve.

Assessment: One assignment (1500-2000 words); one examination (70%). This unit is a hurdle requirement.

HHT3105 MAJOR CLASSICS-SHANG HAN LUN WENG BING 2

Locations: St Albans.

Prerequisites: HHT3104 - MAJOR CLASSICS - SHANG HAN LUN & WENG BING 1

Description: Further development of Shang Han Lun and Wen Bing as part of the history of ideas in Chinese medicine. Complex theories associated with these two texts. Onset, transmission and transmutation of disease. Complex presentations according to Shang Han and Wen Bing. Alternative uses of shang han and wen bing formulae.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Apply methods of pattern identification from a shang han and wen bing perspective (including describing the sign-symptom patterns and transmuted patterns associated with the six meridians and sign-symptom patterns associated with the four aspects); Describe the relationship between liu jing bian zheng and wei qi ying xue bian zheng; Discuss and apply principles of treatment and appropriate formulae (and modifications) according to Shang Han and Wen Bing (in the treatment of a range of disorders including modern diseases); Evaluate the latent pathogen theory and its modern application to treating auto-immune diseases; Differentiate amongst pulse states according to symptom complexes; Justify the shang han and wen bing treatment strategies and formulae (including in the context of modern clinical practice and evidence-based research); Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Five hours per week or equivalent for one semester comprising lectures and workshops. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Clavey, S. (Trans.). (1988). Deep lying pathogens. Journal of the Australian Chinese Medicine Education and Research Council, 3, 12-15.Clavey, S. (1997). Xu shu-wei. Discourses on the shang han lun. Available from J. R. Wahnish Website, http://www.tcmcentral.com/articles/herbs_shu_shanghanlun.htmLiu, G. H. (2001). Warm disease. A clinical guide. Seattle: Eastland Press.Mitchell, C., Feng, Y., & Wiseman, N. (1999). Shang Han Lun. On cold damage. Translation & commentaries. Brookline, MA: Paradigm PublicationsStudy Guide compiled and translated by Greta Young on eReserve

Assessment: One written assignment (1500 -2000 words) (30%); one written examination (70%).

HHT3106 INTERNAL MEDICINE 1

Locations: St Albans.

Prerequisites: HHT2003 - CHINESE MEDICAL DIAGNOSIS AND PATHOGENESIS 2

HHT2200 - FORMULAE AND STRATEGIES 2

HHT2205 - ACUPUNCTURE NEEDLING: THEORY AND PRACTICE 2

Description: This unit examines in detail traditional Chinese internal medicine (Nei Ke) based on the fifty-two disorders as specified in the classic the Jin Gui Yao Lue and additional disorders of clinical significance. The diagnosis of these disorders and their differentiation into patterns (Zheng) according to the system of bian zheng lun zhi receives detailed attention. The origin of each disorder and the pathomechanisms by which its symptoms manifest and develop are discussed. The design of treatment interventions using herbal prescriptions, acupuncture, moxibustion and dietary therapy (shi liao) according to the differentiation of the disorder is examined. This unit will focus on internal medicine disorders as they relate to the following systems: respiratory, cardiovascular, endocrine and musculoskeletal. This unit will also include shen disturbances and 'modern diseases' amenable to Chinese medicine treatment.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Classify disorders according to the CM framework; Apply bian zheng lun zhi approaches to the differentiation of disharmonies; Devise treatment strategies that address the patterns of disharmony present in Nei Ke disorders; Formulate interventions using herbal formulae or acupuncture prescriptions; Formulate Chinese Medicine dietary therapy according to the differentiation of disorders; Propose lifestyle modifications according to CM principles; Determine the appropriateness of differing interventions (prescription of herbal preparations, acupuncture-moxibustion treatment, use of shi liao) according to the presentation (including any cautions and contraindications for treatment and potential drug-herb interactions) and when referral to western medical practitioners is necessary; Explain the relationships between the pathomechanics of disorders and the components of the treatment intervention (using herbal prescription or acupuncture); Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Six hours per week or equivalent for one semester comprising lectures and tutorials. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Maciocia, G. (1997). The practice of Chinese medicine: the treatment of diseases with acupuncture and Chinese herbs [electronic resource] New York: Churchill Livingstone.Maclean, W., & Lyttleton, J. (1998). Clinical handbook of internal medicine (Vol 1.). Sydney: UWS Macarthur.Maclean, W., & Lyttleton, J. (1998). Clinical handbook of internal medicine (Vol 2.). Sydney: UWS Macarthur. Pirog, J. (1996). Meridians style acupuncture. Berkeley, CA: Pacific View Press. Pitchford, P. (2002). Healing with whole foods. Oriental traditions and modern nutrition (3rd ed.). Berkely: North Atlantic Books.

Assessment: One final written cases examination (50%); one final written theory examination (50%). This unit is a hurdle requirement.

HHT3108 CHINESE MEDICINE THERAPEUTIC APPLICATIONS 1

Locations: St Albans.

Prerequisites: HHT2200 - FORMULAE AND STRATEGIES 2

Description: The focus of this unit is to prepare students for their internship year. Attention is given to diagnosis, treatment and management strategies (acupuncture and herbs), an in-depth exploration of contemporary treatment techniques and approaches, and the notion of yi (intent) as it applies to Chinese medicine. Critical analysis of case studies, approaches to acupoint selection, discrimination between points and herbal prescription.Workshops have a hurdle requirement of at least 80% attendance.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Critically assess and reflect on the means by which a diagnosis is reached; Demonstrate clinical skills in Chinese medicine diagnosis for Nei Ke conditions; Classify Nei Ke disorders according to broad Chinese medicine disease categories; Differentiate Nei Ke disorders according to Bian Zheng Lun Zhi; Propose management strategies including practitioner advice, counselling and client self help tasks (including health preservation and enhancement advice, referral to other health practitioners); Select and prescribe appropriate acupuncture point combinations (and moxibustion treatment), herbal formulae or both given the practitioner s and student s understanding(s) of the client s condition(s) (and identify any cautions and contraindications for treatment and necessary actions in the event of an adverse reaction); Apply specific clinical techniques to a range of particular conditions (including acupuncture, moxibustion); Explain in professional terms and in plain English, proposed treatment strategies with respect to the client s condition(s); Explain the relationship between pulse-taking during the needling process, particularly in relation to the notion of moving Qi by needling; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Five hours per week or equivalent for one semester comprising seminars and workshops. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Deng, T. (1999). Practical diagnosis in traditional Chinese medicine. Edinburgh: Churchill Livingstone. Li, X.-M., & Zhao, J.-Y. (1993). Acupuncture patterns and practice. Seattle: Eastland Press. Maciocia, G. (1994). The practice of Chinese medicine: The treatment of diseases with acupuncture and Chinese herbs. Edinburgh: Churchill Livingstone.

Assessment: Class participation (80% attendance requirement and appropriate participation as outlined in the unit outline) (hurdle requirement). To obtain at least a Pass in the unit, normally all components of assessment must be attempted and passed. Failed assessment items (assignment and practical examination) may be resubmitted or re-attempted once only. Maximum possible marks to be obtained on any resubmission or re-attempt will be 50%. Proficiency standard must be obtained on any re-attempted practical examination. This unit is a hurdle requirement. Additional Statement Workshops have a hurdle requirement of at least 80% attendance.Assignment, One assignment (1500 words)., 40%. Examination, One practical examination., 60%.

HHT3111 CHINESE MEDICINE THERAPEUTIC APPLICATIONS 2

Locations: St Albans.

Prerequisites: HHT3106 - INTERNAL MEDICINE 1

HHT3108 - CHINESE MEDICINE THERAPEUTIC APPLICATIONS 1

Description: This unit further prepares students for their internship year. Attention is given to diagnosis, treatment and management strategies (acupuncture and herbs), an in-depth exploration of contemporary treatment techniques and approaches, and the notion of yi (intent) as it applies to Chinese medicine. Critical analysis of case studies, approaches to acupoint selection, discrimination between points and herbal prescription.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to achieve the following learning objectives at a more advanced level than achieved in HHT3108: Critically assess and reflect on the means by which a diagnosis is reached; Demonstrate clinical skills in Chinese medicine diagnosis for Nei Ke conditions; Classify Nei Ke disorders according to broad Chinese medicine disease categories; Differentiate Nei Ke disorders according to Bian Zheng Lun Zhi; Propose and defend management strategies including practitioner advice, counselling and client self-help tasks (including health preservation and enhancement advice, referral to other health practitioners); Select, justify and prescribe appropriate point combinations, herbal formulae or both given the practitioner s and student s understanding(s) of the client s condition(s) (and identify any cautions and contraindications for treatment and necessary actions in the event of an adverse reaction); Apply specific clinical techniques (including acupuncture, moxibustion) to a range of particular conditions; Evaluate in professional terms and in plain English, proposed treatment strategies with respect to the client s condition(s); Explain the relationship between pulse-taking during the needling process, particularly in relation to the notion of moving Qi by needling; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Five hours per week or equivalent for one semester comprising seminars and workshops. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Deng, T. (1999). Practical diagnosis in traditional Chinese medicine. Edinburgh: Churchill Livingstone.Li, X.-M., & Zhao, J.-Y. (1993). Acupuncture patterns and practice. Seattle: Eastland Press. Maciocia, G. (1994). The practice of Chinese medicine: The treatment of diseases with acupuncture and Chinese herbs. Edinburgh: Churchill Livingstone.

Assessment: Class participation (80% attendance requirement and appropriate participation as outlined in the unit outline) (hurdle requirement. This unit is a hurdle requirement. Additional Statement Workshops have a hurdle requirement of at least 80% attendance.Examination, One final combined practical and oral examination., 40%. Examination, One 3-hour final examination., 60%.

HHT3203 CHINESE MEDICINE CLINICAL PRACTICE 4

Locations: St Albans, City Flinders.

Prerequisites: HHT3103 - CHINESE MEDICINE CLINICAL PRACTICE 3

Description: Topics include: moxibustion, cupping, gua sha, needle manipulation techniques; the appropriateness of applying other therapeutic methods such as electro-acupuncture, laser therapy, muscle energy testing approaches, shi liao and other micro-systems approaches. Herbal formula prescriptions. Advanced dispensary work - ordering stock in consultation with a supervisor, cost appreciation and prescription accounting. Assisting practitioner as required; providing preliminary diagnostic reports to the practitioner; carrying out therapeutic procedures as required by the practitioner.

Credit Points: 16

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Assume an increasing range of responsibilities in the management of clients in clinical settings; Perform safely, competently and efficiently as assistants and as members of a team in Chinese medicine clinics; Assist junior students to correctly identify raw herbs, correctly fill and scrutinise valid herbal prescriptions; Mentor junior students in clinics; Work closely with the final year Chinese medicine students and supervisors discussing cases, diagnoses (including physical examinations as appropriate), treatment protocols and acupoint choices, needling strategies and herbal formulae prescriptions; case history documentation; Explain and justify the formulation of a diagnosis and treatment plan including an acupuncture and/or herbal prescription and explain how this achieves therapeutic aims; Consolidate their ability to practice moxibustion, shi liao, and acupuncture, ear acupuncture, laser acupuncture and electro-acupuncture in the clinical setting (including selection and justification of acupoints and needling techniques, appropriate management of materials and equipment); Explain treatment protocols and different preparation methods and uses of herbs to clients (including actions to be taken after finishing the prescription and in the event of an unexpected adverse reaction); Use the checklist of criteria as a guide for on-going learning in the clinical setting; Explain the management and daily operation of the Chinese medicine clinic; Exhibit developing interpersonal skills with supervisors and colleagues; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: A minimum of one hundred and eight (108) hours in an approved clinical setting normally spread across one entire semester (hurdle requirement).

Required Reading: Bensky, D., Clavey, S., & Schrojer, E. (2004). Chinese herbal medicine: Materia Medica (3rd. ed.). Seattle: Eastland Press.Chinese Medicine Registration Act, (2000 & Am.). Available from Government of Victoria Website, http://www.cmrb.vic.gov.au/Ferrigno, P. (Ed.). (2005). Clinical manual [CD-ROM]. Chinese Medicine Unit, School of Health Sciences, Victoria University of Technology, Australia.Flaws, B. (1993). How to write a CM prescription. Boulder, CO: Blue Poppy Press.Sionneau, P. (1995). Pao Zhi. An introduction to the use of processed Chinese medicinals (B. Flaws, Trans.). Boulder, CO: Blue Poppy Press.Therapeutic Goods Act, (1989 & Am.). Available from Australian Government Website, http://www.tga.gov.au/docs/html.Therapeutic Goods (Victoria) Act, (1994 & Am.). Available from Government of Victoria Website, http://dms003.dpc.vic.gov.au/l2d/T/.

Assessment: Supervised placement comprising successful completion of required 108 clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); combined practical and oral examination (proficiency standard hurdle requirement). Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement. Additional Statement: Clinical sessions have a hurdle requirement of at least 100% attendance.Other, As above, Pass/Fail.

HHT3207 INTERNAL MEDICINE 2

Locations: St Albans.

Prerequisites: HHT3106 - INTERNAL MEDICINE 1

Description: This unit examines in detail traditional Chinese internal medicine (Nei Ke) based on the fifty-two disorders as specified in the classic the Jin Gui Yao Lue and additional disorders of clinical significance. The diagnosis of these disorders and their differentiation into patterns (zheng) according to the system of bian zheng lun zhi receives detailed attention. The origin of each disorder and the pathomechanisms by which its symptoms manifest and develop are discussed. The design of treatment interventions using herbal prescriptions, acupuncture, moxibustion and dietary therapy (shi liao) according to the differentiation of the disorder is examined. This unit will focus on gastrointestinal disorders, urological disorders, bleeding disorders, musculoskeletal disorders, disorders of the five sense organs and shen disturbances. This unit will also include musculoskeletal disorders, phlegm and 'modern diseases' amenable to Chinese medicine treatment.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students, for the range of disorders outlined in the unit content, will be able to: Classify disorders according to the CM framework; Apply bian zheng lun zhi approaches to the differentiation of disharmonies; Devise treatment strategies that address the patterns of disharmony present in Nei Ke disorders; Formulate interventions using herbal formulae or acupuncture prescriptions; Formulate Chinese Medicine dietary therapy according to the differentiation of disorders; Propose lifestyle modifications according to CM principles; Determine the appropriateness of differing interventions (prescription of herbal preparations, acupuncture-moxibustion treatment, use of shi liao) according to the presentation including any cautions and contraindications and when referral to other health professionals is necessary); Explain the relationships between the pathomechanics of disorders and the components of the treatment intervention (using herbal prescription or acupuncture); Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Six hours per week or equivalent for one semester comprising lectures and tutorials. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Maciocia, G. (1997). The practice of Chinese medicine: The treatment of diseases with acupuncture and Chinese herbs. New York: Churchill Livingstone.MacLean, W., & Lyttleton, J. (1998). Clinical handbook of internal medicine (Vol 1.). Sydney: UWS Macarthur.MacLean, W., & Lyttleton, J. (2002). Clinical handbook of internal medicine (Vol 2). Sydney: UWS Macarthur.Pirog, J. (1996). Meridian style acupuncture. Berkeley, CA: Pacific View Press.

Assessment: One oral case analyses examination (40%); one final written theory examination (60%). This unit is a hurdle requirement. All assessment items address the CGA levels as indicated in the Learning Outcomes.

HHT4002 RESEARCH METHODS FOR CHINESE MEDICINE

Locations: St Albans.

Description: Introduction to CM research design and methodology; paradigms of research; ways of obtaining CM knowledge; quantitative and qualitative research methods; research ethics; the application of the scientific method to CM research; non-experimental research designs; the evaluation of research; the computer as a research tool; scientific writing and the communication of research.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Justify research in the field of Chinese medicine; Identify research question in the field of Chinese medicine; Describe various methods of research in quantitative and qualitative research; Critique and evaluate research studies and articles, including those in Chinese medicine; Identify ethical issues associated with conducting research, including CM research; Discuss the requirements, limitations and applications of research in Chinese medicine clinical practice; Discuss issues in the research process as they relate to evaluation of health care practice, programs and policy development; Explain the roles of databases in research; Explain, in professional and lay terms, research studies from the Chinese medicine literature; Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 36 hours per week for one semester comprising lectures and tutorials.

Required Reading: Polgar, S., & Thomas, S.A. (2000). Introduction to research in the health sciences (4th ed.) London: Churchill Livingstone.

Assessment: Two research assignments (1500 words each) (50% each). This unit is a hurdle requirement for graduation.

HHT4004 PROFESSIONAL ISSUES FOR CHINESE MEDICAL PRACTICE

Locations: St Albans.

Description: Business management and planning. Market research, planning, advertising and promotion of a practice. Practice management: employer responsibilities, record keeping, taxation, workers compensation, legal and civil requirements. Department of Health regulations: local council regulations, licensing of premises, public risk, practitioner responsibilities; registration with the Chinese Medicine Registration Board of Victoria. Bioethical requirements of the profession as they relate to research and to professional practice. Community health: child support services, rehabilitation services, fertility clinics. Chinese medicine organizations: professional associations and accreditation, health funds and indemnity insurance, peer group associations both Australian and international, the current status of Chinese medicine in Australia and overseas; Chinese medicine and health education and promotion within the community. Exposure to alternative perspectives on health care, eg. osteopathy, chiropractic, physiotherapy, Alexander technique, naturopathy, European medical herbalism and homoeopathy; psychology; working in various clinical settings.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Explain professional issues that impact on CM practice and the CM profession to the general public, peers and health practitioners (including the roles of continuing education and professional development in maintaining a practice); Incorporate the practical aspects of practice management into their own working situations, (including how to research a clinic location, calculate the costs involved with setting up a new business, describe the government regulations, permits and guidelines for establishing a small business, establish clinic design, layout, clinical management and staffing policies); Develop a vision of their own future practice; Evaluate the facilities, services and other modalities, including sources of finance, available to practitioners establishing a practice; Describe and identify the professional, legal and ethical requirements associated with a Chinese medicine practice (including the government regulations for skin penetration, infection control, drugs and poisons legislation, and the regulatory requirements that impact on herbal medicine practice and dispensing); Prepare short-term and mid-to-long term business plans for their own anticipated practices; Provide solutions, including a range of marketing strategies, for typical and atypical dilemmas associated with establishing and maintaining a practice; Discuss the features of selected alternative health care modalities and multi-disciplinary clinics; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 48 hours per semester compromising lecturers, tutorials and student directed learning.

Required Reading: Feldman, B. (2005). Strategies for sales success. Australia: Brolga Publishing. Grodzki, L. (2000). Building your ideal private practice: A guide for therapists and other healing professionals. USA: W. W. Norton & Co. Harland, M., & Finn, G. (1990). Healthy business. The natural practitioners' guide to success. UK: Hyden House Ltd. Weir, M. (2000). Complementary medicine, ethics and law. Brisbane: Promethus Publications.

Assessment: Subject participation (80% attendance requirement and appropriate participation) (hurdle requirement). Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions and workshops have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.Presentation, Class presentation, 30%. Presentation, Public presentation report (800 words), 20%. Assignment, Written assignment (1500 words), 50%.

HHT4100 CASE CONFERENCING AND CLINICAL ISSUES 1

Locations: St Albans.

Description: This unit integrates Chinese medicine theory and practice via interrogation of student case presentations. Case presentations will be determined by the experiences of students when treating clients. The focus will be on commonly seen cases in the Chinese medicine clinical specialties. The unit reinforces aspects of aseptic procedures; history taking; principles of diagnosis; treatment protocols; herb and point functions; dosages; a range of treatment skills; legal issues; and interpersonal and professional communication skills.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Apply advanced CM theory and clinical practice theory to cases typically presenting at clinic; Retrieve and evaluate scientific articles and other electronic material applicable to specific and common case presentations in a range of CM clinical specialties; Explain the rationale of diagnoses and treatment selections including point and herb functions in terms of Chinese medicine theory and pathophysiology; Discuss the protocol of the Bian Zheng Lun Zhi method of prescribing treatments; Design and present holistic treatment strategies and plans, incorporating the principles of health preservation, with particular emphasis to an Australian patient base; Communicate case material in a professional style sufficient to facilitate effective handover; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 48 hours for one semestercomprising seminars of workshops, and directed research and other learning activities.

Required Reading: Brinkman, M. (1996). The amazing Dr. Zhang. Oriental Medicine Journal, 5(3/4), 41-50. McPherson, H., & Kaptchuk, T. (Eds.). (1997). Acupuncture in practice: Case history insights from the west. New York: Churchill Livingstone.

Assessment: Class participation (80% attendance requirement as well as participation as stipulated in the unit tutorial guidelines) (pass/fail) (hurdle requirement); two case conference seminars comprising one clinical review and one report in the designated assessment week(s) (Satisfactory/Unsatisfactory). This unit is a hurdle requirement. All assessment items address the CGA levels as indicated in the Learning Outcomes. Additional Statement: Workshops have a hurdle requirement of at least 80% attendance.Other, As above., Pass/Fail.

HHT4101 CHINESE MEDICINE OBSTETRICS AND GYNAECOLOGY

Locations: St Albans.

Prerequisites: HHT3207 - INTERNAL MEDICINE 2

Description: This unit examines the Chinese medicine clinical specialty of gynaecology with particular reference to treating gynaecological disorders with Chinese herbal formulae and acupuncture. Emphasis is on selected Materia Medica. The specialised role of acupuncture in obstetrics, including labour, and the role of Chinese medicine in relation to fertility and IVF are also examined. Professional issues in the patient-CM practitioner relationship and ethical issues in gynaecology and obstetrics in the Australian context are raised throughout.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Place in context the history and development of CM gynaecology and obstetrics; Discuss the concept of Yue Jing (period) according to Chinese medicine; Discuss the relationship between the Bao Gong (uterus) and the Jing-Lou; Classify gynaecological disorders according to broad Chinese medicine disease categories; Differentiate gynaecological disorders according to the Bian Zheng Lun Zhi method of CM (including descriptions and discussions of the main symptoms and principal syndromes, and the aetiology and pathogenesis of female urogenital, gynaecological and obstetric disorders and the relationship between symptom pattern and disease mechanism); Evaluate gynaecological conditions for their suitability for treatment with Chinese medicine (including identifying any cautions and contraindications and potential disease complications which need to be considered in the treatment of the main gynaecological and obstetric disorders); and possible needs to refer to outside health professionals including western medical; Apply Chinese medical perspectives and treatment methods for conception, maintaining the health of the mother and foetus during pregnancy and apply various Chinese medical techniques (especially acupuncture) during labour; Evaluate the general treatment principles applied in CM gynaecology and obstetrics; Identify selected Materia Medica, including main formulae and modifications, relevant to Chinese medicine gynaecology and obstetrics; Predict potential drug-herb interactions and explain the actions necessary in the event of an adverse reaction; Evaluate roles for the treatment modalities, including herbal medicine, acupuncture and moxibustion, used in gynaecological conditions; Evaluate roles for hygiene and diet in the prevention and treatment of gynaecological conditions; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: 6 hours/week or equivalent for one semester comprising lectures and tutorials.

Required Reading: Liang, L.-F. (2003). Acupuncture and IVF. Increase IVF success by 40-60%. Boulder, CO: Blue Poppy Press.Maciocia, G. (1998). Obstetrics and gynecology in Chinese medicine. Melbourne, Australia: Churchill Livingstone. West, Z. (2001). Acupuncture in pregnancy and childbirth. Sydney, Australia: Churchill Livingstone.

Assessment: One assignment (1500 words) (50%); one 3-hour examination (50%). This unit is a hurdle requirement for graduation.

HHT4103 CHINESE MEDICINE CLINICAL INTERNSHIP 1

Locations: St Albans.

Description: Students undertake their final year clinical placement as the Intern Practitioner in approved settings. Students are required to spend time in the School of Health Sciences Teaching Clinics and other approved clinical settings to gain broad clinical experience in both acupuncture and herbs and be guided by a variety of clinical educators. This unit must be completed before off-shore clinical placements can be approved. Internship Practitioner: The student practitioner is expected to conduct themselves in the professional manner as demonstrated by Practitioner Clinicians, working under the supervision of a qualified Chinese medicine practitioner. Skills required of the supervised intern practitioner: take case histories, define diagnoses and treatment principles, identify appropriate herbal formulae that could become the basis for the final prescription; formulate acupuncture prescriptions; perform acupuncture and moxibustion as appropriate. The intern practitioner works independently and assumes full responsibility for the conduct of each consultation, and production of a final prescription. The supervising practitioner is accessed as required. The supervising practitioner must approve prescriptions as suitable and safe to dispense for each client consulted, before the prescription is processed in the dispensary. Internship Mentor: Final year students are to work closely with junior students to assist them in the development of clinical skills. Dispensary supervision: Final year students will spend part of their time as supervisor in the dispensary. The Internship practitioner will have opportunities to provide mentorship for junior students and assume responsibility for the running of the practice dispensary. While the supervising practitioner has overall authority, the Internship practitioner must liaise with the supervising practitioner for all financial decisions and must report discipline issues. During the mentorship process, the Intern practitioner has the responsibility to ensure School of Health Sciences Teaching Clinics policies and procedures are followed.

Credit Points: 16

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Use advanced acupuncture and Chinese medicine theory; Demonstrate professional skills, attitude and presentation. Reflect on their experience of the consultation process (including diagnosis, treatment approaches and communication skills) Conduct a comprehensive Chinese medical assessment including procedures to minimse patient distress, embarrassment or risk of injury, propose a diagnosis and treatment strategy; Demonstrate understanding of the indications for and skilful use of relevant clinical diagnostic equipment and interpretation of commonly used western diagnostic tests (and describe how results of western diagnostic tests may influence CM diagnosis and treatment strategies); Obtain feedback from clients and explain to the client the clinical significance of both negative and positive findings in plain English; Locate and needle accurately and safely acupuncture points appropriate to client needs; Demonstrate proficiency in use of and understand the indications for use of therapeutic techniques including: moxa, cupping, gua sha, point injection therapy, dermal hammer, laser, ear acupuncture, electric stimulator and Chinese herbal medicine; Demonstrate proficiency in dispensing of a herbal medicine prescription including advice and instructions to clients in preparation and administration of herbal prescriptions (including what to do in the event of an adverse reaction) Demonstrate understanding of the necessary requirements of and proficiency in maintenance of a herbal dispensary (including understanding requirements for labelling and storage, inventory and contamination control). Record casenotes in a professional manner (legal (legible, accurate, orderly) that would satisfy professional guidelines and would withstand legal scrutiny); Assess the client s needs for ongoing treatment or referral, plan a treatment strategy accordingly and communicate the course of treatment and any dietary and lifestyle recommendations to the client in plain English; Liaise and work effectively with clinical educators; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; Independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: A minimum of one hundred and fifty-six(156) hours in an approved clinical setting normally spread across one entire semester (hurdle requirement).

Required Reading: Bensky, D., Clavey, S., & Schrojer, E. (2004). Chinese herbal medicine: Materia Medica (3rd. ed.). Seattle: Eastland Press. Chinese Medicine Registration Act, (2000 & Am.). Available from Government of Victoria Website, http://www.cmrb.vic.gov.au/Ferrigno, P. (Ed.). (2005). Clinical manual [CD-ROM]. Chinese Medicine Unit, School of Health Sciences, Victoria University of Technology, Australia. Flaws, B. (1993). How to write a CM prescription. Boulder, CO: Blue Poppy Press. Sionneau, P. (1995). Pao Zhi. An introduction to the use of processed Chinese medicinals (B. Flaws, Trans.). Boulder, CO: Blue Poppy Press.Therapeutic Goods Act, (1989 & Am.). Available from Australian Government Website, http://www.tga.gov.au/docs/html Therapeutic Goods (Victoria) Act, (1994 & Am.). Available from Government of Victoria Website, http://dms003.dpc.vic.gov.au/l2d/T/

Assessment: Supervised placement comprising successful completion of required 156 clinical hours (pass/fail) (hurdle requirement). Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement. Additional Statement: Clinical sessions have a hurdle requirement of at least 100% attendance.Practicum, Overall satisfactory report(s) from clinical placement(s) (hurdle requirement);, 50%. Examination, Combined practical and oral examination (proficiency standard hurdle requirement)., 50%.

HHT4108 CHINESE MEDICINE TRAUMATOLOGY

Locations: St Albans.

Prerequisites: RBM1525 - ANATOMY AND PHYSIOLOGY 2

HHT2003 - CHINESE MEDICAL DIAGNOSIS AND PATHOGENESIS 2

HHT3207 - INTERNAL MEDICINE 2

Description: This unit consolidates theory and practice from previous units and applies the information to the assessment and management of specific musculo-skeletal and neurological disorders including an in-depth exploration of pain, including its explanation in Chinese medical terms. Emphasis is given to history taking and physical examination of the musculo-skeletal system. Various traditional and contemporary musculo-skeletal assessment techniques, the relationship between musculo-skeletal dysfunction and the jing luo system, and the application and monitoring of acupuncture and herbal treatment of patients with musculo-skeletal dysfunction are explored. Material will include in-depth analysis of treatment and management of pain, Bi syndrome and Wei syndrome, regional disorders, spinal disorders, limbs, musculoskeletal rehabilitation, recreational and sports injuries, Chinese medical diagnosis of specific musculo-skeletal and neurological disorders; the application of internal and external herbal treatments; the significance of drug-herb interactions as applicable to musculo-skeletal and neurological disorders, rehabilitative exercises specific to particular musculo-skeletal and neurological disorders; the protocols and application of acupuncture, point injection therapy, laser therapy, tui na, cupping, moxibustion, gua sha exercise and nutritional therapy as applicable to musculo-skeletal and neurological disorders as well as the treatment and management of sporting injuries.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Incorporate musculo-skeletal and neurological systems into history taking and physical examinations; Describe external and internal causes of injury and wounds, the reactions of the body to injury and the processes of healing; Describe the aetiology, pathogenesis, main symptomatology, diagnosis and differential diagnosis (CM syndromes) of common neurological disorders and musculoskeletal conditions, including soft tissue injuries, dislocations and fractures; Describe the ranges of movements for particular joints and muscle groups from a regional anatomy perspective; Perform traditional and contemporary musculo-skeletal assessment and muscle energy release techniques, e.g., MET, Onsen, Sotai; Relate various muscle energy release techniques to the jing luo system; Evaluate musculo-skeletal and neurological conditions for their suitability for treatment with CM and possible needs to refer to outside health professionals including western medical; Predict and identify potential cautions, contraindications and adverse reactions of particular CM therapies and discuss actions necessary in the event of an adverse event; Evaluate roles for acupuncture, point injection therapy, laser therapy, herbal preparations (external and internal), tui na, cupping, moxibustion, gua sha exercise and nutritional therapies in the treatment of musculo-skeletal and neurological disorders; Devise Chinese medicine treatment protocols and management plans consistent with the diagnosed musculo-skeletal and neurological conditions and demonstrate skills in appropriate therapies (including manual reduction and rehabilitation exercises); Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 48 hours for one semester comprising lectures and workshops.

Required Reading: Baldry, P. (2005). Acupuncture, trigger points and musculo-skeletal pain (3rd. ed.). London: Churchill Livingstone. Dvorak, J., & Dvorak, V. (1990). Manual medicine: Diagnostics (2nd Rev. ed.). New York: Thieme Medical Publishers.HerbMed. (2004). HerbMed® - An interactive, electronic herbal database. Available from HerbMed Website, www.herbmed.org Legge, D. (1997). Close to the bone (2nd ed.). Woy Woy: Sydney College Press

Assessment: Examination, One combined practical and oral musculo-skeletal examination., 50%. Assignment, One assignment (2000 words). This unit is a hurdle requirement for graduation., 50%. Additoinal Statement: Workshops have a hurdle requirement of at least 80% attendance.

HHT4200 CASE CONFERENCING AND CLINICAL ISSUES 2

Locations: St Albans.

Prerequisites: HHT4103 - CHINESE MEDICINE CLINICAL INTERNSHIP 1

Description: This unit integrates Chinese medicine theory and practice via interrogation of student case presentations. Case presentations will be determined by the experiences of students when treating clients. The focus will be on commonly seen cases in the Chinese medicine clinical specialties. The unit reinforces aspects of aseptic procedures; history taking; principles of diagnosis; treatment protocols; herb and point functions; dosages; a range of treatment skills; legal issues; and interpersonal and professional communication skills.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to demonstrate the following learning objectives at a more advanced level than in HHT4100 Case Conferencing and Clinical Issues 1: Apply advanced CM theory and clinical practice theory to cases typically presenting at clinic; Retrieve and evaluate scientific articles and other electronic material applicable to specific and common case presentations in a range of CM clinical specialties; Explain the rationale of diagnoses and treatment selections including point and herb functions in terms of Chinese medicine theory and pathophysiology; Discuss the protocol of the Bian Zheng Lun Zhi method of prescribing treatments; Design and present holistic treatment strategies and plans, incorporating the principles of health preservation, with particular emphasis to an Australian patient base; Communicate case material in a professional style sufficient to facilitate effective handover; Demonstrate advanced practical skills in acupuncture, moxibustion, cupping and ancillary treatment methods; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 72 hours for one semester comprising seminars workshops. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.

Required Reading: Australian Acupuncture & Chinese Medicine Association Code of Ethics. (n.d.). Available from AACMA Website, http://www.acupuncture.org.au/code_of_ethics.cfm Brinkman, M. (1996). The amazing Dr. Zhang. Oriental Medicine Journal, 5(3/4), 41-50.Chinese Medicine Registration Act, (2000 & Am.). Available from Government of Victoria Website, http://www.cmrb.vic.gov.au/Infection Control Guidelines for Acupuncture - Consultation Draft, (2004). Available from Chinese Medicine Registration Board Website, http://www.cmrb.vic.gov.au/current-news/draft/InfectionControlGuidelinesAcupuncture_web.pdf National Drugs and Poisons Schedule Committee. (2003). Standard for the Uniform Scheduling of Drugs and Poisons (No. 18). Available from Australian Government Website, http://www.health.gov.au/tga/ndpsc/susdp.htmStandards of Practice for Acupuncture. Health (Infectious Diseases) Regulations, (1990). Available from Government of Victoria Website, http://www.cmrb.vic.gov.au/registration/standards.html

Assessment: Class participation (80% attendance requirement as well as participation as stipulated in the unit tutorial guidelines) (pass/fail) (hurdle requirement); two case conference seminars comprising one clinical review and one report in the designated assessment week(s) (Satisfactory/Unsatisfactory). This unit is a hurdle requirement for graduation. All assessment items address the CGA levels as indicated in the Learning Outcomes. Additional Statement: Workshop sessions have a hurdle requirement of at least 80% attendance.Other, As above, Pass/Fail.

HHT4201 CHINESE MEDICINE PAEDIATRICS

Locations: St Albans.

Prerequisites: HHT3207 - INTERNAL MEDICINE 2

Description: This unit presents the theory and practice of the CM clinical specialty of paediatrics. Topics include the anatomy and physiology of childhood development, including growth, pathology of various paediatric disorders and care needs associated with childhood development and disease. Particular emphasis is given to the use of Chinese herbs, acupuncture, moxibustion, tui na, dietary management and nursing care for children with disorders. Specific case studies, selected Materia Medica and ethical issues in the child-practitioner relationship are emphasized.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Place in context the history and development of CM paediatrics; Discuss how child development (physical, social and emotional) impacts on paediatric care needs; Explain the pathology of various childhood disorders (including methods of diagnosis, symptomatology and aetiology of main paediatric disorders); Differentiate paediatric disorders including principal symptoms and main syndromes according to Bian Zheng Lun Zhi method in CM; Evaluate paediatric conditions for their suitability for treatment with CM and possible needs to refer to outside health professionals including western medical; Apply and evaluate the general treatments principles in CM paediatrics (explain the relationship between disease mechanism(s) and treatment principle(s) and explain measures for prevention, amelioration and care of paediatric disorders); Identify selected Materia Medica and formulae including modifications relevant to CM paediatrics; Evaluate the roles for different treatment regimes including acupuncture, moxibustion, tui na in CM paediatrics and when referral to other health practitioners including western medicine is necessary; Explain cautions and contraindications associated with treatments used in children (including complications that could occur in a particular disease, possible adverse reactions to herbal formulae, drug-herb interactions, and cautions and potential adverse reactions associated with acupuncture and moxibustion); Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 60 hours per semester compromising lectures, tutorials and student directed learning.

Required Reading: Cao Jiming (1990). Essentials of Traditional Chinese Paediatrics. Beijing: Foreign Language Press.Hai, J.-L. (Ed.). (1995). Treatment of paediatric disease in TCM. Beijing: Academy Press Jin Yuren, Wang Shouchan (2002). Paediatrics of traditional Chinese medicine. Shanghai: Shanghai Publishing House of Shanghai University of Traditional Chinese Medicine.

Assessment: Assignment, One assignment (1500-2000 words), 30%. Examination, One 3-hour examination. This unit is a hurdle requirement for graduation., 70%. Additional Statement: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions and workshops have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.

HHT4203 CHINESE MEDICINE DERMATOLOGY

Locations: St Albans.

Prerequisites: HHT3207 - INTERNAL MEDICINE 2

Description: This unit covers the theory and practice of Chinese medicine dermatology. Material includes the traditional and modern classification systems of dermatological disorders; and the general features of physiology, pathology and diagnosis as applied to Chinese medicine dermatology. The aetiology, diagnosis, differentiation and treatment will be examined through detailed studies of common dermatological diseases whilst treatment modalities, including formulating prescriptions of Chinese herbs, selecting points for acupuncture, will be examined through specific clinical cases. Dietary and life-style factors, modes of transmission and infection control from the client s perspective are included.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Place in context the history and development of CM dermatology; Discuss the aetiology, pathogenesis, main symptomatology and CM pathophysiology of identified dermatological conditions; Classify dermatological disorders according to broad CM disease categories (syndromes) and describe typical signs and symptoms associated, treatment principle(s) and appropriate treatment with herbal medicine (including main formulae and modifications, purpose of particular herbs), acupuncture and moxibustion; Evaluate dermatological conditions for their suitability for treatment with CM and possible needs to refer to outside health professionals including western medical; Justify with explanations the links between disease and syndrome diagnoses, pathogenesis, treatment principle(s), treatment strategies and appropriate prescriptions (acupuncture and/or herbal medicine); Explain the cautions and contraindications of treatments for the main dermatological conditions (including potential drug-herb interactions, potential adverse reactions associated with treatment and what to do in the event of an adverse reaction); Apply and evaluate treatment principles and strategies in CM dermatology; Evaluate roles for acupuncture, moxibustion, Chinese herbal medicine and other CM approaches in the treatment of dermatological conditions (and identify the most appropriate treatment method(s) for a particular disease); Explain, in professional and lay communication styles, life-style (including diet, personal hygiene) and infection control issues that impact on the management of dermatological conditions; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 60 hours per semester comprising lectures and seminars.

Required Reading: Xu, Y.-H. (2004). Dermatology in traditional Chinese medicine (S. Yi, Trans.). St. Albans, Hertsfordshire: Donica Publishing.

Assessment: All assessment items address the CGA levels as indicated in the Learning Outcomes. Assignment, One assignment (1500-2000 words)., 50%. Examination, One final examination., 50%. Additional Statements: Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions and workshops have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.

HHT4204 CHINESE MEDICINE CLINICAL INTERNSHIP TWO

Locations: St Albans.

Prerequisites: HHT4103 - CHINESE MEDICINE CLINICAL INTERNSHIP 1

Description: This unit consolidates students in their clinical practice as the Intern Practitioner in approved settings. Students are required to spend time in the School of Health Sciences Teaching Clinics and other approved clinical settings to gain broad clinical experience in both acupuncture and herbs and be guided by a variety of clinical educators. This unit must be completed before off-shore clinical placements can be approved.Internship Practitioner: The student practitioner is expected to conduct themselves in the professional manner as demonstrated by Practitioner Clinicians, working under the supervision of a qualified Chinese medicine practitioner. Skills required of the intern practitioner: take all casenotes, define diagnosis, herbs and main formulae that could the prescription could be based upon, define treatment principles and where appropriate apply acupuncture. The intern practitioner works independently and assumes full responsibility for the conduct of each consultation, and production of a final prescription. The supervising practitioner is accessed as required. The supervising practitioner must approve prescriptions as suitable and safe to dispense for each client consulted, before the prescription is processed in the dispensary.Internship Mentor: Final year students are to work closely with junior students to assist them in the development of clinical skills.Dispensary supervision: Final year students will spend part of their time as supervisor in the dispensary. This will give the Internship practitioner the opportunity to provide mentorship for junior students and assume responsibility for the running of the practice dispensary. While the supervising practitioner has overall authority, the Internship practitioner must liaise with the supervising practitioner for all financial decisions and must report discipline issues. During the mentorship process, the Intern practitioner has the authority to ensure School of Health Sciences Teaching Clinics policies and procedures are followed. Internship observer status: Clinical hours may also be obtained if a student observes clinical practice with a recognized Herbalist with a minimum of 10 years clinical practice (15, 20 years minimum recommended). The nature of the observation will need to extend to internship status for approval to be granted.

Credit Points: 16

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to demonstrate the following learning outcomes at a professional practitioner level: Demonstrate independence and advanced skills in complete patient management and care; Use advanced acupuncture and Chinese medicine theory; Demonstrate professional skills, attitude and presentation; Reflect on their experience of the consultation process (including diagnosis, treatment approaches and communication skills) Conduct a comprehensive Chinese medical assessment including procedures to minimse patient distress, embarrassment or risk of injury, propose a diagnosis and treatment strategy Demonstrate understanding of the indications for and skilful use of relevant clinical diagnostic equipment and interpretation of commonly used western diagnostic tests (and describe how results of western diagnostic tests may influence CM diagnosis and treatment strategies); Obtain feedback from clients and explain to the client the clinical significance of both negative and positive findings in plain English; Locate and needle accurately and safely acupuncture points and demonstrate an advanced level of needling techniques appropriate to client needs; Demonstrate a professional level of proficiency in use of and understand the indications for a range of therapeutic techniques including moxa, cupping, gua sha, point injection therapy, dermal hammer, laser, ear acupuncture, electric stimulator and Chinese herbal medicine; Demonstrate proficiency in dispensing of a herbal medicine prescription including advice and instructions on preparation and administration of herbal prescriptions and what to do in the event of an adverse reaction; Explain and demonstrate the procedures involved in the management of a herbal dispensary including storage, labelling, inventory control and contamination control; Record casenotes in a professional manner (legible, accurate, orderly) that would satisfy professional guidelines and would withstand legal scrutiny; Assess the patient s needs for ongoing treatment or referral, plan a treatment strategy accordingly and communicate the course of treatment and any dietary and lifestyle recommendations to the patient in plain English; Liaise and work effectively with clinical educators; Mentor students in the clinic; Demonstrate consolidation and establishment of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: A minimum of two hundred and sixty-four (264) hours in an approved clinical setting normally spread across one entire semester (hurdle requirement).

Required Reading: Bensky, D., Clavey, S., & Schrojer, E. (2004). Chinese herbal medicine: Materia Medica (3rd. ed.). Seattle: Eastland Press. Chinese Medicine Registration Act, (2000). Available from Government of Victoria Website, http://www.cmrb.vic.gov.au/Ferrigno, P. (Ed.). (2005). Clinical manual [CD-ROM]. Chinese Medicine Unit, School of Health Sciences, Victoria University of Technology, Australia. Flaws, B. (1993). How to write a CM prescription. Boulder, CO: Blue Poppy Press. Sionneau, P. (1995). Pao Zhi. An introduction to the use of processed Chinese medicinals (B. Flaws, Trans.). Boulder, CO: Blue Poppy Press. Therapeutic Goods Act, (1989 & Am.). Available from Australian Government Website, http://www.tga.gov.au/docs/html Therapeutic Goods (Victoria) Act, (1994 & Am.). Available from Government of Victoria Website, http: //dms003.dpc.vic.gov.au/l2d/T/

Assessment: Supervised placement comprising successful completion of required 264 clinical hours (pass/fail) (hurdle requirement). Exit exam to be examined by three registered Chinese medicine practitioners, one being a staff member of Victoria University, the other two being independent practitioners in Chinese medicine. Any failed assessment item will need to be discussed in the first instance with the Clinical Co-ordinator. This unit is a hurdle requirement for graduation.

Examination, Exit Exam comprising one final dispensary practical examination (proficiency standard hurdle requirement);, 20%. Examination, Final combined practical and oral consultation examination (hurdle requirement); 50%. Practicum, Overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); 30%. Additional Statement: Clinical sessions have a hurdle requirement of at least 100% attendance.

HHU1171 CLINICAL PRACTICUM 1

Locations: St Albans, City Flinders.

Description: An introduction to the clinical experience. Observation and initial development of clinic management skills. Observation of treatments and limited client care. Contributions to case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Perform, in a polite and friendly manner, client-based clerical and clinical reception skills, including taking and making appointments by telephone or in person, taking payments for treatments, ensuring the clinic is generally clean and tidy, maintaining patient files, and ensuring various clinic supplies are available; Perform techniques learnt in the osteopathic science and clinical diagnosis units, such as osteopathic palpation or physical examination techniques, under supervision in relevant clinical settings; Commence preliminary examination procedures in a way that minimizes patient distress, embarrassment and risk of injury; Participate at a rudimentary level in the decision-making associated with patient cases; Discuss accurately and professionally, and reflect on limited aspects of the case (including observations such as patient posture, external markings, as well as the interactions amongst the patient and the treating student and supervisor) during case discussions; Commence recording case information in a legal (legible, accurate, orderly) manner.

Class Contact: Two (2) hours per week or equivalent for one semester comprising twelve (12) hours of clinical placement in at least one direct patient care setting and lectures, tutorials and workshops. Clinical placement has a hurdle requirement of at least 90% attendance.

Required Reading: Osteopaths Registration Act. (1996). Available from Osteopaths Registration Board of Victoria Website, www.osteoboard.vic.gov.au/links.html Osteopaths Registration Regulations. (1997). Available from Osteopaths Registration Board of Victoria Website, www.osteoboard.vic.gov.au/links.html or from Queensland Government Website, www.legislation.qld.gov.au/LEGISLTN/SLS/2002/02SL081.pdfSchool of Health Sciences. (2006). Bachelor of Science - Clinical Sciences clinical manual. Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.

Assessment: Supervised placement comprising successful completion of required twelve (12) clinical hours (pass/fail) (hurdle requirement); six (6) patient observations recorded in the manner outlined in the Clinical manual (minimum 500 words total) (hurdle requirement); one 30-minute multiple choice question (MCQ) test (pass/fail) (hurdle requirement).

HHU1270 CLINICAL PRACTICUM 1

Locations: City Flinders.

Prerequisites: HHO1171 - OSTEOPATHIC SCIENCE 1

Description: An introduction to the clinical experience, basic problem solving and critical thinking skills related to evidence based practice. Observation and initial development of clinic management skills. Observation of treatments and limited client care. Introduction to other allied health professions. This unit provides an opportunity to attend the University campus clinics and participate in external clinics and field events to observe treatments by senior students.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform techniques learnt in the osteopathic science and clinical diagnosis units, such as osteopathic palpation or physical examination techniques, under supervision in relevant clinical settings; Perform a basic osteopathic clinical history in an accurate, legal and professional manner; Begin to develop an understanding of Osteopathy and its place in the Australian health care system; Demonstrate basic problem solving and critical thinking skills relevant to health professionals in a clinical setting.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and clinical workshops.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Practicum, 10 minute Vive Voce, Pass/Fail. Research Paper, One Clinical Research Paper Critique, Pass/Fail.

HHU1272 CLINICAL PRACTICUM 2

Locations: City Flinders.

Prerequisites: HHA1171 - ANATOMY 1

HHO1171 - OSTEOPATHIC SCIENCE 1

HHU1171 - CLINICAL PRACTICUM 1

Description: The development and extension of clinic management skills, observation of treatments and limited client care. Contributions to case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform, in a professional, efficient and competent manner, client-based clerical and clinical reception skills, including taking and making appointments by telephone or in person, taking payments for treatments, ensuring the clinic is generally clean and tidy, maintaining patient files, and ensuring various clinic supplies are available; Perform techniques learnt in the osteopathic science and clinical diagnosis units, such as osteopathic palpation or physical examination techniques, under supervision in relevant clinical settings; Conduct preliminary examination procedures in a way that minimizes patient distress, embarrassment and risk of injury; Participate at a rudimentary level in the decision-making associated with patient cases; Discuss accurately and professionally, and reflect on limited aspects of the case (including observations such as patient posture, external markings, as well as the interactions amongst the patient and the treating student and supervisor) during case discussions; Commence recording case information in a legal (legible, accurate, orderly) manner.

Class Contact: A minimum of twenty-four (24) hours comprising twelve (12) hours of placement in an approved direct patient care clinical setting and twelve (12) hours, tutorials and workshops normally spread across one entire semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

Required Reading: Evidence-based management of acute musculoskeletal pain. (2003). Available from NHMRC Website, www.nhmrc.gov.au/publications/_files/cp94.pdf School of Biomedical and Health Sciences. (2008). Bachelor of Science - Clinical Sciences clinical manual. Melbourne, Australia: Victoria University.

Assessment: Supervised placement comprising successful completion of required twelve (12) clinical hours (pass/fail) (hurdle requirement); One 30-minute (MCQ format) test (graded); One final written examination (pass/fail) (hurdle requirement).Other, As Above, Pass/Fail.

HHU2173 CLINICAL PRACTICUM 3

Locations: City Flinders.

Description: The development of clinic management and basic Osteopathic treatment skills by observation of clinic management and Osteopathic treatments in a professional clinical setting. To also develop an understanding of how other healthcare professionals operate in the Australian healthcare environment.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the health professional/patient interaction in a clinical setting; Explain the role of the various health professions in the Australian healthcare system; Explain the place that Osteopathy has in the Australian healthcare system.

Class Contact: Learning in the Workplace and Community as three hours per week (36 hours per semester) and student will undertake these hours as a minimum of thirty six (36) hours or as negotiated with the Clinic Co-ordinator (Osteopathy) in an approved health care clinical setting. Clinical placement is to be undertaken external to the University however may include observation in the VU Osteopathy Paediatrics Clinic at the Flinders Lane campus. For practical reasons, students may choose to undertake their hours in block mode.

Required Reading: Evidence-based Practice Across the Health Professions Hoffman T, Bennett S, Del Mar C (2009) 1st Ed. Churchill Livingstone: Australia

Assessment: Practicum, Completion of 36 hours (3 hours per week) of clinical observations (Hurdle requirement), Pass/Fail. Report, Report reflecting on the clinical placement experience (hurdle requirement), Pass/Fail.

HHU2271 CLINICAL PRACTICUM 2

Locations: St Albans, Footscray Park, City Flinders.

Prerequisites: HHU1270 - CLINICAL PRACTICUM 1

HHO2171 - OSTEOPATHIC SCIENCE 3

Description: Further development and extension of clinic management skills, observation of treatments and supervised provision of limited patient care. Contributions to case discussions. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform, in a professional, efficient and competent manner, client-based clerical and clinical reception skills, including taking and making appointments by telephone or in person, taking payments for treatments, ensuring the clinic is generally clean and tidy, maintaining patient files, and ensuring various clinic supplies are available; Perform techniques learnt in the osteopathic science and clinical diagnosis units, such as osteopathic palpation or physical examination techniques, under supervision in relevant clinical settings; Perform preliminary examination procedures in a way that minimises patient distress, embarrassment and risk of injury; Participate at a rudimentary level in the decision-making associated with patient cases; Discuss accurately and professionally, and reflect on limited aspects of the case (including observations such as patient posture, external markings, as well as the interactions amongst the patient and the treating student and supervisor) during case discussions; Perform, in a professional, efficient and competent manner, advanced osteopathic clinical history taking procedures.

Class Contact: Twelve (12) hours for one semester comprising clinical workshops.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Test, One quiz, Pass/Fail. Practicum, One Vive Voce (Advanced History Taking), Pass/Fail. A minimum of twelve (12) one hour workshops normally spread across one entire semester (hurdle requirement). Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).

HHU2274 CLINICAL PRACTICUM 4

Locations: St Albans, City Flinders.

Prerequisites: HHU2173 - CLINICAL PRACTICUM 3

Description: This unit requires attendance at a series of lecture/workshops to observe and undertake clinical history taking skills. This unit requires attendance external clinics and field events to observe treatments by senior students, clinicians and other healthcare professionals.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, student will be able to: Record a full clinical history with a patient; Explain the clinical history taking process and the information required; Record case information, including complex case notes under supervision, in a legal (legible, accurate, orderly) manner; and Explain the place of Osteopathy in the Australian healthcare setting.

Class Contact: A minimum of twelve (12) hours face to face lecture/workshops. Lecture/workshop has a hurdle requirement of at least 90% attendance. A minimum of twenty-four (24) hours of LiWC placement observing healthcare professionals in clinical practice. Total hours are 36 hours per semester.

Required Reading: None

Assessment: Attendance at lecture/workshops of one hour per week for 12 weeks (12 hours total) (hurdle requirement)Practicum, Clinical history taking assessment, Pass/Fail. Practicum, Evidence of completion of required observation hours, Pass/Fail.

HHU3173 CLINICAL PRACTICUM 3

Locations: St Albans, Footscray Park, City Flinders.

Prerequisites: HHU2271 - CLINICAL PRACTICUM 2

HHO2272 - OSTEOPATHIC SCIENCE 4

Description: The development and extension of clinic management skills, observation of treatments and supervised provision of limited patient care. Contributions to and partial leading of case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in the university clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform, in a professional, efficient and competent manner, client-based clerical and clinical reception skills, including taking and making appointments by telephone or in person, taking payments for treatments, ensuring the clinic is generally clean and tidy, maintaining patient files, ensuring various clinic supplies are available or re-ordered if necessary, and interact with patients in an easy professional manner'; Select and perform osteopathic and physical examination techniques appropriate to the patient s presenting complaint under supervision in the university clinical setting; Participate actively and professionally in the decision-making associated with patient cases; Appraise all aspects of the case and take a leading role in the case discussion, on observations such as patient posture, external markings, as well as on the interactions amongst the patient and the treating student and clinical supervisor; Record clinical history information in a legal (legible, accurate, orderly) manner; Write basic patient referral letters.

Class Contact: Sixty (60) hours for one semester comprising 30 hours of face to face, supervised clinical placement within the universities student clinic facilities and 30 hours of external supervised placement with a health care practitioner.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Practicum, Completion of 111 hours of clinical placement in the university student teaching clinics, Pass/Fail. Practicum, Completion of required clinical activities, Pass/Fail. Practicum, Completion of 5 hours clinical placement in a health care practice setting, Pass/Fail. Supervised placement comprising successful completion of required 111 hours with at least 90% attendance (hurdle requirement); Clinic manual or folio reporting completion of negotiated hours, observations, clinical activities and additional requirements. (Hurdle requirement). Requirements in the manual should be signed by a supervision clinician and recorded in the manner outlined in the clinic manual. Formative assessment via feedback provided from clinical supervisor.

HHU3175 CLINICAL PRACTICUM 5

Locations: City Flinders.

Description: The development and extension of clinic management skills, observation of treatments and supervised provision of limited client care. Contributions to and partial leading of case discussions. Assistance to more senior students and administrative staff by providing clerical and clinical reception and treatment room support in clinics. This unit requires attendance at University campus clinics, external clinics and field events to observe treatments by senior students and clinicians.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform, in a professional, efficient and competent manner, client-based clerical and clinical reception skills, including taking and making appointments by telephone or in person, taking payments for treatments, ensuring the clinic is generally clean and tidy, maintaining patient files, ensuring various clinic supplies are available or re-ordered if necessary, and interact with patients in an 'easy professional manner; Select with a developed aim and perform under supervision in the relevant clinical setting, techniques learnt in the osteopathic science and clinical diagnosis units, such as osteopathic techniques or physical examination techniques; Participate actively and professionally in the decision-making associated with patient cases; Observe accurately all aspects of the case and take a leading role in the case discussion, on observations such as patient posture, external markings, as well as on the interactions amongst the patient and the treating student and supervisor; Record case information in a legal (legible, accurate, orderly) manner; and Write basic patient referral letters and exercise plans.

Class Contact: A minimum of one hundred and thirty-three (133) hours or as negotiated with the appropriate Co-ordinator in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance. The breakdown of these hours is: 35 Hours summer clinic (22/11/10-25/2/11) 65 Semester hours (5hr/week for 13 weeks) 12 Exams/Swotvac hours (30/5/11-24/6/11) 21 External hours.

Required Reading: No required reading for this unit.

Assessment: Practicum, Supervised placement comprising successful completion of required 133 hours with at least 90% attendance (hurdle requirement), Pass/Fail. Other, Clinic manual or folio reporting completion of negotiated hours, observations and clinical activities (hurdle requirement). Requirements in the manual, Pass/Fail. Other, Reflective piece (hurdle requirement)., Pass/Fail.

HHU3274 CLINICAL PRACTICUM 4

Locations: St Albans, Footscray Park, City Flinders.

Prerequisites: HHU3173 - CLINICAL PRACTICUM 3

HHO3174 - OSTEOPATHIC SCIENCE 5

Description: Attendance at University clinics, external clinics and field clinics to treat patients. Discuss and reflect on patient case management under supervision by registered osteopaths.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Manage patient consultations in co-operation with the clinical supervisor, identifying the presenting problem, developing a basic working diagnosis and selecting a treatment regime that considers the presenting problem with some consideration for ethical, practical and pragmatic concerns; Develop patient management plans with consideration of prognoses, that reflect on the patient s problem generally including some lifestyle factors; Undertake supervised treatments that utilises the skills developed thus far within a reasonable time and includes the principles of practitionership and utilises the input of clinical supervisors; Include junior students in the information collection, recording and delivery of the treatment; Reflect on the personal and professional limitations seeking advice from supervisors, lecturers, peers, the internet and other sources to assist with the management of a case. This may include discussing co-treatment protocols or specialist referral if appropriate with the supervising clinician; Maintain legal patient histories, write basic referral letters and recognise the need of further referral in conference with clinical supervisor and peers; Discuss common exercise prescriptions and their use in the management of a patient s complaint; Discuss, demonstrating a high level of understanding, the relationship between treatment and prognosis.

Class Contact: Sixty (60) hours for one semester comprising supervised clinical placement.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Practicum, Completion of 111 hours clinical placement in the university teaching clinics, Pass/Fail. Practicum, Completion of required clinical activities, Pass/Fail. Examination, 90 minute combined oral/practical Objective Structured Clinical Examination (OSCE) format, Pass/Fail. Practicum, Completion of 5 hours clinical placement in a health care practice setting, Pass/Fail. Supervised placement comprising successful completion of required (116) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (formative assessment/hurdle requirement). Successful completion of negotiated clinical activities (observations, treatments, co-treatments and other) performed and recorded as outlined in the Unit Of Study Outline (minimum 1500 words total) (hurdle requirement); one 90-minute combined practical and oral examination (OSCE format) (pass/fail) (hurdle requirement).

HHU3276 CLINICAL PRACTICUM 6

Locations: St Albans, City Flinders.

Prerequisites: HHD3174 - CLINICAL DIAGNOSIS & MANAGEMENT 4

HHO3175 - OSTEOPATHIC SCIENCE 5

HHY3174 - PATHOLOGY 4

HHU3175 - CLINICAL PRACTICUM 5

Description: Attendance at University clinics, external clinics and field clinics to treat patients, discuss and reflect on patient case management under supervision by registered osteopaths.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Manage a patient consultation in co-operation with the clinical supervisor, identifying the presenting problem, developing a basic working diagnosis and selecting a treatment regime that considers the presenting problem with some consideration for ethical, practical and pragmatic concerns; Develop a management plan and considering a prognosis that reflects on the patient's problem generally including some lifestyle factors; Undertake a supervised treatment that utilises the skills developed thus far within a reasonable time and includes the principles of practitionership and utilises the input of supervisors; Reflect on the personal and professional limitations seeking advice from supervisors, lecturers, peers, the internet and other sources to assist with the management of a case. This may include discussing co-treatment protocols or specialist referral if appropriate with the supervising clinician; Maintain legal patient histories, write basic referral letters and recognize the need of further referral in conference with Clinical Supervisor and peers; Discuss, showing a high level of understanding, common exercise prescriptions and their use in a case; and Discuss, showing a high level of understanding, the sequelae of treatment and advise the patient of this.

Class Contact: A minimum of one hundred and twenty (120) hours in an approved direct patient care clinical setting (VU Osteopathy Clinic) normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance. The breakdown of the hours is: 10 Winter clinic hours (27/06/11 - 22/07/11) 65 Semester hours (5hr/week for 13 weeks) 12 Exams/Swotvac hours (24/10/11-18/11/10) 33 External hours.

Required Reading: No required texts for this unit.

Assessment: Supervised placement comprising successful completion of required (120) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); forty (40) patient observations recorded in the manner outlined in the Clinical manual (hurdle requirement); one 30-minute vive voce examination (pass/fail) (hurdle requirement); one 90-minute combined practical and oral examination (OSCE format) (pass/fail) (hurdle requirement).Practicum, OSCE, Pass/Fail. Practicum, Completion of required clinical hours, Pass/Fail. Practicum, Completion of required patient observations, Pass/Fail.

HHU4185 CLINICAL PRACTICUM 5

Locations: St Albans, Footscray Park, City Flinders.

Prerequisites: HHU3274 - CLINICAL PRACTICUM 4

HHO3275 - OSTEOPATHIC SCIENCE 6

Description: Supervised clinical practice at the VU St Albans, Footscray and Flinders Lane clinics and VU approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought from a holistic perspective is reinforced through case conferencing. Field visits to health care facilities are required.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Perform a patient consultation in co-operation with the clinical supervisor, identifying the presenting problem, formulating a basic working diagnosis and implementing an appropriate treatment regime with some consideration for ethical, practical and pragmatic concerns;
- Develop a management plan including some lifestyle factors, in co-operation with the clinical supervisor and identify a prognosis that reflects the patients problem;
- Perform a supervised treatment with the skills developed thus far within a reasonable time, including the principles of practitionership, and utilises the clinical supervisors input;
- Mentor junior students in the information collection, recording and delivery of the treatment;
- Reflect on personal and professional limitations, seeking advice from supervisors, lecturers, peers, the internet, and other sources to assist with the management of a patient. This may include discussing co-treatment protocols or specialist referral (if appropriate) with the clinical supervisor;
- Maintain legal (accurate, clear and legible) patient histories, write basic referral letters and recognise the need of further referral in conference with clinical supervisor and peers;
- Identify common exercise prescription and their clinical use and communicate these with patients in a clinical setting;
- Evaluate the use of over-the-counter medicines and heat and ice compresses in the management of a patient.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and clinic classes and one hundred and three (103) hours for one semester of supervised clinicals. The VU Osteopathy Clinic runs during Swot Vac, Exams and Holidays, thus during the semester students undertake 3 hours of lectures/clinic classes 5 hours of supervised clinicals During holidays/Swot Vac/Exams students will undertake 5-10 hours per week of supervised clinicals.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Other, Completion of required clinical placement hours, Pass/Fail. Other, Completion of required clinical activities (listed below), Pass/Fail. Other, Completion of one (1) Return Patient CP, Pass/Fail. Test, One Short Answer Quiz, Pass/Fail. Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).

Overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion and recording of negotiated clinical activities (treatments, observations and co-treatments) as outlined in the Unit of Study Outline (pass/fail) (hurdle requirement); formative assessment of one return patient CP (hurdle requirement). One short answer quiz during lecture time within semester.

HHU4187 CLINICAL PRACTICUM 7

Locations: St Albans, City Flinders.

Description: Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought from a holistic perspective is reinforced through case conferencing. Field visits to health care facilities as required. This unit is presented in conjunction with HHO4187 Osteopathic Science 7.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Manage a patient consultation in co-operation with the clinical supervisor, identifying the presenting problem, developing a basic working diagnosis and selecting a treatment regime that considers the presenting problem with some consideration for ethical, practical and pragmatic concerns; Develop a management plan, generally including some lifestyle factors, in co-operation with the Clinical Supervisor and consider a prognosis that reflects on the patient's problem; Undertake a supervised treatment that uses the skills developed thus far within a reasonable time, includes the principles of practitionership, and utilises the supervisors' input; Include junior students in the information collection, recording and delivery of the treatment; Reflect on their personal and professional limitations, seeking advice from supervisors, lecturers, peers, the internet, and other sources to assist with the management of a case. This may include discussing co-treatment protocols or specialist referral if appropriate with the supervising clinician; Maintain legal (accurate, clear and legible) patient histories, write basic referral letters and recognize the need of further referral in conference with Clinical Supervisor and peers; Discuss a) common exercise prescriptions and their clinical use, and b) the sequelae of treatment and how to advise different sorts of patients of such. Consider the use of over-the-counter medicines, and heat and ice compresses in the management of a patient.

Class Contact: Total hours for the unit is one hundred and fifty nine (159). A minimum of one-hundred and forty seven (147) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance. Attendance at a one (1) hour per week for 12 weeks clinical tutorial class during the university semester. The breakdown of the hours is: 60 Hours summer clinic (22/11/10-25/2/11) 65 Semester hours (5hr/week for 12 weeks) 12 Hours of clinic tutorial class (during semester) 12 Exams/Swotvac hours (30/5/11-24/6/11) 10 External hours.

Required Reading: No required reading for this unit.

Assessment: Practicum, Supervised placement comprising successful completion of required (147) clinical hours (pass/fail) (hurdle requirement), Pass/Fail. Other, Completion including documentation of fifty (50) clinical consultations recorded in the manner outlined in the Clinical manual (pass/fail) (hurdle req, Pass/Fail. Other, Reflective learning tasks as described in the Clinical manual (hurdle requirement), Pass/Fail. Other, Attendance at the clinic tutorial class, Pass/Fail.

HHU4286 CLINICAL PRACTICUM 6

Locations: St Albans, Footscray Park, City Flinders, Other.

Prerequisites: HHU4185 - CLINICAL PRACTICUM 5

HHO4187 - OSTEOPATHIC SCIENCE 7

Description: Supervised clinical practice at the VU St Albans, Footscray and Flinders Lane clinics and VU-approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought process from a holistic perspective is reinforced through case conferencing with peers and clinical supervisors. Field visits to health care facilities as required.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- perform a patient consultation identifying the problem, applying a working diagnosis and performing a treatment regime that considers the presenting problem in the entirely with consideration for ethical, practical and pragmatic concerns;
- formulate and apply a management plan and prognosis which sets short, medium and long term goals, and takes into account all aspects of the patient s problem including lifestyle factors;
- perform a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of practice management;
- mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment;
- recognise their personal and professional limitations seeking advice from supervisors, lecturers, the internet and other sources to assist with the management of a case. This may include co-treatment protocols or special referral if appropriate;
- maintain legal (accurate, clear and legible) patient clinical histories; write clear and accurate referral letters, requests for special examinations and basic medico-legal reports;
- incorporate evidence in clinical practice including evidence-based clinical practice guidelines and the use of evidence in clinical decision-making;
- demonstrate and communicate rehabilitative exercise programs for the most common conditions, including strapping and taping techniques for sports injuries, and common orthopaedic surgical procedures and likely after-effects.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and clinic classes and one hundred and sixteen (116) hours for one semester of supervised clinic placement. The VU Osteopathy Clinic runs during Swot Vac, Exams and Holidays, thus during the semester students undertake 3 hours of lectures/clinic classes 5 hours of supervised clinicals During holidays/Swot Vac/Exams students will undertake 5-10 hours per week of supervised clinicals.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Other, Completion of required clinical placement hours, Pass/Fail. Other, Completion of required clinical activities (see below), Pass/Fail. Test, One short answer quiz, Pass/Fail. Examination, One combined oral and practical examination (OSCE, Pass/Fail. Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).

Supervised placement comprising successful completion of required (116) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion and recording of negotiated clinical activities (treatments, observations and co-treatments) as outlined in the Unit of Study Outline (pass/fail) (hurdle requirement); formative assessment

HHU4288 CLINICAL PRACTICUM 8

Locations: St Albans, City Flinders.

Prerequisites: HHU4187 - CLINICAL PRACTICUM 7

Description: Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought from a holistic perspective is reinforced through case conferencing. Field visits to health care facilities as required. This unit is presented in conjunction with HHO4288 Osteopathic Science 8.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Manage a patient consultation identifying the problem, developing a working diagnosis and selecting a treatment regime that considers the presenting problem in the entirely with consideration for ethical, practical and pragmatic concerns; Develop a management plan and prognosis which sets short, medium and long term goals, and takes into account all aspects of the patient's problem including lifestyle factors; Undertake a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of running a practice; Mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment; Acknowledge their personal and professional limitations seeking advice from supervisors, lecturers, the internet and other sources to assist with the management of a case. This may include co-treatment protocols or special referral if appropriate; Maintain legal (accurate, clear and legible) patient histories; write clear and accurate referral letters, requests for special examinations and basic medico-legal reports; Incorporate evidence in clinical practice including evidence-based clinical practice guidelines and the use of evidence in clinical decision-making; Discuss rehabilitative exercise programs for the most common conditions, including strapping and taping techniques for sports injuries, and common orthopaedic surgical procedures and likely after-effects.

Class Contact: Total hours for the unit are one hundred and twenty-five (125). A minimum of one hundered and thirteen (113) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance. The breakdown of the hours is: 20 Hours winter clinic (27/06/11 - 22/07/11) 65 Semester hours (5hr/week for 13 weeks) 12 Hours of clinic tutorial class (during semester) 12 Exams/Swotvac hours (24/10/11-18/11/11) 20 External hours.

Required Reading: No required texts for this unit.

Assessment: Supervised placement comprising successful completion of required (113) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion including documentation of fifty (50) clinical consultations recorded in the manner outline in the Clinical manual (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); reflective learning tasks as outlined in the Clinical manual (hurdle requirement); one practical clinical examination (pass/fail) (hurdle requirement).Practicum, Completion of required supervised placement hours, Pass/Fail. Practicum, Completion of required clinical consultations, Pass/Fail. Practicum, Completion of an observed clinical consultation, Pass/Fail. Other, Attendance at a weekly clinic tutorial class during semester, Pass/Fail.

HHU5187 CLINICAL PRACTICUM 7

Locations: St Albans, Footscray Park, City Flinders.

Prerequisites: HHU4286 - CLINICAL PRACTICUM 6

HHO4288 - OSTEOPATHIC SCIENCE 8

Description: Supervised clinical practice at the VU St Albans, Footscray Park and Flinders Lane clinics and VU approved external agencies to improve knowledge, skill and attitudes in the diagnosis, treatment and management of patients presenting at the university clinic. Clinical thought from a holistic perspective is reinforced though case conferencing with written and oral presentations to peers. Advanced skills in dealing with difficult and problematic cases, and advanced investigative skills (radiological, medical) are also included. Field visits to health care facilities as required.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Perform a patient consultation identifying the problem, developing a working diagnosis and selecting a treatment regime that considers the presenting problem in the entirety with consideration for ethical, practical and pragmatic concerns; Develop a management plan and prognosis that sets short, medium and long term goals and takes into account all aspects of the patient s problem including lifestyle factors; Perform a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and included the principles of practitionership and the basics of practice management; Employ the use of mentoring with junior students and include those students in the treatment planning, assessment and delivery of the treatment; Reflect on the personal and professional limitations seeking advice from supervisors, lecturers, the internet, and other sources to assist with the management of a case. This may include co-treatment protocols or specialist referral if appropriate; Maintain legal (accurate, clear, legible) patient clinical histories, write clear and accurate referral letters, requests for special examinations and basic medico-legal reports; Evaluate and use evidence in clinical practice including evidence-based practice, evidence to support clinical decision making and justify the use of evidence in contemporary practice. Demonstrate and communicate rehabilitative exercise programs for the most common musculoskeletal conditions, strapping and taping techniques for sports injuries, common orthopaedic surgical procedures and likely after-effects.

Class Contact: Twelve (12) hours for one semester comprising lectures and two hundred and five (205) hours for one semester comprising clinical placement. The VU Osteopathy Clinic runs during Swot Vac, Exams and Holidays, thus during the semester students undertake 1 hour of lectures 10 hours of supervised clinicals During holidays/Swot Vac/Exams students will undertake 5-10 hours per week of supervised clinicals.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Other, Completion of required clinical hours, Pass/Fail. Other, Completion of required clinical activities (see below), Pass/Fail. Other, Combined Oral and Practical Examination (OSCE), Pass/Fail. Other, One Short Answer Quiz, Pass/Fail. Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).

Supervised placement comprising successful completion of required (205) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion and recording of negotiated clinical activities (treatments, observations and co-treatments) as outlined in the Unit of Study Outline (pass/fail) (hurdle requirement); 45 minute return patient CP as formative assessment (hurdle requirement)

HHU5189 CLINICAL PRACTICUM 9

Locations: St Albans, City Flinders.

Prerequisites: HHU4288 - CLINICAL PRACTICUM 8

Description: Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies to improve knowledge, skills and attitudes in the diagnosis, treatment and management of patients presenting at clinic. Clinical thought from a holistic perspective is reinforced through case conferencing with written and oral presentations to peers. Advanced skills in dealing with difficult and problematic cases, and advanced investigative skills (radiological, medical) are also included. Field visits to health care facilities as required.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Manage a patient consultation identifying the problem, developing a working diagnosis and selecting a treatment regime that considers the presenting problem in the entirety with consideration for ethical, practical and pragmatic concerns; Develop a management plan and prognosis that sets short, medium and long term goals, and takes into account all aspects of the patient s problem including lifestyle factors; Undertake a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of running a practice; Mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment; Reflect on the personal and professional limitations seeking advice from supervisors, lecturers, the internet, and other sources to assist with the management of a case. This may include co-treatment protocols or specialist referral if appropriate; Maintain legal (accurate, clear, legible) patient histories, write clear and accurate referral letters, requests for special examinations and basic medico-legal reports; Evaluate and use evidence in clinical practice including evidence-based practice, evidence to support clinical decision making and justify the use of evidence in contemporary practice; Apply exercise programs for most common conditions, strapping and taping techniques for sports injuries, common orthopaedic surgical procedures and likely after-effects.

Class Contact: Total hours for the unit is two hundred and nineteen (219). Two hundred and seven hours (207) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). One (1) hour per week for 12 weeks as the clinic tutorial class. Clinical placement has a hurdle requirement of at least 90% attendance. The breakdown of the hours is: 60 Hours summer clinic (22/11/10-25/2/11) 130 Semester hours (10hr/week for 13 weeks) 12 Hours of clinic tutorial class (during semester) 12 Exams/Swotvac hours (30/5/11-24/6/11) 5 External hours.

Required Reading: No required reading for this unit.

Assessment: Practicum, Supervised placement comprising successful completion of required (207) clinical hours, Pass/Fail. Other, Overall satisfactory report(s) from clinical placement(s) (hurdle requirement); completion incl. documentation of eighty-five (85) patients, Pass/Fail. Other, Reflective learning tasks as outlined in the Clinical manual, Pass/Fail. Examination, Satisfactory grade achieved on all Objective Structured Clinical Examination (OSCE) stations during the Semester 1 examination period, Pass/Fail. Other, Attendance at clinic tutorial class, Pass/Fail.

HHU5280 CLINICAL PRACTICUM 10

Locations: St Albans, City Flinders.

Prerequisites: HHU5189 - CLINICAL PRACTICUM 9

Description: Supervised clinical practice at the VU St Albans and Flinders Lane clinics and VU-approved external agencies. Further advancement of skills in medical and osteopathic diagnosis, ethics and business practice, advanced technique skills, and total case management. Reinforcement of integrated clinical thought from a holistic perspective via case conferencing to discuss cases and prepare for the final clinical practicum exam; written and oral presentations to peers; tutorials on advanced skills in dealing with difficult and problematic cases; and in advanced investigative skills (radiological, medical). Field visits to health care facilities and external agencies.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Competently demonstrate a full range of osteopathic techniques; Competently demonstrate a wide range of clinical and patient management skills; Take primary responsibility for patient care from the earliest stage of their practice careers; Devise integrated case management plans for patients, incorporating preventive care strategies; Communicate effectively with other health and legal professionals, both verbally and in writing; Explain the business skills required to run an osteopathic practice. In particular, students should display the following skills: Manage a patient consultation identifying the problem, developing a working diagnosis and selecting a treatment regime that considers the presenting problem in the entirety with consideration for ethical, practical and pragmatic concerns; Develop a management plan and prognosis that sets short, medium and long term goals, and takes into account all aspects of the patient s problem including lifestyle factors; Undertake a supervised treatment that uses the wide variety of skills developed thus far within a reasonable time, and includes the principles of practitionership and the basics of running a practice; Mentor junior students and include these students in the treatment planning, assessment and delivery of the treatment; Evaluate the personal and professional limitations when seeking advice from supervisors, lecturers, the internet, and other sources to assist with the management of a case. This may include co-treatment protocols or specialist referral if appropriate; Maintain legal (accurate, clear and legible) patient histories, write clear and accurate referral letters, requests for special examinations and basic medico-legal reports; Communicate the working diagnosis, management plan, proposed referrals, contraindications and treatment risks clearly and concisely to the patient and supervisor; Evaluate and use evidence in clinical practice including evidence-based practice, evidence to support clinical decision making and evidence in contemporary practice; Plan and implement exercise programs for most common conditions, strapping and taping techniques for sports injuries, common orthopaedic surgical procedures and the likely after-effects, and the difference between the application of indirect and direct techniques in the patient setting.

Class Contact: A minimum of two-hundred and nineteen (219) hours in an approved direct patient care clinical setting normally spread across the operating weeks of the clinic for that semester (hurdle requirement). Clinical placement has a hurdle requirement of at least 90% attendance.

Required Reading: Evidence-based management of acute musculoskeletal pain. (2003). Available from NHMRC Website, www.nhmrc.gov.au/publications/_files/cp94.pdfSchool of Health Sciences. (2006). Master of Health Science - Osteopathy clinical manual. Melbourne, Australia: Victoria University, School of Health Sciences, Osteopathy Unit.Electronic mediaFor information on the conditions for osteopaths and other health professionals who provide treatment to veterans and charge the Department of Veterans Affairs (DVA), visit the DVA Website, http://www.dva.gov.auFor information on the rules and guidelines for registration as an osteopath within Australia, visit the Osteopaths Registration Board of Victoria Website, http://www.osteoboard.vic.gov.auFor information on resources for providers of health services to patients covered by Transport Accident Corporation (TCA), visit the TAC Website, http://www.tac.vic.gov.au/jsp/content/For information on workplace injuries, visit the Workcover Website, http://www.workcover.vic.gov.au

Assessment: Supervised placement comprising successful completion of required (219) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion including documentation of eighty-five (85) clinical consultations recorded in the manner outlined in the Clinical manual (pass/fail) (hurdle requirement); reflective learning tasks as outlined in the Clinical manual (hurdle requirement); one practical clinical examination (pass/fail) (hurdle requirement); one 2-hour final written examination (pass/fail) (hurdle requirement).

HHU5288 CLINICAL PRACTICUM 8

Locations: St Albans, Footscray Park, City Flinders.

Prerequisites: HHU5187 - CLINICAL PRACTICUM 7

HHO5189 - OSTEOPATHIC SCIENCE 9

Description: Supervised clinical practice at the VU St Albans, Footscray and Flinders Lane clinics and VU approved external agencies. Further advancement of skills in medical and osteopathic diagnosis, ethics and business practice, advanced technique skills, and total case management. Reinforcement of integrated clinical thought from a holistic perspective via case conferencing to discuss cases and clinical practicum lecture. Written and oral presentations to peers; tutorials on advanced skill in dealing with difficult and problematic cases and in advanced investigative skill (radiological, medical). Field visits to health care facilities and external agencies.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Demonstrate, in a competent manner, the application of a full range of osteopathic techniques;
2. Demonstrate, in a competent manner, the application of a wide range of clinical and patient management skills;
3. Demonstrate the ability to take primary responsibility for patient care from the earliest stage of their practice careers;
4. Prepare integrated case management plans for patients, incorporating preventative care strategies;
5. Communicate effectively with other health and legal professionals, both verbally and in writing, incorporating third party providers;
6. Explain and demonstrate the business skills required to run an osteopathic practice.

Class Contact: Two hundred and twenty two (222) hours for one semester comprising lectures and clinical placement hours. The VU Osteopathy Clinic runs during Swot Vac, Exams and Holidays, thus during the semester students undertake 1 hour of lectures 10 hours of supervised clinicals During holidays/Swot Vac/Exams students will undertake 5-10 hours per week of supervised clinicals.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Practicum, Completion of required clinical placement hours, Pass/Fail. Practicum, Completion of required clinical activities (see below), Pass/Fail. Practicum, One 90 Minute New Patient Examination (formative), Pass/Fail. Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).

Supervised placement comprising successful completion of required (210) clinical hours (pass/fail) (hurdle requirement) and overall satisfactory report(s) from clinical placement(s) (pass/fail) (hurdle requirement); completion and recording of negotiated clinical activities (treatments, observations and co-treatments) as outlined in the Unit of Study Outline (pass/fail) (hurdle requirement) 90 minute New patient CP as formative assessment (hurdle requirement)

HHX4282 DIAGNOSTIC IMAGING 2

Locations: City Flinders.

Prerequisites: HHX4181 - DIAGNOSTIC IMAGING 1

Description: This unit extends the reading of radiographs, and includes an introduction to other methods of diagnostic imagery, to enable the diagnosis of primary and secondary tumours, tumour-like disorders, metabolic, vascular and endocrine diseases.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Competently read radiographs and other diagnostic images, including ultrasound, CT and MRI, for the diagnosis and appropriate osteopathic management of primary and secondary tumours, tumour-like disorders, metabolic, vascular and endocrine diseases; Provide a list of relevant diseases which could produce the abnormalities identified on the diagnostic images.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: Yochum and Rowe's essentials of skeletal radiology. Yochum, T. R., &Rowe, L. R., (2005). (3rd ed.). Baltimore, MD. Lippincott, Williams & Wilkins.

Assessment: Report, 3 written reports (1000 words each), 30%. Other, Oral exam as part of OSCE, 30%. Examination, 2 hour written, 40%. The three written reports must satisfy the supplied comprehensive criteria for examining the possible range of diagnostic images and also include a brief summary which is focussed on the specific images used.

HHX5183 DIAGNOSTIC IMAGING 3

Locations: City Flinders.

Prerequisites: HHX4282 - DIAGNOSTIC IMAGING 2

Description: A review of pathologies by region, namely skull, cervical thoracic and lumbar spine, chest, abdomen including fetal screening, pelvis, hip and upper and lower limb using all commonly used imaging modalities.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Distinguish normal anatomy from pathological changes in typical and atypical presentations in all commonly used imaging modalities. Identify pathological changes associated with particular typical and atypical disease states in all commonly used imaging modalities. Determine when diagnostic images are clinically indicated and identify the most appropriate imaging modality.Interpret typical and atypical diagnostic images in a clinical setting. Integrate typical and atypical diagnostic images with other clinical information to guide clinical decision making. Extend and consolidate previously assimilated knowledge.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorial/workshops.

Required Reading: Yochum and Rowe's essentials of skeletal radiology. Yochum, T.R., & Rowe, L.R. (2005). (3rd ed.). Baltimore, MD. Lippincott, Williams, & Wilkins.

Assessment: Report, 3 written reports (1000 words each), 30%. Other, Oral examination as part of OSCE, 30%. Examination, 1 hour written examination, 40%. The three written reports must satisfy the supplied comprehensive criteria for examining an example of an Ultrasound, CT Scan and MRI and also include a brief summary which is focussed on the specific images used.

HHY1271 PATHOLOGY 1

Locations: City Flinders.

Prerequisites: HHA1171 - ANATOMY 1

HHP1170 - CELL PHYSIOLOGY

Description: The unit content consists of two modules: Module 1: Introduction to Pathology This module will include an introduction to cell injury; acute and chronic inflammation; mechanisms of tissue repair; immunology; abnormalities of blood supply including ischemia, thrombosis, DIC, circulatory failure and atherosclerosis; infection; neoplasia and oedema. Module 2 Introduction to Microbiology: This module will include an introduction to: microbial structure, categories of infective agents, normal flora, the major pathogens, transmission of infection, sterilization and disinfection, host and microbe interactions.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Accurately use the vocabulary of basic pathology; Describe how cells respond to stress; Explain the macroscopic manifestations of acute and chronic inflammation in terms of the microscopic events occurring in the tissues including cellular, vascular, and biochemical events; Describe the long-term effects of chronic inflammation on affected tissues; Describe the basic cellular events occurring during the repair of skin trauma; Explain the pathogenesis and describe the key features of the basic types of hypersensitivity; Recognise the pathological processes that can cause ischaemia and thrombosis, and discuss the complications of ischaemia and thrombosis; Describe the pathophysiological mechanisms of circulatory failure, including shock; Describe the factors involved in the development of infectious disease both from the perspectives of the pathogen and from the host; Describe the defining features of malignant and benign neoplasia, at both macroscopic and microscopic levels; Describe the types of oedema and discuss the pathophysiological mechanisms underpinning each type. Identify structures within human cells; Describe in detail cell structures and their respective functions; Integrate biological information at the chemical and cellular levels; Discuss basic microbiology with respect to broad categories of pathogenic organisms; Explain the spread and transmission of infectious agents; Explain host-microbe interactions and how microbes cause disease; Justify the importance of sterilization and disinfection; Conduct sterilization and disinfection procedures to a level required for a clinical environment.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials and laboratories.

Required Reading: Dorland's illustrated medical dictionary. Dorland, W. A. N. (2007). (31st ed.). Saunders. HHY1271 Pathology 1 manual. Kiatos, J. (2011). Melbourne, Australia: Victoria University, School of Biomedical and Health Sciences, Osteopathy Unit. Robbins & Cotran pathologic basis of disease. Kumar, V., Abbas, A. K., & Fausto, N. Aster J., (2009). (8th ed.). Saunders.

Assessment: All items below are hurdle requirements for satisfactory completion of this unit.Examination, Written Test, 15%. Examination, End of semester written examination, 55%. Laboratory Work, Laboratory reports and short tests, 30%.

HHY2172 PATHOLOGY 2

Locations: City Flinders.

Prerequisites: HHD1271 - CLINICAL DIAGNOSIS & MANAGEMENT 1

HHY1271 - PATHOLOGY 1

HHA1272 - ANATOMY 2

Description: Common and life-threatening diseases affecting the haematological, cardiovascular, respiratory and renal systems will be discussed. Particular emphasis will be given to conditions that are of special interest to osteopaths, in Australia.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the pathological processes and describe their manifestations in the haematological, cardiovascular, respiratory and renal systems; Discuss the development of the pathological process through dysfunction to disease in the haematological, cardiovascular, respiratory and renal systems; Discuss the causes or risk factors associated with common and serious haematological,cardiovascular, respiratory and renal diseases, and describe how those causes or risk factors are determined; Describe the clinical presentations of common and serious haematological, cardiovascular, respiratory and renal diseases, including those diseases notifiable in Australia; Explain the allopathic medical approach to diagnosis, prognosis and principles of management, and the evidential basis for this approach; Distinguish amongst common life-threatening haematological, cardiovascular, respiratory and renal conditions, including recognising problems that require referral to other health care practitioners; Offer preventative health advice about common and serious haematological, cardiovascular, respiratory and renal diseases.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: Reading material will be negotiated in consultation with the unit coordinator and will be appropriate to the topic under investigation.

Assessment: Examination, 2 hour written examination, 80%. Other, weekly tutorial questions, 20%.

HHY2273 PATHOLOGY 3

Locations: City Flinders.

Prerequisites: HHY2172 - PATHOLOGY 2

HHA2173 - ANATOMY 3

HHD2172 - CLINICAL DIAGNOSIS & MANAGEMENT 2

HHP2172 - PHYSIOLOGY 2

Description: Common and life-threatening diseases affecting the gastrointestinal, genitourinary and endocrine systems will be discussed. Particular emphasis will be given to conditions that are of special interest to osteopaths in Australia.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain with confidence the manifestations and causes of common and serious gastrointestinal, genitourinary and endocrine diseases and describe how the causes or risk factors are determined ; Discuss the development of the pathological process through dysfunction to disease in the gastrointestinal, genitourinary and endocrine systems; Describe the clinical presentations of common and serious gastrointestinal, genitourinary and endocrine diseases, including those diseases notifiable in Australia; Distinguish amongst common life-threatening gastrointestinal, genitourinary and endocrine conditions, including recognising problems that require referral to other health care practitioners; Offer preventative health advice about common and serious gastrointestinal, genitourinary and endocrine diseases; Explain the concepts of evidence-based medicine.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: As no texts appropriate to the content of this unit are currently available, suitable reading material will be provided by the unit coordinator.

Assessment: Other, Weekly tutorial questions, 20%. Examination, 2-hour written examination, 80%.

HHY3174 PATHOLOGY 4

Locations: St Albans, City Flinders.

Prerequisites: HHY2273 - PATHOLOGY 3

Description: Content will include an introduction to the following conditions affecting the joints and connective tissues of the body: bone fractures and their healing; osteomyelitis; osteoporosis; osteomalacia; Paget's disease; fibrous dysplasia; Osteogenesis Imperfecta; osteoarthritis; hypertrophic osteoarthropathy; degenerative disease of the intervertebral disc; acute I/V disc herniation; rheumatoid disease; ankylosing spondylitis; Reiter's disease; psoriatic arthritis; enteropathic arthritis; gout; CPPD deposition disease; systemic lupus erythematosus; progressive systemic sclerosis; polymyositis; dermatomyositis polymyalgia rheumatica; mixed connective tissue disease. Common and life-threatening diseases will be highlighted. Particular emphasis will be given to conditions that are of special interest to osteopaths in Australia.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain with confidence the manifestations and causes of common and serious diseases of the joints and connective tissues of the human body; Discuss the development of the pathological process through dysfunction to disease evident in joints and connective tissues; Discuss the causes or risk factors associated with common and serious joint diseases, and describe how those causes or risk factors are determined; Describe the clinical presentations of common and serious diseases affecting joints and connective tissues, including the diseases of note in Australia; Discuss the complications, diagnoses and basic treatments of conditions affecting joints and connective tissues; Distinguish amongst common life-threatening orthopaedic and rheumatology conditions, including recognising problems that require referral to other health care practitioners.

Class Contact: Two (2) hours per week or equivalent for one semester comprising lectures and tutorials.

Required Reading: Kumar, V., Abbas, A. K., & Fausto, N. (2004). Robbins and Cotran's pathological basis of disease (7th ed.). Elsevier Science.Newman Dorland, W. A. (2003). Dorland's illustrated medical dictionary (30th ed.). W. B. Saunders Co.

Assessment: One 45-minute written test (20%); one 2-hour written examination (80%).

HHY3274 PATHOLOGY 4 (NEUROPATHOLOGY)

Locations: City Flinders.

Prerequisites: HHY2273 - PATHOLOGY 3

Description: Introduction to aetiology, clinical presentation, diagnosis, treatments and epidemiology of conditions affecting the central and peripheral nervous systems: intracranial space occupying lesions; primary tumours of the CNS; cerebrovascular disease; CNS infections; demyelinating diseases of the CNS: multiple sclerosis; degenerative conditions of the CNS: Alzheimer's disease; Parkinson's disease; motor neuron disease; epilepsy; peripheral neuropathy polyneuropathy; myasthenia gravis; fibromyalgia.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use an expanded vocabulary in the area of pathology; Explain the aetiology, pathological stages, clinical picture, complications, and diagnosis of neurological diseases affecting the CNS and PNS; Discuss the basic treatments for neurological diseases affecting the CNS and PNS, and how those treatments might impact on the practising osteopath; Give a brief epidemiological profile of the CNS and PNS diseases, and especially any profiles relevant to the population in Australia.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: HHY3274 Pathology 4 unit manual. Kiatos, J. (2011). Victoria University, School of Biomedical and Health Sciences, Osteopathy Unit. Robbins and Cotran's pathological basis of disease. Kumar, V., Abbas, A.K., Fausto, N., & Aster, J. (2009). (8th ed.). Elsevier Science.

Assessment: Examination, Test Hurdle requirement), 20%. Examination, 2-hour written examination (Hurdle requirement), 80%.

HHY4185 PATHOLOGY 5 (RHEUMATOLOGY)

Locations: City Flinders.

Prerequisites: HHY3274 - PATHOLOGY 4 (NEUROPATHOLOGY)

Description: Content will include an introduction to the following conditions affecting the joints and connective tissues of the body: bone fractures and their healing; osteomyelitis; osteoporosis; osteomalacia; Paget's disease; fibrous dysplasia; osteoarthritis; hypertrophic osteoarthropathy; degenerative disease of the intervertebral disc; acute I/V disc herniation; rheumatoid disease; ankylosing spondylitis; Reiter's disease; psoriatic arthritis; enteropathic arthritis; gout; CPPD deposition disease; systemic lupus erythematosus; progressive systemic sclerosis; polymyositis; dermatomyositis polymyalgia rheumatica; mixed connective tissue disease. Common and life-threatening diseases will be highlighted.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain with confidence the manifestations and causes of common and serious diseases of the joints and connective tissues of the human body; Discuss the development of the pathological process through dysfunction to disease evident in joints and connective tissues; Discuss the causes or risk factors associated with common and serious joint diseases, and describe how those causes or risk factors are determined; Describe the clinical presentations of common and serious diseases affecting joints and connective tissues, including the diseases of note in Australia; Discuss the complications, diagnoses and basic treatments of conditions affecting joints and connective tissues; Distinguish amongst common life-threatening orthopaedic and rheumatology conditions, including recognising problems that require referral to other health care practitioners.

Class Contact: Twenty-four (24) hours for one semester comprising lectures and tutorials.

Required Reading: HHY4185 PATHOLOGY 5 (RHEUMATOLOGY) lecture and tutorial manual. Kiatos J. (2010). Robbins and Cotran's pathological basis of disease Kumar, V., Abbas, A. K., & Fausto, N. (2004). (7th ed.). Elsevier Science. Dorland's illustrated medical dictionary Newman Dorland, W. A. (2003). (31st ed.). W. B. Saunders Co.

Assessment: Examination, One 45-minute written test (Hurdle requirement), 20%. Examination, One 2-hour written examination (Hurdle requirement), 80%.

HHY4285 PATHOLOGY 5

Locations: St Albans.

Description: Introduction to aetiology, clinical presentation, diagnosis, treatments and epidemiology of conditions affecting the central and peripheral nervous systems: intracranial space occupying lesions; primary tumours of the CNS; cerebrovascular disease; CNS infections; demyelinating diseases of the CNS: multiple sclerosis; degenerative conditions of the CNS: Alzheimer's disease; Parkinson's disease; motor neuron disease; epilepsy; peripheral neuropathy polyneuropathy; myasthenia gravis; fibromyalgia.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use an expanded their vocabulary in the area of pathology; Explain the aetiology, pathological stages, clinical picture, complications, and diagnosis of neurological diseases affecting the CNS and PNS; Discuss the basic treatments for neurological diseases affecting the CNS and PNS, and how those treatments might impact on the practising osteopath; Give a brief epidemiological profile of the CNS and PNS diseases, and especially any profiles relevant to the population in Australia.

Class Contact: Twenty-four (24) hours or equivalent normally spread over one semester comprising lectures, tutorials and tutorials.

Required Reading: Kiatos, J. (2008). HHY4285 Pathology 5 unit manual. Victoria University, School of Biomedical and Health Sciences, Osteopathy Unit. Kumar, V., Abbas, A. K., & Fausto, N. (2004). Robbins and Cotran's pathological basis of disease (7th ed.). Elsevier Science.

Assessment: One 45-minute mid-semester test (20%); one 2-hour written examination (80%).

HOP5200 BIRTHING AND INFANT DEVELOPMENT

Locations: City Flinders.

Description: This unit examines embryology, foetal development, the birthing process, both via natural birth and caesarean section, and will have study the birth process, its possible complications and their effects. This will; include an investigation of common medical interventions in this process, including the use of drugs in pregnancy and labour, the physiological effects of different types of delivery - forceps, vacuum, caesarean section etc., and the potential risks and complications of birth trauma. It will also look at normal and abnormal neonatal development.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate detailed knowledge of foetal development and embryology. Demonstrate detailed knowledge of the birth process, its possible complications and their effects. Demonstrate detailed knowledge of common medical interventions in this process, including the use of drugs in pregnancy and labour, the physiological effects of different types of delivery - forceps, vacuum, caesarean section etc., and the potential risks and complications of birth trauma. Recognise and elucidate the normal stages of neonatal development in the immediate post-birth period.

Class Contact: Contact hours are purely nominal, as this is an online learning unit. The hours figure is a guideline only, and is based on an estimate of how long it would take a typical student to complete each part of the online content.

Required Reading: Manual Therapy in Children Bidermann H (ed) 1st, 2004 Churchill Livingstone Langman's Medical Embryology Sadler TW 10th 2006 Lippincott, Williams & Wilkins

Assessment: Examination, Online MCQ assessments X 2, 50%. Case Study, Patient case studies X 2, 50%.

HOP5201 NEONATAL AND INFANT ASSESSMENT

Locations: City Flinders.

Description: Assessment of the neonate and infant. Standard medical testing. APGAR scores. The Blue Book. Neonate and infant developmental milestones. Health assessment of the neonate and infant up to 2 years.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate detailed knowledge of the normal development of the neonate and infants up to the age of 2, and how this development is assessed and monitored. Demonstrate knowledge of the use of the "Blue Book," APGAR scores and other methods of assessing development. Demonstrate knowledge of normal developmental milestones and how to check for them. Select and perform appropriate assessment procedures for neonates and infants with an emphasis on palpatory manual examination.

Class Contact: The contact hours figure is nominal, as much of this unit will be delivered online, and the figure given is based on an estimate of how long it would take an average student to complete each part of the unit. There will also be 2 X 12 hour burst mode residentials held at VU to teach practical assessment skills.

Required Reading: Manual Therapy in Children Biedermann H (ed) 1st, 2004 Elsevier Infancy - Development from Birth to Age 3 Gross D 1st, 2008 Allyn & Bacon

Assessment: Assessment for this unit will involve the submission of a video-recorded neonatal or infant assessment of a patient of a patient form the student's own practice, Plus a practical assessment conducted in class during the second burst mode residentialPracticum, Practical test of assessment skills, Pass/Fail. Case Study, Vide-recorded patient assessment, Pass/Fail.

HOP5202 NEONATAL AND INFANT DIAGNOSIS

Locations: City Flinders.

Description: Common conditions encountered in the neonate and infant, and whether they are considered amenable to manual therapy management. Birth trauma. Plagiocephaly. Asymmetry. Feeding problems and failure to thrive. Sleep disorders. Gastro-intestinal disorders including infant colic. Signs, symptoms, causes and methods of assessment.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify, evaluate and clinically assess for the most common health conditions affecting the neonate and infant which are considered to be amenable to management by manual therapy. Recognise and differentiate the causative factors, pathophysiology and signs and symptoms of these conditions, including feeding problems and failure to thrive, sleep disorders and gastro-intestinal disorders including infant colic. Recognise key signs and symptoms of more serious conditions that require further investigation or referral, such as respiratory distress and infections. Construct and implement appropriate testing and clinical assessment protocols for common paediatric conditions.

Class Contact: As this unit will be taught online, the contact hours are nominal, and are based on an estimate of how long it would take the average student to complete each online component.

Required Reading: Clinical Paediatrics & Child Health Candy D et al 2001 Saunders Ltd. Manual Therapy in Children Biedermann H (ed) 1st, 2004 Churchill Livingstone.

Assessment: Assessment for this unit will consist of a mixture of online multiple choice tests and case reports on actual patients from the students' own practicesExamination, Online MCQ examinations X 2, 50%. Case Study, Case reports on actual clinical patients X 2, 50%.

HOP5203 NEONATAL AND INFANT MANAGEMENT

Locations: City Flinders.

Description: Management approaches for common paediatric conditions considered amenable to manual therapy. Includes liaison with other health practitioners, involvement of parents etc. Medico-legal and ethical considerations in the treatment of neonates and infants.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Use a broad range of manual therapy techniques to manage conditions common in the neonate and infant which are considered amenable to manual therapy management. These will include plagiocephaly, sleep and feeding disorders, infant colic etc. Adapt their existing technique skills as appropriate for use on paediatric patients Recognise and evaluate contraindications to manual therapy management of paediatric patients Identify and assess appropriately those paediatric patients who require referral and/or cooperative management involving medical practitioners or other paediatric health practitioners Identify, evaluate and resolve medico-legal and ethical issues relevant to the treatment and management of paediatric patients.

Class Contact: As part of this unit will be taught online, the hours are nominal, and act as a guide only. They are based on an estimate of the time required for an average student to complete the online part of the unit. In addition to the online study, there will be 2 X 12 hour burst mode residential sessions to be held at VU City Flinders Campus. These will cover practical techniques.

Required Reading: Manual Therapy in Children Biedermann H (ed) 1st, 2004 Churchill Livingstone Textbook of Paediatric Osteopathy Moeckel ER 1st, 2008 Churchill Livingstone.

Assessment: Assessment will use a mixture of case reports and practical assessment carried out at the end of the second burst mode residential.Practicum, Practical skills assessment, Pass/Fail. Case Study, Actual case reports X 2, Pass/Fail.

HOP5204 EARLY CHILDHOOD DEVELOPMENT

Locations: City Flinders.

Description: Early childhood development (from age 2 to puberty). Anatomical, physiological and cognitive development. Assessment of developmental milestones and common developmental abnormalities.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe childhood development from age 2 to puberty, including anatomical, physiological and cognitive development. Discuss how development is assessed in the child, including developmental milestones, standard medical and cognitive tests and how they are documented. Discuss the most common developmental abnormalities, both physical and cognitive, which occur in this age group and discuss their management in the orthodox health system.

Class Contact: This is an online learning unit. The hours stated are a guideline only. A minimum of 4 hours per week per semester.

Required Reading: Manual Therapy in Children Biedermann H (ed) 1st (2004) Churchill Livingstone Paediatric Manual Medicine Carreiro J 1st (2009) Churchill Livingstone Blackwell Handbook of Early Child Development McCartney K (ed) 2nd (2008) Wiley Blackwell.

Assessment: Test, Online MCQ assessments X 2, 50%. Assignment, patient case studies X 2 - 2000 words each, 50%.

HOP5205 COMMON CHILDHOOD CONDITIONS

Locations: City Flinders.

Description: Common conditions encountered in the child, and whether they are considered amenable to manual therapy management. Musculoskeletal developmental problems. Musculoskeletal trauma in the child. Autism and behavioural issues such as ADHD. Assessment and diagnosis.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the pathophysiology, epidemiology and presentations of common childhood conditions, including musculoskeletal conditions and developmental problems such as idiopathic scoliosis and Scheuermann's disease, musculoskeletal traumatic injuries such as fracture and sprain, and autism and behavioural problems such as ADHD. Discuss how to assess for common conditions, including knowing when further tests or medical/hospital referral is indicated. Discuss according to evidence, which conditions are amenable to management using manual therapy techniques.

Class Contact: This is an online learning unit. The hours stated are a guideline only. A minimum of 4 hours per week per semester.

Required Reading: Manual Therapy in Children Biedermann H (ed) 1st (2004) Churchill Livingstone Paediatric Manual Medicine Carreiro J 1st (2009) Churchill Livingstone Blackwell Handbook of Early Child Development McCartney K (ed) 2nd (2008) Wiley Blackwell

Assessment: Test, Online MCQ tests X 2, 50%. Assignment, Patient Case Studies X 2 - 2000 words each, 50%.

HOP5206 INTRODUCTION TO CLINICAL RESEARCH

Locations: City Flinders.

Description: Research. Introduction to research methods. Qualitative and quantitative research. Statistics and questionnaire design. Research Ethics. Issues specific to research in the paediatric field.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Critically read and evaluate published research in health field and specifically paediatric research Apply the principles of quantitative and qualitative research as applied to clinical research in the paediatrics field, including study design, basic statistics and development of questionnaires Write a proposal for clinical research including an ethics approval application.

Class Contact: This is an online learning unit. The hours stated are a guideline only. A minimum of 4 hours per week per semester.

Required Reading: Research Methods for Clinical Therapists: Applied Project Design and Analysis Hicks C 5th (2009) Churchill Livingstone How to Read a Paper: The Basics of Evidence-Based Medicine Greenhalgh T 3rd (2006) Wiley Blackwell.

Assessment: Hurdle requirement - submission of an Ethics application to the satisfaction of the supervisor(s).Project, Develop a proposal for a clinical research project - 3000 words, 100%.

HOP5207 MANAGEMENT OF COMMON CHILDHOOD CONDITIONS

Locations: City Flinders.

Description: Manual therapy management of common childhood conditions. Liaison with other health practitioners. Involvement of parents or Carers. Medico-legal and ethical considerations in the treatment of children. Adaptation and use of existing technique skills in the management of these conditions.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Recognise and assess childhood health conditions which are considered amenable to manual therapy Adapt and apply their existing technique skills as appropriate for use on paediatric patients Recognise and evaluate contraindications to manual therapy management of paediatric patients Identify and assess appropriately those paediatric patients who require referral and/or cooperative management involving medical practitioners or other paediatric health practitioners Identify and evaluate medico-legal and ethical issues relevant to the treatment and management of paediatric patients

Class Contact: The hours stated are a guideline only as far as the online learning component of this unit is concerned. A minimum of 4 hours per week per semester. In addition to the online study, there will be 2 X 12 hour burst mode residential sessions to be held at VU City Flinders Campus. These will cover clinical assessment and practical techniques. .

Required Reading: Manual Therapy in Children Biedermann H (ed) 1st (2004) Churchill Livingstone Paediatric Manual Medicine Carreiro J 1st (2009) Churchill Livingstone Paediatric radiology - clinical cases Prabhakar R & Shabani A 2008 PasTest Pub.

Assessment: Practicum, Practical skills assessment - 30 minutes per student, 50%. Assignment, Patient case studies X 2 - 2000 words each, 50%.

HSC1000 HOW LASERS WORK

Locations: City King Street, City Queen.

Description: This unit covers the fundamental of laser physics, the properties of laser, delivery systems and biological effects on the human tissue.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the properties of light. Discuss the different types of delivery systems in relation to safety. Discuss the biological effect of light and its interaction with tissue.

Class Contact: Twelve (12) hours for one semester comprising lectures and tutorials.

Required Reading: Guide to the safe use of lasers in health care stadards Australia AS/NZS 4173: 2004 (2004) 2nd ed Australian Standards.

Assessment: Examination, written exam (2 hours), 50%. Test, Five (5) online tests (each test 12 minutes duration), 50%.

HSC1001 LASER SAFETY STANDARDS

Locations: City King Street, City Queen.

Prerequisites: HSC1000 - HOW LASERS WORK

Description: This unit covers the Australian standards in laser safety in health care environment and relevant local government laws will be explained in relation to the use of cosmetic lasers.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss laser safety requirements as required by AS/NZS 4173: 2004. Explain the processes associated with light-based treatments. Explain the theories in relation to light-based treatment procedures in dermal therapies.

Class Contact: Twelve (12) hours for one semester comprising lectures and tutorials.

Required Reading: Guide to the safe use of lasers in health care standards Australia AS/NZS 4173: 2004 (2004). (2nd ed.). Standards Australia.

Assessment: Examination, exam, 50%. Test, 5 Online Tests (each test 12 minutes duration), 50%.

HSC1002 LASER SAFETY OFFICER DUTIES

Locations: City King Street, City Queen.

Description: This unit covers the Australian standards and relevant local government laws will be explained in relation to the duties of a Laser Safety Officer (LSO), laser safety committee in the health care profession where class 3a and class 4 lasers are used.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss laser safety officer duties as required by AS/NZS 4173: 2004. Discuss requirements of setting up laser safety committee as required by AS/NZS 4173: 2004.

Class Contact: Twelve (12) hours for one semester comprising lectures and tutorials.

Required Reading: Guide to the safe use of lasers in health care standards Australia AS/NZS 4173: 2004 (2004). 2nd ed Standards Australia.

Assessment: Assignment, Development of Laser Safety Protocol, 100%.

RBF1140 INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

Locations: St Albans.

Description: This unit provides students with an introduction to nutrition and food science. The unit comprises an introduction to the food industry, its components and organisation, both in Australia and internationally; the composition of foods, food processing and food safety; introduction to the preservation and processing of fruits and vegetables, grains and oilseeds, dairy products, meat, poultry, fish and beverages.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the food industry in Australia and overseas; Discuss the composition of foods, including food composition data; Explain the basic principles of food processing and the importance of food safety; Explain at an introductory level, preservation techniques for various food commodity groups.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorial/demonstrations.

Required Reading: Parker, R. (2003). Introduction to food science. Albany, USA: Delmar, Thomson Learning Inc.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Two assignments, 40%. Examination, one 3-hour written paper, 50%. Tutorial Participation, Tutorial exercises, 10%.

RBF1145 INTRODUCTION TO FOOD, NUTRITION AND HEALTH 2

Locations: Werribee.

Description: Principles of nutrition and nutritional aspects of various food commodities and their impact on health.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hours per week comprising of three h of lectures and one hour of tutorial/demonstration.

Required Reading: Parker, R., 2003, Introduction to Food Science, Delmar, Thomson Learning Inc. Albany, USA.

Assessment: Assignment (2x2000 words), 40%; Examination (1x3 hrs), 60%.

RBF1150 GLOBAL ENVIRONMENTAL ISSUES

Locations: Footscray Park.

Description: This unit highlights the various aspects of science through the use of practical and theoretical case studies. The unit concentrates on the pure and applied sciences and their relevance and applications to historical and contemporary global environmental issues. Students will be required to explore areas such as population regulation in key emerging economies; population growth momentum; environmental history and spectrum of environmental thought; environmental groups and their work; connections amongst social justice and environmental issues (eg., education levels, status of women, human rights, relative wealth); resource consumption, pollution and renewables in developing and developed countries; deforestation and biodiversity loss; water and soil resources; food production, biotechnology and appropriate agricultures; energy resources; chemical cycles including the greenhouse effect and ozone depletion; the roles of mathematics, physics, chemistry, biology, ecology and computing in global environmental issues. Topics will be developed within the context of risk management and ethical and moral frameworks.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: explain the interconnectedness amongst things and actions ; define terms commonly used in global environmental issues; discuss the breadth of coverage of subjects contributing to an appreciation of environmental issues; discuss the connections amongst actions and lifestyles in developed and less-developed countries; develop a sense of self-confidence in presentation of their ideas and tolerance toward others and the ideas of others; debate a variety of environmental issues; and critically examine their own life in relation to various environmental issues.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials.

Required Reading: Miller, G. T. (2002). Living in the environment (15th ed.). Belmont: Wadsworth.

Assessment: Case Study, Case Study and Assignments, 50%. Examination, Written, 50%. In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBF1170 CELL STRUCTURE AND FUNCTION

Locations: City Flinders.

Prerequisites: Nil

Description: This unit comprises two modules: Module 1: Eukaryotic cell; Module 2: Microbiology. The eukaryotic cell: the structure and function of organelles, in particular the cell membrane, smooth endo-plasmic reticulum, Golgi apparatus, cytoskeleton and nucleus. Processes include cell-cell interactions, production and packaging, cell motion, meiosis and mitosis. Microbiology: microbial structure, categories of infective agents, normal flora, introduction to the major pathogens, transmission of infection, sterilization and disinfection, host and microbe interactions.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify structures within human cells; Describe in detail cell structures and their respective functions; Integrate biological information at the chemical and cellular levels; Discuss basic microbiology with respect to broad categories of pathogenic organisms; Explain the spread and transmission of infectious agents; Explain host-microbe interactions and how microbes cause disease; Justify the importance of sterilization and disinfection; Conduct sterilization and disinfection procedures to a level required for a clinical environment.

Class Contact: Two (2) hours per week or equivalent for one semester comprising lectures and laboratory practicals. Practical sessions have a hurdle requirement of at least 90% attendance.

Required Reading: Nil.

Assessment: Participation in practical sessions with at least 90% attendance unless well-documented acceptable reasons are provided (hurdle requirement).Test, Tests and laboratory reports, 20%. Examination, 2.5-hour final written examination, 80%.

RBF2141 FOOD COMPONENTS AND INTERACTIONS

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

RCS1601 - CHEMISTRY 1A

RCS1602 - CHEMISTRY 1B

Description: Food constituents; water; structure, chemistry, stability and functional properties of proteins, carbohydrates, fats and oils, vitamins and minerals. Food colour, texture and flavour. Reactions leading to deterioration of foods: oxidative deterioration and rancidity, anti-oxidants, browning reactions; food additives, natural and synthetic colorants and flavouring agents; gels, colloids, foams and emulsions. This unit will also address the effects of processing on basic components and interactions amongst food components.

Credit Points: 0

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe and assess the structural and compositional features of food macromolecules; Predict the functional properties of food molecules based on their chemical properties; Recognise and evaluate the key chemical features of food systems; Develop novel food systems based on complex interactions of their main macromolecules.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures, tutorials and practise sessions.

Required Reading: Damodaran, S., Parkin, K., & Fennema, O. R. (2008). Fennema s food chemistry. Boca Raton, FL: CRC Press.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, 2000 words, 20%. Assignment, 2000 words, 20%. Examination, 3-hour, 60%.

RBF2210 NUTRITION AND FOOD ANALYSIS 1

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

RBF2410 - FOOD COMPONENTS

Description: This unit emphasises experimental techniques as applied to nutrition and food studies and the rationale for the various experimental procedures used in foods and nutrition. Topics will include: classifiable and instrumental methods of food analysis; principles and procedures for analysis of foods using HPLC, GC, UV/Vis, IR; statistical analysis in food analysis; analysis of macro and micronutrients of foods, method selection and development; food composition labelling; and analysis of colour, flavour and texture of foods.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Discuss and evaluate the principles of and procedures for food analysis and labelling;
2. Compare and evaluate different methods used in the analysis of foods;
3. Distinguish amongst various methods used in quality control and in rapid screening techniques;
4. Estimate accuracy and reproducibility in food analysis;
5. Propose, design and establish novel methods of food analysis.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials, laboratories and site visits.

Required Reading: Food analysis Nielssen, S. S. (2003). (3rd ed.). Gaithersburg, MD: Aspen Publishing. Food analysis: Theory and practice Pomeranz, Y., & Meloan, C. E. (2000). (3rd ed.). Gaithersburg, MD: Aspen Publishing. Handbook of food analytical chemistry. Wrolstad, R. E. (Ed.), Acree, T. E. (Ed.), Decker, E. A. (Ed.), Penner, M. H. (Ed.), Reid, D. S. (Ed.), Schwartz, S. J. (Ed.), et al. (2004). Hoboken, NJ: John Wiley & Sons.

Assessment: Assignment, One assignment, 20%. Practicum, Practical work, 30%. Examination, One 2 hour written examination, 50%.

RBF2215 NUTRITION AND FOOD ANALYSIS 2

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

Description: This unit concentrates on the rationale for analytical procedures used in nutrition as well as experimental designs and statistical analyses appropriate to nutrition and foods. Topics will include: design, planning and evaluation of diet analysis; nutritional epidemiology; anthropometry; biochemical markers; feeding trials; N balance studies; amino acid score, digestibility of food, nutritional survey and data collection, dietary instrument design, energy measurement of nutrients; analysis of nutritive value of foods and use of analysis software; pitfalls and complications encountered in human nutrition experimentation and strategies commonly used to overcome these.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Discuss the advantages and disadvantages of a range of techniques used in nutritional research;
2. Select experimental methods appropriate to particular research objectives and designs;
3. Identify the limitations of presently-available experimental methods in nutrition;
4. Describe the important design strategies of nutritional epidemiological studies;
5. Discuss the correct procedures for interpretation of data;
6. Undertake a critical analysis of the design and implementation of intervention projects and statistical analysis of data sets.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and practical laboratories.

Required Reading: Design in nutritional epidemiology Margetts, B. M., & Nelson, M. (Eds.) (1997). (2nd ed.). New York: Oxford University Press.

Assessment: Assignment, One assignment (2000 words), 20%. Practicum, Practical work and 6 laboratory reports, 30%. Examination, One 2.5 hour written examination, 50%.

RBF2218 NUTRITION AND COMMUNITY HEALTH

Locations: Werribee.

Prerequisites: RBM2750 - NUTRITION

Description: Importance of community nutrition in public health promotion. Nutrition data: type, collection, analysis. Health behaviour theories. Food security. Community nutrition throughout the lifespan (breastfeeding promotion; childhood and adolescence; adults and chronic disease prevention; nutrition-related problems in the elderly). Development of effective communication programs. Education and intervention programs in locating public health data and health epidemiology. Cultural competency and international nutrition.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Discuss the concept of community, community nutrition practice, social and economic trends for community nutrition, the community needs assessment; Assess the nutritional status for given target populations; Explain the basic principles of epidemiology; Discuss current standards of assessment of nutrition; Comment on nutrition intervention programs, public health policy, program planning, evaluation and implementation of community nutrition projects and national nutrition priority areas; Explain the importance of nutrition throughout the life cycle, and marketing nutrition in the community.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and practical sessions.

Required Reading: Boyle, M. A., & Holben, D. H. (2006). Community nutrition in action. An entrepreneurial approach (4th ed.). Thomson Wadsworth Publication.

Assessment: Assignment, Two assignments (2000 words each) (20% each), 40%. Examination, One 2.5 hour written examination, 60%.

RBF2242 FOOD PRESERVATION

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

Description: A basic introduction to unit operations. Preservation by moisture control: water activity, intermediate moisture foods, concentration, dehydration and freeze drying. Preservation by heat treatment: pasteurisation, sterilisation, canning. Preservation by chilling and freezing. Chemical preservation and fermentation. Preservation by irradiation. Modified atmospheres. Influence of processing on product safety, quality and nutritional value of food. Principles of food packaging, packaging requirements.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss different methods of spoilage of various food groups; Explain different methods of preservation and fermentation; Suggest appropriate methods of preservation including the concept of hurdles to control a given deterioration; Describe the issues associated with food packaging.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising comprising lectures and tutorials.

Required Reading: New methods for food preservation. Gould, G. W. (Ed.). (1995). New York: Blackie Academic and Professional.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Two assignments (2000 words each) (20% each), 40%. Examination, One 2.5 hours examination, 60%.

RBF2410 FOOD COMPONENTS

Locations: St Albans, Werribee.

Prerequisites: RBM1110 - NUTRITIONAL BIOCHEMISTRY 1

Description: Food constituents; water; structure, chemistry, stability and functional properties of proteins, carbohydrates, fats and oils, vitamins and minerals. Food colour, texture and flavour. Reactions leading to deterioration of foods: oxidative deterioration and rancidity, anti-oxidants, browning reactions; food additives, natural and synthetic colorants and flavouring agents; gels, colloids, foams and emulsions.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe and assess the structural and compositional features of food macromolecules;
2. Predict the functional properties of food molecules based on their chemical properties;
3. Recognise and evaluate the key chemical features of food systems;
4. Develop novel food systems based on complex interactions of their main macromolecules.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and practical sessions.

Required Reading: Food chemistry of its components Coultate, T.P. (2009). (5th ed.). Cambridge: RCS Publishing.

Assessment: Assignment, Two assignments (2000 words each) (20% each), 40%. Examination, One 2.5 hour written examination, 60%.

RBF2610 FUNDAMENTALS OF ECOLOGY

Locations: St Albans.

Prerequisites: RBF1310 Biology 1, RBF 1320 Biology2; or equivalents.

Description: History and nature of ecology; Ecology & evolution - natural selection and speciation; Niche concept - ecophysiology, limiting factors; Population biology - individuals, species and populations, population growth, demographics, life tables, age distributions, population regulation, intra- and interspecific competition, predation, parasitism, mutualism; Behaviour; Community - species diversity, species abundance models, succession, food chains, trophic relationships; Ecosystems - energy transfer, geochemical cycles, global patterns and processes; World biogeography & biomes; Palaeoecology.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify key ecological processes at population, community and ecosystem levels; Relate ecological concepts to real-life field situations and environmental management; Determine methods of studying and measuring species behaviour, interactions and dynamics; Critically examine and communicate complex ecological thought in both written and spoken form.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and practicals (mainly field excursions).

Required Reading: Attiwill, P., & Wilson, B. (2006). Ecology: An Australian perspective. Oxford University Press.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Field Studies, 50%. Examination, Examination, 50%.

RBF2620 AUSTRALIAN PLANTS

Locations: St Albans.

Prerequisites: RBF1310 Biology 1, RBF1320 Biology 2; or equivalents.

Description: An understanding of: the diversity and evolution of plants and fungi, with emphasis on Australian native plants and fungi; the characteristic morphology and life history of the major plant groups and fungi; the basic principles of the systematics of Australian plants including biological nomenclature, identification and classification; and how the biogeography of Australian plants can be explained by their life history and the history of the continent, particularly to instil an understanding of how and why Australia has evolved a diverse and highly endemic primarily sclerophyllous flora where the forests and woodlands are dominated by two tree genera, Eucalyptus and Acacia.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify key morphological features and life history characteristics of plants; Distinguish major families, genera and species of Australian plants; Develop tools for collecting and preserving plant specimens and Use high-level identification guides to determine a range of plant species. Communicate in written form complex information on various plant families and their evolutionary history.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and practicals.

Required Reading: Knox, B., Ladiges, P., Evans, B., & Saint, R. (2001). Biology (2nd ed.). McGraw-Hill.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Assignment, Practicals, 60%. Examination, Examination, 40%.

RBF2630 COMMUNITY AND ENVIRONMENT

Locations: St Albans.

Description: Exploration of the various socially-based conceptual frameworks for understanding the range of environmental viewpoints in the community, and the consequences of these frameworks for practical environmental protection and repair. Practical experience in working with a wide range of community representatives on environmental protection and repair projects. Practical skills development in how to communicate with community groups and individuals, including clear, simple explanations, active and reflective listening, negotiating, consulting and drawing up and presenting project proposals. Insights into the range of skills and experience required to gain employment in environmental management fields, and the range of employment available.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss complex issues relating to community participation in environmental protection and repair projects; Work collaboratively to develop and argue a number of position statements relating to environmental outcomes; Contribute positively to environmental projects in the local community.

Class Contact: Forty-eight (48) hours or equivalent for one semester (usually in block mode) comprising lectures, tutorials, practical workshops and site visits.

Required Reading: Irwin, A. (2001). Sociology and the environment. Oxford: Polity Press.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passedAssignment, Assignment, 40%. Workshop, Practical workshop and field reports, 50%. Other, Evidence of contribution, 10%.

RBF2640 AUSTRALIAN ANIMALS

Locations: St Albans.

Prerequisites: RBF1310 Biology 1 (or RBM1174 Human Physiology), RBF1320 Biology 2; or equivalents.

Description: Diversity of animal life, with an emphasis on the Australian fauna; the science of systematics, including cladistic analysis; Bauplans; evolution and origin of biodiversity in marine and terrestrial environments; historical and ecological biogeography, including faunal regions and habitat types; 'uniqueness' of the Australian fauna.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe characteristic features of major animal phyla; Outline the principles of ecological biogeography in relation to the fauna of Australia; Describe the features adopted by animals for living in either a marine, freshwater or terrestrial environment.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and practical classes composed mainly of field excursions.

Required Reading: Dorrit, R., Walker, W.F., & Barnes, R.D. (1991). Zoology. Thomson Learning

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Other, Practical, 40%. Examination, 3-hour, 40%. Assignment, Written, 20%.

RBF3131 ANIMAL FOODS PROCESSING

Locations: Werribee.

Prerequisites: RBF2242 - FOOD PRESERVATION

Description: World animal food resources: nature, distribution and production. Meat and Meat Products: muscle composition, structure and conversion to meat, post mortem glycolysis and meat quality, nutritional and sensory properties, chilling, freezing, curing and processing. Marine products: composition, structure, quality, spoilage, preservation and processing including chilling, freezing, salting, drying, smoking and fermenting. Milk and Milk Products: composition, chemical and physical properties of milk processing of milk including butter, powdered, fermented and fractionated product manufacture, by-product utilisation. Egg and Poultry Products: structure and composition of egg, storage and preservation of eggs, egg products, poultry processing and poultry products.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Appraise the techniques used in processing of animal foods such as meat, poultry, eggs, dairy;
2. Apply the mechanisms underlying short and long term food preservation;
3. Predict the effects of processing and preservation on animal foods.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials and practical sessions.

Required Reading: Reading materials will be negotiated in consultation with the lecturer(s) and will be appropriate to the topic under investigation.

Assessment: Assignment, Two assignments (2000 words each) (25% each), 50%. Examination, One 2.5 hour theory examination, 50%.

RBF3151 FOOD QUALITY ASSURANCE

Locations: Werribee.

Prerequisites: RBF2410 - FOOD COMPONENTS

RBF3730 - FOOD MICROBIOLOGY

Description: This unit provides an introduction to the concepts and principles of food quality evaluation assurance, food legislation, food standards, sensory and objective evaluation of foods and conduct of objective and sensory evaluation tests on foods. The unit covers: Concept of quality and standards; sensory analysis: sensory perception, use of sensory and objective evaluation in quality control and product development, experimental design and analysis, questionnaire design, taste panels, shelf-life assessment; food law: Australian and International food standards codes, food hygiene regulations, micro-biological standards and codes of practice, the development and underlying principles of food standards, Codex standards, export standards; food additives, types, functions, toxicological evaluation and regulations governing usage; toxic substances and contaminants; quality assurance principles and systems: parameters of food quality and its evaluation and control, role of quality assurance, concepts of total quality control (TQC) and total quality management (TQM)

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Apply principles of quality assurance and quality management systems in the food manufacturing and distribution to produce foods that would meet quality and legal requirements;
2. Appraise principles of statistical control techniques to assure the quality of food;
3. Apply a particular sensory test for evaluation of quality of food;
4. Recall food standards code as applicable to a particular food group

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorial/demonstrations.

Required Reading: Guidelines for sensory analysis in food product development and quality control Carpenter, R. P., Lyon, D. H., & Hasdell, T. A. (2000). (2nd ed.). NY: Springer Publishers Statistical quality control for the food industry. Hubbard, M. R. (1996). NY: Chapman and Hall A guide to food quality assurance Sumner, J. (1995). by M&S Consultants Pty Ltd, the Moorings, Deviot, 7275, Australia.

Assessment: Assignment, Two assignments (12.5% each), 25%. Practicum, Laboratory reports, 25%. Examination, One 3 hour written examination, 50%.

RBF3210 ENVIRONMENTAL REHABILITATION

Locations: St Albans.

Prerequisites: RBF1310 - BIOLOGY 1

RBF1320 - BIOLOGY 2

RBF2610 - FUNDAMENTALS OF ECOLOGY

Description: Introduction to a range of tools that will assist in the rehabilitation of Victoria s terrestrial environments and communities. Topics include the ecological parameters and adaptations of organisms in diverse environments and the key ecological relationships amongst organisms. Case studies of rehabilitation projects based on approaches using ecological theory will be included. Practicals will include hands-on experience in the use of the Native Vegetation Management Framework, the Habitat Hectare approach, development of land management plans, and specific threatened species rehabilitation programs.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply ecological principles to environmental rehabilitation practices; Work collaboratively to develop a land management plan; Communicate in oral and written form to professionals and the general community approaches to rehabilitation and complex ecological principles; Choose the correct method of assesment and management of communities and specific species; Apply the principles of the Habitat Hectare approach and the Native Vegetation Management Framework to environmental assessments.

Class Contact: Forty-eight (48) hours or equivalent per semester, timetabled as a block, comprising lectures, tutorials, practical workshops and site visits.

Required Reading: Cox, G. W. (1997). Conservation biology: Concepts and applications (2nd ed.). Dubuque, IA: Wm. C. Brown Publishers.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.Project, Group, 40%. Report, Field and practical, 60%.

RBF3230 ANIMAL FOOD PROCESSING

Locations: Werribee.

Description: World animal food resources: nature, distribution and production. Meat and Meat Products: muscle composition, structure and conversion to meat, post mortem glycolysis and meat quality, nutritional and sensory properties, chilling, freezing, curing and processing. Marine products: composition, structure, quality, spoilage, preservation and processing including chilling, freezing, salting, drying, smoking and fermenting. Milk and Milk Products: composition, chemical and physical properties of milk processing of milk including butter, powdered, fermented and fractionated product manufacture, by-product utilisation. Egg and Poultry Products: structure and composition of egg, storage and preservation of eggs, egg products, poultry processing and poultry products.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: Three hours per week comprising lecture and tutorial.

Required Reading: To be advised by the instructor.

Assessment: Assignment (2x3000 words), 50%; Exam (1x three h), 50%.

RBF3235 PLANT FOOD PROCESSING

Locations: Werribee.

Description: World plant food resources: nature, distribution and production. Cereals and Grains: structure, composition, properties and uses, wheat and rice processing, baking. Fruit and Vegetables: composition, post-harvest physiology and storage, processing. Sugar: production and processing. Oils and Fats: sources, composition and processing. Alcoholic and Non-alcoholic beverages: tea, coffee, cocoa, wine, beer and vinegar. Plant Based Food Ingredients: sources, isolation and uses. Anti nutritional components.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: Three hours per week comprising lecture and tutorial.

Required Reading: To be advised by the instructor.Recommended Reading Arthey, D. and Dennis, C. (eds), 1997, Vegetable Processing, John Wiley and Sons; Arthey, D. and Ashurst, P.R. (eds), 1996, Fruit Processing, Blackie Academic and Professional. Hoseney, R.C., 1994; Principles of Cereal Science and Technology, 2nd edn, American Association of Cereal Chemists.

Assessment: Assignment (2x3000 words), 50%; Exam (1x three h), 50%.

RBF3236 PLANT FOODS

Locations: Werribee.

Prerequisites: RBF2242 - FOOD PRESERVATION

Description: World plant food resources: nature, distribution and production. Cereals and Grains: structure, composition, properties and uses, wheat and rice processing, baking. Fruit and Vegetables: composition, post-harvest physiology and storage, processing. Sugar: production and processing. Oils and Fats: sources, composition and processing. Alcoholic and Non-alcoholic beverages: tea, coffee, cocoa, wine, beer and vinegar. Plant Based Food Ingredients: sources, isolation and uses. Anti nutritional components.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Appraise the techniques used in processing of plant foods such as fruits, vegetables, grains sugar, tea, coffee;
2. Apply the mechanisms underlying short and long term food preservation;
3. Predict the effects of food processing and preservation on a variety of plant foods.

Class Contact: Thirty-six (36) hours for one semester comprising lectures, tutorials and practicals.

Required Reading: Reading materials will be negotiated in consultation with the lecturer(s) and will be appropriate to the topic under investigation.

Assessment: Assignment, Two assignments (2000 words each) (25% each), 50%. Examination, One 2.5 hour written examination, 50%.

RBF3240 FUNCTIONAL FOODS

Locations: Werribee.

Prerequisites: RBM2260 - DIET AND NUTRITION

Description: This unit examines the role and potential of functional ingredients and foods in human nutrition; natural anti-microbial substances in human nutrition; the role of intestinal flora in human health; prebiotics, probiotics, probiotic bacteria and symbiosis.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Discuss the role of functional ingredients and foods in nutrition;
2. Critically appraise the relationship between physiological functions of the key food ingredients and the benefits beyond nutrition in enhancing human health;
3. Describe the natural anti-microbial substances in human nutrition;
4. Explain the role of intestinal flora in human health;
5. Discuss the importance of prebiotics, probiotics, probiotic bacteria and symbiosis.

Class Contact: Thirty-six (36) hours for one semester comprising lectures and tutorials.

Required Reading: Functional foods, cardiovascular disease and diabetes Arnoldi, A. (2004) Cambridge: Woodhead Publishing Limited.

Assessment: Assignment, Two assignments (20% each), 40%. Examination, One 2.5 hour written examination, 60%.

RBF3250 FOOD SAFETY AND QUALITY

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

Description: Major factors used in assessing food quality, sampling, control charts, shelf-life testing, product recalls, collaborative testing, cleaning and sanitizing, rapid testing methods, government regulations, and overall quality plans such as HACCP. Human sensory perception of food components and their interactions and role of sensory methods in assessment of food quality and safety. Toxicology and allergenicity of foods.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week comprising three hours of lectures and one hour of tutorial/demonstration/practical work.

Required Reading: To be advised by the lecturer.

Assessment: Assignment (2x2500 words),30%; Exam (1x three h), 50%; Practical reports/class tests 2/2, 20%.

RBF3252 FOOD SAFETY

Locations: St Albans, Werribee.

Prerequisites: RBF3730 - FOOD MICROBIOLOGY

Description: This unit provides basic concepts and principles of food safety, food legislation, food standards as applied to production of clean and hygienic food.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply and integrate the principles and practices of safety management to the production, preservation and distribution of food;
2. Develop production and processing techniques using the HACCP approach;
3. Critically evaluate production processes;
4. Plan and design novel safety methodologies.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and workshops.

Required Reading: Food plant sanitation Hui, Y. H., Bruinsma, B. L., Gorham, J. R., Nip, W.-K., Tong, P. S., & Ventresca, P. (2002). NY: Marcel Dekkar. Principles and practices for the safe processing of foods. Shapton, D. A., & Shapton, N. F. (Eds.) (1994). Oxford: Butterworth Heinemann.

Assessment: Assignment, Two assignments (2000 words each) (25% each), 50%. Examination, One 3 hour written examination, 50%.

RBF3255 PRODUCT DEVELOPMENT

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

RBF1145 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 2

Description: Product idea generation; concept development and testing; Marketing-strategy development, Product and process development process (project planning, formulation development, process development, shelf-life testing): Consumer testing: Market trial methods and estimation of market size; Product specifications (raw materials, process, finished product); Packaging and labelling, product evaluation, product costing and pricing; Production planning; Market development and product launch.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: Three hours per week comprising two hours of lectures and one hour of tutorial/demonstration/practical work.

Required Reading: Earle, M., Earle, R. and Anderson, A. 2001. Food Product Development. CRC Press, Boca Raton.

Assessment: Assignment (1x3000 words), 20%; Exam (1x three h), 50%Practical reports/class tests 2, 30%.

RBF3256 FOOD PRODUCT DEVELOPMENT

Locations: Werribee.

Prerequisites: RBF1140 - INTRODUCTION TO FOOD, NUTRITION AND HEALTH 1

RBF3151 - FOOD QUALITY ASSURANCE

RBF3252 - FOOD SAFETY

or equivalents.

Description: Product idea generation; concept development and testing; Marketing-strategy development, Product and process development process (project planning, formulation development, process development, shelf-life studies): Consumer testing: Market trial methods and estimation of market size; Product specifications (raw materials, process, finished product); Packaging and labelling, product evaluation, product costing and pricing; Production planning and scale up; Market development and product launch.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Appraise the main features and trends of a specific food product within an appropriate market setting;
2. Assess the development cycle of a food product and the principles of marketing theory;
3. Apply knowledge of consumers' food choices and design and develop a prototype food product at laboratory and pilot scale;
4. Develop technical specifications for the new product;
5. Carry out testing in an appropriate market and evaluate consumers' responses.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and tutorials.

Required Reading: Food product development. Earle, M., Earle, R., & Anderson, A. (2001). Boca Raton: CRC Press.

Assessment: 3 assignments are worth 20% in total (unequal in weighting)

Assignment, Three assignments (1000 words each)*, 20%. Presentation, Oral, 10%. Practicum, One Report (1500 words), 20%. Examination, One 2 hour written examination, 50%. * The three assignments are worth 20% in total (unequal weighting).

RBF3530 ENVIRONMENTAL PHILOSOPHY

Locations: St Albans.

Description: Philosophy: a brief overview of Ancient, Medieval and Modern Western philosophy. Environmental Philosophy as the search for principles for guidance in conducting our lives in a practical way that is beneficial to the environment and as a spectrum of thought from Anthropocentrism to Ecocentrism. A focus on Ecocentrism, in particular what informs Deep (or Transpersonal) Ecology and the role of nature-based religions and patriarchy in the development of Ecofeminism.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Write about and discuss moral concerns arising from interaction between people and the natural world; Explain their position regarding problems such as human overpopulation, biodiversity protection, energy use and provision of food and water - and relate it to various ethical positions; Reflect on their own lives from an environment ethics perspective.

Class Contact: Three hours per week for one semester.

Required Reading: Des Jardins, J. (2006) Environmental ethics: An introduction to environmental philosophy (4th ed.). Southbank, Australia: Thomson.

Assessment: Major paper (40%); biography (20%); leading discussion (20%); evidence of proior reading of weekly material (20%).

RBF3540 LEADERSHIP AND THE ENVIRONMENT

Locations: St Albans.

Description: Three phases in the history of leadership studies: the characteristics or traits of leaders from studies done in the first half of this century; the thirty years of theories of what would lead to effective leader behaviour in certain situations; the 1980's and after when a broader picture of what might explain leader success began to develop. The current place of ethics, morals, values, feelings and power as sources of information regarding leader behaviour. Leadership as an art and as a service - as a weaving of relationships rather than an amassing of information. The strong links which exist between holistic environmentalism and emerging leadership theory. Case studies from business, government and environmental organisations of successful leaders who show evidence of wholeness, care and service for the other.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss leadership theories such as traits, behaviour, transformational and compassionate leadership; Analyse leadership articles in terms of contingency theory, power, charisma, vision, symbolism, culture, density values, ethics, courage, gender and teamwork; Explain connections between holistic environmentalism and emerging leadership theory.

Class Contact: Three hours per week.

Required Reading: Daft, R. (2005). The leadership experience (3rd ed.). Ohio: Thomson.

Assessment: Major paper (30%); leadership folder (20%); examination (50%).

RBF3610 BIOSTATISTICS

Locations: Other.

Prerequisites: RMA1110 Mathematics for the Biological and Chemical Sciences 1 and RMA1120 Statistics for the Biological and Chemical Sciences 1; or equivalents

Description: This unit introduces students to the practical use of statistics in the biological, ecological and health sciences. Particular emphasis is given to experimental design and 'real world' use of statistical procedures. Material covered includes: Revision of statistical concepts and the significance of statistics/biometrics in biological/environmental analysis. Distributions and the nature of data; the use of correlation and regression in developing hypotheses. Sampling regimes and units, confounding variables, hypothesis testing, parametric versus non-parametric procedures and assumptions, post-hoc testing. Design tools for experimental and field collection of data; type-I versus type-II errors, statistical power and the use of statistical power in experimental design. BACI models and design issues; pseudoreplication and true replication. Optimisation of sampling regime for a given sampling unit and variance. Inferential procedures, multiple factorial designs, univariate versus multivariate procedures in biological and environmental programs.

Credit Points: 12

Learning Outcomes: On successful completion of the unit, students are expected to be able to: Describe the main types of sampling distribution; Generate appropriate descriptive statistics from data obtained through environmental investigation; Utilise techniques such as regression, correlation, univariate and multivariate analysis; Critically evaluate experimental and statistical models; Select appropriate statistical methods for the testing of hypotheses; Generate multifactiorial experimental designs; Apply parametric and non-parametric methods to biometric data as appropriate; Control for confounding variables in experimental investigations; Recognise types of sampling error; Interpret the output from statistical testing.

Class Contact: Four hours per week over one semester, comprising two hours of lectures and two hours of interactive practicals/tutorials per week.

Required Reading: Zar, J.H. (1996). Biostatistical analysis (3rd ed). USA: Prentice Hall

Assessment: Assignments (20%); Examinations (80%)

RBF3620 CONSERVATION AND SUSTAINABILITY

Locations: Other.

Prerequisites: RBF1310 Biology 1, RBF1320 Biology 2, RBF2610 Fundamentals of Ecology, or at the discretion of the subject coodinator

Description: The subject ties together, in both theoretical and practical ways, concepts and practices for maintaining biological diversity, and how these concepts and practices can be integrated with social and economic needs.the development of conservation theory and practice in Australia; extinction and its significance, including pathways to extinction; the meanings, levels and interpretation of concepts of biodiversity; ecological and adaptive management approaches to conservation and recovery, including design of reserves, setting priorities, off-reserve conservation and ex-situ (captive breeding, reintroduction and translocation). Practical field studies and site visits will investigate the contributions of zoo's, national and state parks, friends groups, councils and shires, other government agencies and private landholders to the conservation and recovery of plant and animal species, from insects to mammals, and from mushrooms to trees. The subject will also include practical appraisals of techniques used to determine integrity of ecosystems, landscapes and overall environment, the contributions made by biodiversity to ecosystem services and integrated methods for recovery and sustainable management of species and ecosystems.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester, comprising two hours of lectures and two hours of practical.

Required Reading: New, T., 1999, Conservation Biology. An Introduction for Southern Australia, Oxford University Press, United Kingdom and Australia.

Assessment: Practicals and assignments: 40%; examination: 60%.

RBF3630 ENVIRONMENTAL IMPACTS AND MONITORING

Locations: Other.

Prerequisites: RBF1310 Biology 1, RBF1320 Biology 2

Description: This subject aims to introduce students to the 'real world' application of ecological studies, especially in the process of sustainable development. Topics covered will include: Overview of Australian natural resources subject to environmental degradation (e.g. land, soil, water, biota); The social and industrial factors responsible for degradation (e.g. erosion, water pollution, salinisation, habitat destruction, exotic species, extraction, biodiversity loss etc); The Environmental Impact Assessment process used to quantify impacts (e.g. role of consultants, the EEI process itself); Approaches to monitoring environmental degradation and recovery (e.g. sampling design, monitoring procedures, rapid assessment protocols, ANZECC guidelines); Mechanisms and approaches available to minimise impacts (reserve systems, limits of acceptable change technologies, financial tools, role of government departments). Particular emphasis is given to 'hands on' experience.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hours per week, comprising 1 x two hr lecture, 1 x two hr interactive tutorial/directed learning session (including group presentations).

Required Reading: Environment Australia, 2001, State of the environment, EA, Canberra. Thomas I., 1998, Environmental impact assessment in Australia, Federation Press, Sydney.

Assessment: Within-semester (on-going) assessment at Weeks 6 and 13 (60 %) Plus one case study report or project (40 %, including group presentation).

RBF3660 INDIGENOUS SOCIETY AND ENVIRONMENTAL MANAGEMENT

Locations: St Albans.

Description: Traditional Aboriginal society. Relationship of Indigenous people with the environment and the impact of colonisation/dispossession. Contemporary Indigenous Society. Self-determination and control of cultural heritage. Native Title - the meaning of Mabo, Wik and the 10 point plan. Indigenous society and plant resources. Management of protected areas. Structure and work of the Council for Aboriginal Reconciliation, ATSIC and ANTaR. Kulin Nation Cultural Heritage. Spirituality and Environment. The Rudd Apology.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the relevance of indigenous perspectives to contemporary environmental issues in Australia; Summarise and analyse articles with a broad indigenous focus, including history, bush tucker, education, health, reconciliation, land use practices, heritage and spiritual issues; Engage meaningfully with guest speakers by attending prior readings.

Class Contact: Four (4) hours per week.

Required Reading: Presland, G. (1994) Aboriginal Melbourne: The lost land of the Kulin people. Melbourne: McPhee Gribble. Reynolds, H. (1999). Why weren't we told A personal search for the truth about Our history. Ringwood, Victoria: Viking.

Assessment: Indigenous folder (20%); case study/video/art work/story/photo essay (60%); evidence of prior reading of weekly material (20%).

RBF3730 FOOD MICROBIOLOGY

Locations: Werribee.

Description: The aim of this subject is to develop and increase the student's knowledge and skills in microbiology with particular reference to the role of micro-organisms in food processing, food spoilage and food-borne disease. Topics include: characteristics of major groups of micro-organisms of importance in foods; ecology of food spoilage. Microbial growth in foods; microbial fermentation and fermented products; biomass; waste treatment; food-borne infections and food poisoning; control and prevention of food-borne disease; hygiene and sanitation; mycotoxins; legislation and standards will be covered.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Six hours per week for one semester comprising lectures, tutorials and practical work.

Required Reading: Jay, J.M. 2000, Modern Food Microbiology, 6th edn, Aspen Publishers Inc.

Assessment: Assignments, 15%; practical work, 25%; final examination, 60%.

RBF3810 NUTRIENT AND DRUG INTERACTION

Locations: Werribee.

Prerequisites: RNH2110 - DISEASE AND HEALTH

RBM2260 - DIET AND NUTRITION

Description: This unit covers metabolic fate of drugs and nutrient and drug interactions. Metabolic fates of drugs and xenobiotics, known drug-nutrient interactions, role of nutrient-drug interactions in the development of nutritional imbalance. Pharmacodynamics. Major classes of prescription drugs and their indications, and their effects on gastrointestinal and metabolic function. Role of nutrient-drug interactions in the aetiology and treatment of significant disease conditions. Impact of hepatic and renal insufficiency on drug and nutrient bioavailability.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe and assess the structural and physiological functions of nutrients and their interactions with common drugs; Describe and predict nutrition-related side effects for the most common categories of drugs used for the treatment of acute and chronic diseases Recognise and evaluate the key nutrients and drug interactions; Develop strategies to avoid adverse effects due to nutrient-drug interactions.

Class Contact: Three hours per week for one semester comprising lectures and tutorials.

Required Reading: Introduction to Drug Metabolism. Gibson, G.G., and Skett, P. (1994). (2nd ed.). Blackie Academic and Professional, U.K. Handbook of Drug Metabolism. Woolf, T. F. (1999). Dekker, New York, USA

Assessment: Assignment, One assignment (2000 words), 40%. Examination, One 3 hours written examination, 60%.

RBF3900 PROJECT

Locations: Werribee.

Description: The unit enables students to become competent in applying research methodology to a specific problem and to enable them to develop an area of personal interest relevant to their interest. This unit covers project methodology, experimental design and analysis, and research plan preparation. The project will be, as far as is possible, concerned with a real problem and will require the presentation of an oral and written report. The project will be chosen by the student in consultation with staff members.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Critically evaluate scientific literature; Assess problems and design experiments to test hypotheses; Plan, design and conduct experiments; and Report on an individual research project.

Class Contact: 96 hours per semester comprising lectures, tutorials and practical work.

Required Reading: There are no prescribed texts for this unit.

Assessment: In consultation with the Unit Coordinator students will choose a research project.Exercise, Written proposal (2000 words), 20%. Presentation, Oral, 20%. Report, Project report, 60%.

RBF4001 SCIENCE HONOURS

Locations: Werribee.

Description: The program will consist of a research project and a coursework component. The major focus of the course component is research methodology and subjects include experimental design, statistics in research, data analysis, computer applications and software, literature analysis and critical appraisal, ethics in research, scientific writing and data presentation. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location.Required Reading To be advised by the lecturer.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: An average of 20 hours per week for one semester.

Required Reading: To be advised by the lecturer.

Assessment: The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written examination. The research project assessment will consist of an oral presentation and submission of a thesis.

RBF4002 SCIENCE HONOURS

Locations: Werribee.

Prerequisites: RBF4001 - SCIENCE HONOURS

Description: This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be a scientific investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the scientific investigation described in detail; results and conclusions from the study are elaborated; and an extended discussion presented. The research project will be undertaken in one of the research areas of the School and may, subject to approval, be undertaken at an external location.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: An average of 30 hours per week for one semester.

Required Reading: To be advised by the lecturer.

Assessment: The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written examination. The research project assessment will consist of an oral presentation and submission of a thesis.

RBF5110 FUNDAMENTALS OF FOOD MICROBIOLOGY

Locations: Werribee.

Description: This unit provides an introduction to food microbiology with particular reference to the role of microorganisms in food processing, food spoilage and food-borne disease. The unit includes: Ecology, biochemistry, isolation, enumeration and identification of bacteria, yeasts and fungi associated with foods and beverages. Microbial food spoilage and its control: ecology of food spoilage, characteristics of major spoilage organisms, spoilage control Food borne infections and food poisoning: microbiology of common food-borne pathogenic bacteria, their detection and enumeration. Indicator organisms. Control and prevention of food borne disease. Mycotoxins. Hygiene and sanitation. Microbial fermentations: biochemistry of fermentation, food preservation by fermentation, fermented products. Waste treatment. Introduction to biotechnology and its applications in food production and processing. Microbiological examination of foods and microbiological quality control: sample preparation and plans, sub-lethal injury, standard and rapid methods, specifications, HACCP concept.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to: generalise concepts related to microbial ecology of food, to apply methods to control the growth of spoilage and eliminate pathogenic microorganisms in food to minimize the risks associated with the presence of spoilage microorganisms in foods and alleviated occurrence of foodborne diseases of public significance, to appraise the microbial ecology of different food groups, to consider microorganisms used in the production of contemporary and functional foods, and design and develop best practices of storing handling and distribution of food.

Class Contact: The equivalent of 72 hours for one semester or 6 hrs per week comprising of 3 hrs of lecture and 3 hrs of tutorial/practice.

Required Reading: Jay, J.M., Loessner, M.J. and D.A. Golden. 200

5. Modern Food Microbiology. Springer Publishers: New York, NY

Assessment: Assignment (oral presentation and written report, 3000 words) and tests - 40%; Practical work - 20%; final examination (3 hrs written exam) 40%

RBF5120 FUNDAMENTALS OF FOOD SAFETY AND QUALITY ASSURANCE

Locations: Werribee.

Description: This unit provides an introduction to the concepts and principles of food safety and quality assurance, food legislation, food standards, sensory and objective evaluation of foods and conduct of objective and sensory evaluation tests on foods. The unit covers: sensory attributes and sensory evaluation; sensory perception, use of sensory and objective evaluation in quality control and product development, experimental design and analysis, questionnaire design, taste panels, shelf-life assessment; food law: Australian and International food standards codes, food hygiene regulations, micro-biological standards and codes of practice, the development and underlying principles of food standards, Codex standards, export standards; food additives, types, functions, toxicological evaluation and regulations governing usage; toxic substances and contaminants; hygiene and sanitation in food processing and production, techniques for evaluation of food processing plants; quality assurance principles and systems: parameters of food quality and its evaluation and control, role of quality assurance, concepts of total quality control (TQC) and total quality management (TQM), good manufacturing practice, sampling plans, specification writing, hazard analysis and critical control point (HACCP) concept, product recall procedures, Australian and International quality systems.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are anticipated to apply principles of quality assurance and quality management systems in the food manufacturing and distribution to produce safe foods that would meet quality and legal requirements. Students after completion are expected to be able to appraise principles of chemical analysis, microbiology and statistical control techniques to assure the quality and safety of food.

Class Contact: The equivalent of 72 hours for one semester or 6 hrs per week comprising of lecture/tutorial/practice.

Required Reading: Jones, G. (Ed.). (2006). Class notes (Rev. ed.). Werribee, Australia: Victoria University, Faculty of Health, Engineering and Science.

Assessment: Assignments and tests 30%, practical work 20%, final examination 50%.

RBF5130 FOOD PRODUCT AND PROCESS DEVELOPMENT

Locations: Werribee.

Description: This unit provides an introduction to the systematic methods used in the development of new products, market research, product design and specification and evaluation of product development project. This unit covers: Development of aims, objectives and constraints; Collection and analysis of marketing and technical information required for product and process development; Product idea generation; Screening of new product and process ideas; Product and process concept development and testing; Marketing-strategy development, Product development process (project planning, formulation development, process development, shelf-life testing): Consumer testing: Market trial methods and estimation of market size; Product specifications (raw materials, process, finished product); Packaging and labelling, product evaluation, product costing and pricing; Production planning; Market development and product launch

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to appraise the main features and trends of a specific food product within an appropriate market setting; to assess the nature of the development cycle of a food product and the principles of marketing theory. Students are anticipated to be able to apply factors that affect consumers food choices and design and develop a prototype food product with specified parameters constructing a technical specification for the developed product followed by testing an appropriate market and evaluating consumers response.

Class Contact: The equivalent of 48 hours or 4 hrs per week comprising of lectures and tutorial/practice.

Required Reading: Earle, M., Earle, R. and Anderson, A. 2001. Food Product Development. CRC Press, Boca Raton.

Assessment: Assignment and tests 20%, practical work (a specific food product development) 40%, final examination 40%.

RBF5140 CHEMISTRY OF FOODS

Locations: Werribee.

Description: The basic components forming the structure of food products consist of the natural materials assembled in relationships that can be altered by the presence of additives, ingredients and processing. The unit covers the composition and macrostructure of food, and the relationships between the basic components and structure and the additives. This will include the interactions between emulsifiers and flavours within a food matrix, and interactions between water-proteins, water, lipids, protein-proteins, protein-lipids, protein-carbohydrates, and carbohydrate-lipids. This unit will also address the influence of processing on basic components and interactions among food components.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to generalize and assess the structural and compositional features of food macromolecules; to predict functional properties of food molecules based on their chemical properties, to recognize and evaluate the key chemical features of food systems and to develop novel food systems based on complex interactions of their main macromolecules.

Class Contact: The equivalent of 60 hours or five hours per week comprising of three hrs of lectures and two hrs of tutorials/practical work.

Required Reading: Damodaran, S., Parkin, K. and O.R. Fennema (2008). Fennema s Food Chemistry. Boca Raton: CRC Press.

Assessment: Practical work, 20%; Assignment (3000 words) and tests 40%; Final examination (1x3 hrs) 40%.

RBF5210 FUNDAMENTALS OF PRESERVATION AND PROCESSING TECHNOLOGIES

Locations: Werribee.

Description: This unit provides an introduction to the principles and technology of food processing and preservation by traditional and modern techniques and their effects on the safety, appearance and nutritional quality of foods and the implications of processing and preservation methodologies on the physical, chemical, microbiological and nutritional quality of foods. This unit covers: A brief history of the food processing industry. A basic introduction to unit operations. Preservation by moisture control: water activity, intermediate moisture foods, concentration, dehydration and freeze drying. Preservation by heat treatment: pasteurisation, sterilisation, canning. Preservation by chilling and freezing. Chemical preservation and fermentation. Preservation by irradiation. Modified atmospheres. Influence of processing on product safety, quality and nutritional value of foods. Principles of food packaging, packaging requirements.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to appraise unit operations and equipment used in food processing with respect to their function and effects on food materials; to apply the mechanisms underlying short and long term food preservation and predict the effects these processes on the food quality and safety and to design and establish process flow diagrams and calculate heat and mass balances.

Class Contact: Total of 72 hrs per semester or six hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Required Reading: Vasiljevic, T. (2008). Class notes (Rev. ed.). Werribee, Australia: Victoria University, Faculty of Health, Engineering and Science.

Assessment: Assignments and tests 40%, practical work 20%, final examination 40%.

RBF5220 FUNDAMENTALS OF FOOD ANALYSIS

Locations: Werribee.

Description: This unit provides an introduction to the laboratory analysis of the chemical, physical and biochemical properties of foods and food components. The unit covers: the reasons for analysing foods; food composition tables and databases; sampling and sample preparation; the proximate analysis system; water activity; analyses of proteins, carbohydrates, lipids, vitamins, minerals and pigments; the use of enzyme based assays for food components; rheology, texture, viscosity and colour of foods - principles and recent developments in analysis; enzymes as processing aids and as deteriorative agents - measurement of food enzymes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are anticipated to be able to discuss and evaluate the principles of and procedures for the food analysis and labeling; to compare and assess different methods used in food analysis of foods, distinguishing between methods used for quality control and rapid screening techniques in comparison to official methods; to estimate accuracy and reproducibility in analysis and to propose, design and establish novel methods of food analysis.

Class Contact: The equivalent of 60 hours or five hours per week comprising two hours of lectures/tutorials and three hours of practical laboratory work for one semester.

Required Reading: Wrolstad, R.E. et al. 2005. Handbook of Food Analytical Chemistry. Wiley Interscience, Hoboken, NJ. Nielsen, S.S. (1998). Food analysis. Gaithersburg, MD : Aspen Publishers.

Assessment: Assignments and tests 40%, practical work 30%, final examination 30%.

RBF5230 MANAGING FOOD ENTERPRISES

Locations: Werribee.

Description: For the purposes of this unit the term food industry captures all supply chain actors, large corporations and small-to-medium scale enterprises that engage in the production, processing and marketing of bulk, processed and ready-to-consume foods. This unit provides insights into the unique opportunities and challenges in the food business environment and how these opportunities and challenges can be managed by food enterprises. On completing this unit, students are expected to empathize the dynamics and trends in the food industry environment and to understand tested and tried organizational and structural capabilities to efficiently manage food enterprises.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to comprehend challenges facing the Australian and the global food economy; to fully assess food industry dynamics that influence and shape food industry and to devise and implement food enterprise environments strategies, plans and actions to manage business operations in this dynamic environment.

Class Contact: The equivalent of 48 hours for one semester or 4 hrs per week comprising of 3 hrs of lecture and 1 hr of tutorial/practice.

Required Reading: Donald F. Kuratko and Richard M. Hodgetts, Entrepreneurship: Theory, Process, Practice, Thomson, 2006. Robert D. Hisrich, Michael P. Peters and Dean A. Shepherd, Entrepreneurship, McGraw-Hill Irwin, 2006.

Assessment: - Class presentation (15%) - Written, three hour, open book final examination (50%) - Syndicate project (3,000 - 4,000 words) (35%)

RBF6110 MAJOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY 1

Locations: Werribee.

Prerequisites: A completion of an undergraduate science degree or other relevant related disciplines.

Description: In this unit students will conduct a research project of their own design, analyse and interpret data and communicate research findings clearly and concisely in both oral and written form. The project will be carried out on an individual basis under the supervision of a relevant staff member and a member of industry where appropriate. The unit involves: Conduct of a thorough literature search on current issues in food science and technology; Design and development of the study; Presentation of a seminar on the research work. Unit to approval, the project may be related to the student's work situation and/or may involve laboratory or plant based work.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, to assess problems and design experiments to test hypotheses, to analyse and solve problems, to apply knowledge to new problems, and to plan, design, conduct and report on an individual research project.

Class Contact: The equivalent of minimum 144 hrs per semester or at least 12 hrs per week of laboratory/tutorial work for one semester.

Required Reading: Students will be responsible for reviewing the current literature on their project topic.

Assessment: Presentation (15+5 min, Powerpoint) 20%, Written report (max 5000 words) 80%

RBF6120 FRUIT AND VEGETABLE SCIENCE AND TECHNOLOGY

Locations: Werribee.

Description: This unit introduces students to the principles and technology of fruit and vegetable processing and to recent developments in the processing of these commodities. Topics covered include: The fruit and vegetable industry: plant physiology; the biochemistry of fruit ripening; diseases; maturity prediction and testing; post-harvest handling and storage, chilling and freezing, canning, microwave processing, cooking and dehydration; changes in quality. The juicing of fruit and vegetables, product deterioration, blanching treatments, product quality, quality assurance, and legal requirements.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are anticipated to be able to critically appraise the relationship between properties of raw materials with quality of stored fresh and processed fruit and vegetable products; to predict physicochemical changes that take place during storage and processing of various fruit and vegetable products including reproduction of flow diagrams and identification of the critical control points; to selected processing equipment at a pilot plant scale; to implement GMP in production of selected fruit and vegetable products.

Class Contact: The equivalent of 72 hrs per semester or six hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Required Reading: Mishra. V.K. (2008). Class notes (Rev. ed.). Werribee, Australia: Victoria University, Faculty of Health, Engineering and Science.

Assessment: Assignments and tests 30%, practical work 20%, final examination 50%

RBF6130 GRAIN SCIENCE AND TECHNOLOGY

Locations: Werribee.

Description: This unit will provide students with an understanding of the principles and practices involved in the technology of food cereals and legumes. Topics covered include: Cereal and legumes of the world - nutritional, physical, compositional and biochemical characteristics. The characteristics of grain proteins and starches; protein functionality; the starch granule. The milling of cereals and legumes - cleaning, conditioning, the concept of starch damage and the control of mill product quality. Flour quality, analytical approaches, quality control, grain sprouting and end use suitability. Dough development. The technology of baking, ingredients used and their functional properties. International breadmaking processes and equipment. Storage, packaging and staling of cereal products. The preparation of flat breads, traditional Asian noodles and steamed breads and other Asian grain based products. The technology of breakfast cereals including enrichment. The processing of starch, gluten, glucose syrups and use of enzymes. The processing of pasta, malted barley products, rice, oats, maize, sorghum and rye. Current trends in cereal and pulse processing. The application of molecular genetics to quality improvement in grains.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to critically appraise the relationship between properties of raw materials with quality of stored and processed cereal products; to predict physicochemical changes that take place during storage and processing of various grain varieties including reproduction of flow diagrams and identification of the critical control points; to operate selected processing equipment at a pilot plant scale; to implement GMP in production of selected cereal products.

Class Contact: The equivalent of 72 hrs per semester or six hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Required Reading: Kulp, K. and J.G. Ponte (2000). Handbook of cereal science and technology. New York: Marcel Dekker.

Assessment: Assignments and tests 30%, practical work 20%, final examination 50%.

RBF6210 MAJOR PROJECT IN FOOD SCIENCE AND TECHNOLOGY - 2

Locations: Werribee.

Description: In this unit students will conduct a research project of their own design, analyse and interpret data and communicate research findings clearly and concisely in both oral and written form. The project will be carried out on an individual basis under the supervision of a relevant staff member and a member of industry where appropriate. The unit involves: Conduct of a thorough literature search on current issues in food science and technology; Design and development of the study; Presentation of a seminar on the research work. Unit to approval, the project may be related to the student's work situation and/or may involve laboratory or plant based work.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, to assess problems and design experiments to test hypotheses, to analyze and solve problems, to apply knowledge to new problems, and to plan, design, conduct and report on an individual research project.

Class Contact: The equivalent of minimum 144 hrs per semester or at least 12 hrs per week of laboratory/tutorial work for one semester.

Required Reading: Students will be responsible for reviewing the current literature on their project topic.

Assessment: Presentation (15+5 min, Powerpoint) 20%, Written report (max 5000 words) 80%.

RBF6220 DAIRY SCIENCE AND TECHNOLOGY

Locations: Werribee.

Description: This unit provides a study of the science and technology associated with the processing of milk and milk products. The unit covers: Structure of the Dairy Industry; Effects of heat treatment on milk; Processing of milk to various dairy products: Advances in testing of milk and milk products; Quality management of milk and dairy products; Starter cultures and friendly bacteria; Advances in dairy fermentation; UHT of milk and milk products; Membrane technology; Nutritional issues in dairy product development; Dairy ingredients.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are anticipated to be able to critically appraise the relationship between properties of raw materials with the quality of processed dairy products; to predict physicochemical changes that take place during processing of various dairy products including reproduction of flow diagrams and identification of the critical control points; to operate selected processing equipment at a pilot plant scale; to implement GMP in production of selected dairy products.

Class Contact: The equivalent of 60 hrs per semester or five hours per week comprising lectures, tutorials, practical work and/or field trips for one semester.

Required Reading: Walstra, P., Wouters, J.T.M. and T.J. Geurts (2005). Dairy Science and Technology, Second Edition. Boca Raton: CRC Press.

Assessment: Assignments and tests 40%, practical work 20%, final examination 40%.

RBF6320 SPECIAL TOPICS IN FOOD SCIENCE AND TECHNOLOGY

Locations: Werribee.

Description: This unit allows students to develop and study a selected aspect of food science and technology and requires the conduct of a project on the selected topic. This project is not laboratory based but is designed to allow students to research the literature on a topic of interest to themselves. The work will be carried out on an individual basis under the supervision of a relevant staff member. The unit includes: assessment of current issues relevant to the field; generation of a research question; critical evaluation of current knowledge relevant to developed research question, public delivery of collected information and submission of a written report. Subject to approval, the project may be related to the students' work situation and/or may involve plant based work.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, to assess problems and design research question, to analyze and solve problems, to apply knowledge to new problems, and plan, conduct and report on an individual research project.

Class Contact: The equivalent of 36 hrs per semester or 3 hrs per week comprising tutorial work and self-directed learning activities for one semester.

Required Reading: Students will be responsible for reviewing the current literature on their project topic.

Assessment: Presentation (15+5 min, Powerpoint) 20%, Written report (max 3500 words) 80%.

RBF6330 INDUSTRY BASED TRAINING

Locations: Werribee.

Description: The unit will be based on a project agreed upon by an industry partner and a supervisor from the School of Molecular Sciences. An example of project will include impact of various types of starter cultures on acidity and resulting shelf life of yoghurt. Such type of project is proposed to be carried out at Nestle Dairy. Another example will include impact of exo-polysaccharide production on sensory properties of dairy foods. This type of project is suited for National Foods.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to critically evaluate scientific literature, assess problems and design experiments to test hypotheses, analyse and solve problems, apply knowledge to new problems, and plan, conduct and report on an individual research project and to perform appropriately in an industrial setting.

Class Contact: The equivalent of minimum 72 hours per semester or at least 6 hrs per week of laboratory/tutorial work for one semester, subject to availability and approval by the course coordinator.

Required Reading: The required reading will depend upon the type and nature of project students are undertaking. The names of text books will be provided depending on the type of work students are doing.

Assessment: Presentation (15+5 min, Powerpoint) 20%, Written report (max 3500 words) 80%.

RBF8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RBF8002 RESEARCH THESIS 2 FULL TIME

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RBF8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RBF8012 RESEARCH THESIS 2 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/

Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RBM1100 FUNCTIONAL ANATOMY OF THE TRUNK

Locations: St Albans.

Description: This unit of study introduces students to functional anatomy. After a brief introduction to bones, joints, muscles, vessels and nerves; students study gross, histological and some surface anatomy of the thorax, abdomen and pelvis. The following regions are studied: thoracic cage, pleura and lungs, heart, mediastinal structures, abdominal wall, pelvic girdle, gastrointestinal organs, urinary organs and reproductive organs. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interchanged with those in other Functional Anatomy units.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students should be able to: explain, using examples, the structure and function of bones, joints, muscles, arteries, veins, lymphatics and nerves. understand the anatomy and histology of the structures of the thorax understand the anatomy and histology of the structures of the abdomen understand the anatomy and histology of the structures of the pelvis and perineum problem solve common clinical problems, such as heart attack, diabetes, appendicitis, labour and delivery.

Class Contact: Five hours per week, 3h lectures, 2h tutorial/practical.

Required Reading: Moore, K.L. & Dalley, A.F. Clinically Oriented Anatomy, Lippincott Williams & Wilkins, Philadelphia Baltimore, USA, 5th edition 2006. School of Biomedical Science: practical notes.

Assessment: Topic Test x 2, 10%; Practical exam, 45%; Theory exam, 45%.

RBM1101 BIOSCIENCE 1

Locations: St Albans.

Description: This unit will contain: Organisation of the human body Introduction to the human body The chemical level of organisation The cellular level of organisation The tissue level of organisation The principals of support and movement The skeletal system bone tissue, the axial skeleton, and the appendicular skeleton Joints Muscle tissue Muscular system Control systems of the human body: Nervous tissue Spinal cord and spinal nerves The brain and cranial nerves Sensory, motor and integrative systems The special sensors The autonomic nervous system The endocrine system Maintenance of the human body The cardiovascular system: The blood, the heart and blood vessels and hemodynamics The lymphatic and immune system and resistance to disease

Credit Points: 12

Learning Outcomes: On successful completion of this unit, the student will: Have a sound understanding of the chemical level, the cellular level, and the tissue level of the human organism. Students will also have a sound understanding of the anatomy and physiology of the musculoskeletal system, the nervous system, the endocrine system and the cardiovascular system. Have a sound understanding of major pathophysiological processes within each system listed above.

Class Contact: Forty eight hours (48) over one 12-week semester, comprising of three (3) hours per week delivered as lectures and one (1) hour per week practical class delivered as laboratory or tutorial.

Required Reading: Marieb, E.N. and Hoehn, K. 2007, Human Anatomy and Physiology, 7th edition, Pearson benjamin Cummings, California, USA.

Assessment: This unit has three (3) assessment items, a one (1) hour written mid semester examination 25% (P1, W1, W2), four (4) laboratory reports 25% (P1, A1, C1, C2), and a three (3) hour written end of semester examination 50% (W1, W2, P1). To obtain a pass in this unit all components of assessment must be attempted and an aggregate mark of 50% must be attained.

RBM1102 BIOSCIENCE 1: HUMAN BODY STRUCTURE AND FUNCTION

Locations: St Albans.

Prerequisites: Nil.

Description: In this unit, human anatomy and physiology will be introduced and placed in context with nursing in an integrated fashion. The subject begins with an overview of the organisation of the human body. Basic concepts in chemistry and biochemistry are presented as essential background for understanding pharmacology and the structure and function of cells and tissues. Students are introduced to microbiology and the importance of infection control. After these fundamental concepts have been covered, students will study the structure and function of the skeletal and muscular systems, the nervous system, and the endocrine system.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- use appropriate anatomical terminology;
- describe basic principles of chemistry and biochemistry;
- describe the structure of the cell and state cell function;
- describe the structure, function and location of epithelial and connective tissues;
- describe the structure, function and importance of the integumentary system;
- describe the fundamentals of microbiology and infection control;
- appreciate the relevance of microbiology in the work of health professionals;
- describe the basic anatomy of the central and peripheral nervous systems;
- explain the basic principles of neurophysiology;
- describe the structure of various bones, joints, and muscles;
- describe the major functions of bone, joints, and muscles; and
- describe how physiological homeostasis is maintained;
- describe the role of the neuro-endocrine system in regulating body functions.

Class Contact: A total of 60 hours for the semester, or 5 hrs class contact per week comprising 2 hrs lecture, 1 hr tutorial and 2 hrs practical, or equivalent.

Required Reading: Marieb, E.N., & Hoehn, K. (2007). Human Anatomy and Physiology. (7th ed.). California, USA: Pearson Benjamin Cummings. Human Anatomy and Physiology Marieb, E.N., & Hoehn, K. (2007), 7th Edition Pearson Benjamin Cummings, California, USA

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained. Practical sessions have a hurdle requirement of at least 80% attendance. Supplementary assessment in the form of a supplementary theory exam will normally be offered to students achieving an N (45-49%) grade and have completed/submitted all other assessment tasks. Students must achieve at least 50% on the supplementary exam to be granted a P 50 as a final grade for the unit.Test, Theory Test 1, 10%. Test, Theory Test 1, 10%. Examination, Practical during examination period., 30%. Examination, Theory (2.5 hr.) during examination period., 50%.

RBM1107 BIOSCIENCE FOR PARAMEDICS 1

Locations: St Albans.

Description: This unit will contain: Module

1. Organisation of the human body - Introduction to the human body - The chemical level of organisation - The cellular level of organisation - The tissue level of organisation - Integumentary system Module
2. Control systems of the human body - Homeostasis - Nervous tissue - Spinal cord and spinal nerves - The brain and cranial nerves - Sensory, motor and integrative systems - The autonomic nervous system Module
3. Maintenance of the human body - The cardiovascular system - The blood, the heart and blood vessels and haemodynamics - Microorganisms and infection control. Topics in this unit can be exchanged with topics in units RBM1208 and RBM2109.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe the chemical, cellular and tissue levels of the human organism;
2. Describe the anatomy and physiology of the integumentary, nervous and cardiovascular systems;
3. Explain the importance of infection control in a paramedic setting.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials. Practical sessions will be provided subject to clinical placements. Practical sessions have a hurdle requirement of at least 80% attendance.

Required Reading: Marieb, E. N., & Hoehn, K. (2007). Human anatomy and physiology (7th ed.). USA: Pearson Benjamin Cummings.

Assessment: Other, semester test(s)/assignments/laboratory reports, 40%. Examination, 2.5 hour written held in examinations week, 60%. In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBM1110 NUTRITIONAL BIOCHEMISTRY 1

Locations: St Albans.

Prerequisites: Nil.

Description: Chemical bonding, water and buffers; nutritional importance of essential amino acids and lipids; the role of biomolecules in transport around the body and the storage of energy; biomembranes; protein synthesis; introduction to major metabolic pathways; structure-function relationships of macromolecules, including carbohydrates, proteins, lipids.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the basic chemistry of macronutrients Identify elements, compounds and mixtures Explain the transport and storage of energy in the human body Describe moles, percent mass and molar composition Describe structure and function relationship for macronutrients Describe protein synthesis and introduce the basic metabolic pathways of macronutrients

Class Contact: Forty-eight (48) hours for one semester comprising lectures and tutorials/practicals.

Required Reading: Bettelheim, F.A., Brown, W.H., Campbell, M.K., & Farrell, S.O. (2006). Introduction to general, organic and biochemistry (8th ed.). Brooks Cole.

Assessment: Assignment, 1500 words, 25%. Test, Topic test, multiple choice., 25%. Examination, 3 hour, 50%.

RBM1121 ANATOMY & PHYSIOLOGY 1

Locations: St Albans.

Prerequisites: Nil.

Description: The structure and function of the human body is introduced and placed in an integrated fashion within the context of midwifery. Following a brief overview of the organisation of the human body, students are introduced to the structure and function of cells and various types of tissues. Basic concepts in chemistry and biochemistry are covered in relation to the human body and students are introduced to microbiology within the context of infection control. The bones, joints and muscles of the body are taught in an integrated way using a regional approach. The nervous system and endocrine system are discussed to highlight their regulatory role for control, co-ordination and communication. The importance of homeostasis and the role of the neuro-endocrine system in maintaining equilibrium within the human body are emphasised. This is followed by a discussion of the special senses, in particular sight, hearing and balance. The integumentary system is covered to emphasise the importance of, for example, skin colour, temperature and sensation relevant to midwifery. Information presented in this unit will be useful in the clinical context.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Outline the structures and functions of human cells and tissues; Explain the basic concepts of chemistry, biochemistry, microbiology and infection control in relation to the human body; Describe the structures and functions of the integumentary, musculo-skeletal, endocrine and nervous systems; Explain homeostasis and the role of the neuro-endocrine system in regulating body functions.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratory classes.

Required Reading: Human Anatomy and Physiology Marieb, E.N. & Hoehn, K. (2010). 8th edition International, Benjamin Cummings Publishing

Assessment: Test, MCQs, 20%. Other, Class assessment & 1.5 hrs exam on laboratories, 40%. Examination, 2.5 hrs written exam, 40%.

RBM1170 CELL STRUCTURE AND FUNCTION

Locations: St Albans.

Description: This unit comprises two modules: The Human Cell and Microbiology. The human cell covers the structure and function of the plasma membrane, nucleus, organelles and cytoskeleton. Processes covered include: movement across the plasma membrane; cell communication; production, packaging and export from the cell; cell motion; meiosis and mitosis. Microbiology covers microbial structure, categories of infective agents, normal flora, introduction to the major pathogens, transmission of infection, sterilization and disinfection and host - microbe interactions. Class contact is 2h/wk (lectures or practical classes) for one semester. Practical classes have a hurdle requirement of at least 90% attendance.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to:

1. Identify structures within human cells;
2. Describe, in detail, cell structures and their respective functions;
3. Integrate biological information at the chemical and cellular levels;
4. Discuss basic microbiology with respect to broad categories of pathogenic organisms;
5. Explain the spread and transmission of infectious agents;
6. Explain host - microbe interactions and how microbes cause disease;
7. Justify the importance of sterilization and disinfection;
8. Conduct sterilization and disinfection procedures to a level required for a clinical environment.

Class Contact: 2 hours lectures, 2 hours practicals, alternating weeks.

Required Reading: Nil

Assessment: Test, Tests and/or laboratory reports, 20%. Examination, 2.5h final written examination, 80%.

RBM1174 HUMAN PHYSIOLOGY

Locations: Footscray Park.

Prerequisites: Nil.

Description: The general aim of the subject is to give students an understanding of basic concepts in human physiology. The subject will comprise a description of basic cell structures and functions for generalised and specialised cells; outline co-ordinated body functions with specific applications to the cardiovascular, respiratory, musculo-skeletal, neural, alimentary and renal systems. In addition, basic concepts in organic metabolism and energy balance will be considered.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours per week for one semester comprising two one-hour lectures per week and a two hour laboratory session every second week.

Required Reading: Sherwood, LA., 2004. Human Physiology: From Cells to Systems, 56th edn, Thomson Learning.

Assessment: Practical 20%; topic tests 20%; examination 60%

RBM1180 BIOCHEMISTRY

Locations: City Flinders.

Description: This unit will emphasize on the principles of biochemistry and understanding its relevance to osteopathy. It comprises three sections: cellular constituents and their functions; metabolism, energy and regulation; information transfer. It will provide an insight to biochemical events that occurs in the human body both normal and disease state. Examples that relate biochemistry to health and medical issues (specifically those associated with osteopathy) and the biochemical interpretation will be discussed.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply the principles of biochemistry in the study of osteopathy. Apply basic biochemical calculations, explain concept of pH and buffer, and its importance in metabolism. Discuss the types and functions of various cellular constituents. Explain metabolic pathways, their roles and how they are regulated. Demonstrate how energy is extracted from biological molecules. Integrate the biochemistry into underlying health issues.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and tutorials.

Required Reading: Biochemistry. A short course. Tymoczko, J.L., Berg, J.M., & Stryer, L. (2010). Freeman, NY. Lehninger principles of biochemistry. Nelson, D.L., & Cox, M.M. (2008). (5th ed.). Freeman, NY.

Assessment: Tutorial Participation, Mandatory Attendance, 10%. Test, Assessment, 40%. Examination, Theory/Written, 50%.

RBM1181 BIOCHEMISTRY 1 (OSTEOPATHY)

Locations: City Flinders.

Prerequisites: Nil

Description: Unit of study aims to provide insights into biochemical events that occurs in the human body. This will be achieved through a clear understanding of the composition and functions of cellular constituents and metabolism. The properties and functions of cellular constituents such as amino aids, proteins, carbohydrates, vitamins and lipids will be discussed. Concept of metabolism and how energy is derived from nutrient molecules will be studied in depth. This will include glycolysis, the tricarboxylic acid cycle, oxidative phosphorylation, gluconeogenesis, pentose phosphate pathway, glycogen and lipid metabolism. Selected topics to be covered include the biochemistry of allergy and inflammation, nervous system, extracellular matrix, calcium and bone metabolism, and cellular signalling. The importance of clinical biochemistry and significance of clinical enzymology will be discussed

Credit Points: 6

Learning Outcomes: At the completion of this unit of study the student should be equiped with the basic knowledge of biochemistry and should be able to apply them in other units of study requiring such knowledge. Understand and apply the principle of biochemistry towards the study of osteopathy Able to explain the concept of pH and buffer, and its importance in metabolism Discuss the types and functions of cellular constituents Explain metabolic pathways and how they are regulated. Demonstrate an understanding of the various nutrients, their structures and how energy are extracted Understand the biochemical mechanism of inflammation and allergy Demonstrate an understanding of muscle biochemistry Understand cellular signalling; intracellular and intercellular, the various molecules involved in this process. Understand the importance of clinical biochemistry and the role of clinical enzymology in the diagnosis and prognosis of various diseases

Class Contact: Lectures (3 hours/week) Tutorials (1 hour/week) .

Required Reading: Biochemistry. A short course Tymoczko JL, Berg JM and Stryer L/2010 Freeman, NY Lehninger Principles of Biochemistry Nelson DL and Cox MM/2008 5th Freeman, NY

Assessment: 1.Tutorial exercises and participation 10% 2.Tests (2 tests, 20% each) 40% 3.Examination (3 hour written examination) 50%Tutorial Participation, Formative assessment, 10%. Test, Two formative assessment tasks, 40%. Examination, Summative assessment, 50%.

RBM1200 FUNCTIONAL ANATOMY OF THE LIMBS

Locations: St Albans.

Prerequisites: RBM1100 - FUNCTIONAL ANATOMY OF THE TRUNK

Description: Students study gross anatomy of the upper and lower limbs. The following regions are studied in detail: pelvic girdle, gluteal region, hip, thigh, knee, leg, ankle and foot; pectoral girdle, shoulder, arm, elbow, forearm, wrist and hand. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interchanged with those in other Functional Anatomy units.

Credit Points: 12

Learning Outcomes: At the completion of this unit students should be able to: understand the anatomy of the upper limb understand the anatomy of the lower limb problem solve common clinical problems, such as a dislocated shoulder or hip replacement surgery.

Class Contact: Five hours per week, 3hours lectures, 2hours tutorial/practicals.

Required Reading: Moore, K.L. & Dalley, A.F. Clinically Oriented Anatomy, Lippincott Williams & Wilkins, Philadelphia Baltimore, USA, 5th edition 2006.

Assessment: Written assignment 25%; Practical exam, 20%; Theory exam, 55%

RBM1203 BIOSCIENCE 2: HUMAN BODY STRUCTURE & FUNCTION

Locations: St Albans.

Prerequisites: RBM1102 - BIOSCIENCE 1: HUMAN BODY STRUCTURE AND FUNCTION

Description: The aim of this unit is to build upon the anatomy and physiology introduced in Bioscience The structure and function of the cardiovascular, respiratory, urinary, gastrointestinal, immune, and reproductive systems will be covered.

The neuro-endocrine regulation of these systems will be presented to provide an understanding of how homeostatic mechanisms regulate variables such as blood pressure, blood gas status, acid-base balance, and fluid and electrolyte balance. Students will also be introduced to basic concepts of inheritance, nutrition, and metabolism.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- describe the composition of blood and state the various functions of blood;
- describe the role of erythrocytes, thrombocytes, and leukocytes;
- describe the structure of, and explain the function of the lymphatic system;
- describe the structure of the heart, and how it works;
- describe the anatomy of arteries, veins, and capillaries;
- explain how the cardiovascular system maintains homeostasis of blood pressure and blood flow;
- describe the anatomy of the respiratory system and explain the mechanics of breathing;
- explain how the respiratory system maintains homeostasis of blood gases and pH;
- describe the structure of the renal system;
- explain how the kidney maintains fluid & electrolyte balance;
- describe the anatomy of the organs comprising the digestive system and the function of each;
- describe the structure and the function of the male and female reproductive systems;
- explain the basic principles of human genetics; and
- describe basic metabolism and nutrition.

Class Contact: 5 hours per week; comprising of 2 hours of lectures, 2 hours of practical and 1 hour of tutorial or equivalent. Class contact hours per week may vary according to clinical placement allocations.

Required Reading: Marieb, E.N. & Hoehn, K. (2007). Human Anatomy and Physiology. (7th ed.). California, USA: Pearson Benjamin Cummings.

Assessment: In order to obtain a pass or higher in this graded unit, normally all components of assessment must be submitted and an aggregate mark of at least 50% must be attained. Supplementary assessment in the form of a supplementary theory exam will normally be offered to students achieving an N (45-49%) grade and have completed/submitted all other assessment tasks. Students must achieve at least 50% on the supplementary exam to be granted a P 50 as a final grade for the unit.Test, Theory - Test 1, 10%. Test, Theory - Test 2, 10%. Examination, Practical - During Examination Period., 30%. Examination, Theory - During Examination Period., 50%.

RBM1208 BIOSCIENCE FOR PARAMEDICS 2

Locations: St Albans.

Prerequisites: RBM1107 BIOSCIENCE FOR PARAMEDICS 1; or equivalent.

Description: This unit will contain: Module 1 Maintenance of the human body - The respiratory system - The renal/urinary system - Fluid, electrolyte and acid base balance - Immunity - Genetics Module 2 The principles of support and movement - The skeletal system: bone tissue, the axial skeleton, and the appendicular skeleton - Joints - Muscle tissue. - Muscular systemTopics in this unit can be exchanged with topics in units RBM1107 and RBM2109.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe the physiology and biochemistry of fluid/electrolyte and acid-base balance in the human organism;
2. Describe the anatomy and physiology of the musculoskeletal, respiratory, renal/urinary and immune systems;
3. Describe fundamental genetic processes found in the human organism.

Class Contact: Forty-eight (48) hours or equivalent for one semester comprising lectures and tutorials. Practical sessions will be provided subject to clinical placements. Practical sessions have a hurdle requirement of at least 80% attendance.

Required Reading: Lee, G., & Bishop, P. (2002). Microbiology and infection control for health professionals (2nd ed.). Frenchs Forest, Sydney: Prentice Hall. Marieb, E. N., & Hoehn, K. (2007). Human anatomy and physiology (7th ed.). USA: Pearson Benjamin Cummings.

Assessment: Other, semester test(s)/assignments/laboratory reports, 40%. Examination, 2.5 hour written, held in examinations week, 60%. In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBM1209 EXERCISE PHYSIOLOGY & NUTRITION FOR PARAMEDICS

Locations: St Albans.

Prerequisites: RBM1107 - BIOSCIENCE FOR PARAMEDICS 1

Description: This unit of study develops an understanding of health, exercise and nutrition. The unit introduces students to elements of physical fitness and exercise physiology to allow them to assess their own health and fitness, develop training and rehabilitation programs and evaluate the outcomes. The unit further introduces students to aspects of nutrition, including key concepts of nutrition, metabolism, diet and health, e.g., food choices, diet planning, diet and the shift worker, lifelong nutrition choices.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Provide the key concepts and definitions related to health, exercise and nutrition;
2. Define the various essential nutrients, and identify the chemical compositions of those nutrients;
3. Discuss the role energy plays, and identify the energy-yielding nutrients available to the human body;
4. Discuss the concepts of digestion, absorption and transportation in relation to nutrition;
5. Assess food choices against recommended dietary intakes, and implement appropriate diet planning for health;
6. Discuss nutritional requirements across the lifespan;
7. Integrate theory and practice in health and exercise;
8. Use modern technology and multiple resources to locate, retrieve and process a range of information on health, exercise and nutrition;
9. Critically analyze and evaluate information on health, exercise and nutrition.

Class Contact: Forty-eight (48) hours for one semester comprising lectures and workshops.

Required Reading: Understanding normal and clinical nutrition Rolfes, S. R., Pinna, K., & Whitney, E. (2008) 8th ed Wadsworth Publishing Company Exercise Physiology McArdle W.D., Katch, F. I., & Katch, V.L. (2010) 7th ed. Wolters Kluwer, Lippincott Williams & Wilkins

Assessment: Test, Written (40 min), 20%. Other, test (40 min)/assignment (2000 words), 20%. Examination, 2-hour written, held in examinations week, 60%. In order to obtain a pass or higher in this graded unit, normally all components of assessment must be passed.

RBM1211 BIOSCIENCE 2

Locations: St Albans.

Prerequisites: RBM1101 - BIOSCIENCE 1

Description: This unit will contain: Maintenance of the human body The respiratory system The digestive system Metabolism The urinary system Fluid, electrolyte and acid base homeostasis The reproductive systems Microbiology and infection control Fundamentals of microbiology Host, microbe interactions Control of micro-organisms

Credit Points: 12

Learning Outcomes: On successful completion of this unit, the student will: Have a sound understanding of the anatomy and physiology of the respiratory system, the digestive system, metabolism, urinary system, and the reproductive systems. Have a sound understanding of major pathophysiological processes within each system listed above and their relationship to paramedic practice.

Class Contact: Forty eight hours (48) over one 12-week semester, comprising of three (3) hours per week delivered as lectures and one (1) hour per week practical class delivered as laboratory or tutorial.

Required Reading: Tortora GJ & Grabowski SR. (2005) Principals of anatomy and physiology, 11th edn. Wiley New York, USA.Lee G & Bishop P. (2002) Microbiology and infection control for health professionals. 2nd edn. Prentice Hall, Frenchs Forest, Sydney.

Assessment: This unit has three (3) assessment items, a one (1) hour written mid semester examination 25%, four (4) laboratory reports 25%, and a two (2) hour written end of semester examination 50%. To obtain a pass in this unit all components of assessment must be attempted and passed. Failed assessments may be re-attempted/re-submitted once only. Maximum possible marks to be obtained on any re-submission will be 50%. This unit is hurdle requirement.

RBM1222 ANATOMY & PHYSIOLOGY 2

Locations: St Albans.

Prerequisites: RBM1121 - ANATOMY & PHYSIOLOGY 1

Description: This unit continues the study of the structure and function of the human body, using homeostatic regulation o the internal environment as the ongoing theme. The cardiovascular, respiratory, urinary, gastrointestinal and reproductive systems are placed in context with their overall regulation and co-ordination via the neuro-endocrine system. This provides an understanding of how homeostatic mechanisms regulate variables such as blood pressure, blood gas status, fluid and electrolyte balance and acid-base balance. The provision of nutrients to the body by the gastrointestinal system is integrated with the study of biochemistry and metabolism. An introduction to basic concepts of inheritance is followed by the study of the male and female reproductive systems

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the structure and function of the cardiovascular, respiratory, urinary, gastrointestinal and reproductive systems in the human body; Explain how the homeostatic mechanisms regulate the blood pressure, blood gas status, fluid and electrolyte balance and acid-base balance; Explain the basic principles of normal human genetics.

Class Contact: Fifty (50) hours for one semester comprising lectures, tutorials and laboratory classes.

Required Reading: Human Anatomy and Physiology Marieb, e.N., & Hoehn, K. (2010). 8th ed. Benjamin Cummings Publishing

Assessment: Test, MCQs, 20%. Other, Class assessment & 1.5 hrs exam on laboratories, 40%. Examination, 2.5 hrs written exam, 40%.

RBM1282 BIOCHEMISTRY 2 (OSTEOPATHY)

Locations: City Flinders.

Prerequisites: RBM1181 - BIOCHEMISTRY 1 (OSTEOPATHY)

RMS1171 - BIOCHEMISTRY 1 (OSTEOPATHY)

Description: This unit of study aims to provide further insights into the biochemical events in the human body, biochemical pathology, inborn errors of metabolism and their effects. It will focus on the underlying principles and importance of clinical biochemistry and biochemical tests in the diagnosis of disease. Clinical cases will be used to discuss normal and altered human biochemistry. This unit also provides opportunities for students to develop basic laboratory skills and good laboratory practice. Students will develop skills in observation and recording of experimental results, critical analysis and interpretation of results, and report writing.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge of biochemistry to different situations Aware of biochemical and pathological basis of metabolic diseases Able to explain the relationship between laboratory tests and the diseases they are used for diagnosing. Make critical analysis and interpretations of test results, taking into account various factors that can influence them. Able to follow and execute laboratory instructions, make accurate observation and critically analyse data, and write formal reports Familiar with proper and correct handling of basic biochemical laboratory equipment and exercise good laboratory practices Ability for independent work or work as a team

Class Contact: 1 hour lecture/week 2 hours laboratory (alternate week) 2 hours workshop/tutorial (alternate week) .

Required Reading: Required Reading - Text Biochemistry. A short course Tymoczko JL, Berg JM and Stryer L/2010 Freeman/NY

Assessment:

1. Laboratory reports 40%
2. Case study workshops presentation 30%
3. Examination (including theory and practical skills): 30% A pass (minimum 50%) is required in ALL the components in order to complete the subject successfully.Laboratory Work, Formative assessment, 40%. Presentation, Formative assessment, 30%. Examination, Summative assessment, 30%.

RBM1501 FOUNDATIONS IN BIOMEDICAL SCIENCE A

Locations: St Albans.

Prerequisites: Nil.

Description: This unit has been designed to provide students with the fundamental skills necessary for the successful completion of the biomedical sciences course. A series of lectures and workshops will provide students with an introduction to communication theory and professional practice. This will cover communication skills of summarising, synthesising, note taking, laboratory report and essay writing, researching and referencing. Students will be encouraged to develop critical thinking and self editing skills. Oral presentation techniques such as formal talks, impromptu presentations and small group presentations will be developed. During laboratory classes students will gain an understanding of the scientific method and will become familiar with some career options in the biomedical sciences. An important outcome of the laboratory component is that students develop fundamental laboratory and problem solving skills.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate skills in researching, summarising, synthesizing and referencing for scientific writing purposes. Demonstrate oral presentation techniques. Discuss scientific method and the branch of science known as biomedical science. Discuss some potential career options in the field of biomedical science. Describe basic units of measurement used in the biomedical sciences. Demonstrate fundamental laboratory skills. Demonstrate skills in collecting and appropriately recording data. Demonstrate skills in preparing a succinct laboratory report in scientific method format.

Class Contact: 60 hours per semester comprising lectures, workshops/tutorials and laboratories.

Required Reading: Handbook of communication skills for first year students in the Faculty of Health, Engineering and Science VU - Faculty of Arts, Education & Human Development (2007) 9th edn

Assessment: Report, Two written reports (700 words each), 25%. Project, Group Project (1000 words) and oral, 50%. Examination, Written (1.5hrs), 25%.

RBM1502 FOUNDATIONS IN BIOMEDICAL SCIENCE B

Locations: St Albans.

Prerequisites: Nil.

Description: This unit of study enables students to acquire the skills and techniques required to critically analyse written material, particularly scientific reports and to analyse scientific data. Topics include: basic mathematical principles, scientific notation and SI units, biophysics, introduction to data; descriptive statistics; introduction to probability; normal distribution; the t statistic; hypotheses testing and 'p' values. Use will be made of statistical and other computer packages commonly used within biomedical sciences

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Five hours per week, 3h lectures, 2h practicals/workshops.

Required Reading: Strube P 2003 Bodyworks, 2nd ed. Prentice Hall; Utts & Heckard 2004 Mind On Statistics, 2nd ed. Thomson; Handbook of biophysics and biostatistics for biomedical science students in the Faculty of Science, Engineering and Technology.

Assessment: Laboratory assessment tasks, 25%; Assignment, 25%; Biophysics test, 25%; Statistics test, 25%.

RBM1510 HUMAN BIOSCIENCE 1A - PSYCHOLOGY

Locations: St Albans.

Prerequisites: Nil

Description: This unit provides a basic knowledge and understanding of human cells, tissues and organ systems. It also introduces chemical and physical principles and relates these principles to the human body. Concepts of physiological regulation and homeostasis are discussed and applied to functions of body systems. This subject provides an overview of the structure and function of the human body.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Seven hours per week comprising four hours lectures, three hours laboratory and/or tutorial.

Required Reading: To be advised by lecturers.

Assessment: Tests and examinations, 55%; laboratory reports, laboratory tests and assignments, 45%.

RBM1514 FUNCTIONAL ANATOMY 1

Locations: St Albans.

Prerequisites: Nil.

Description: This unit of study introduces students to functional anatomy. After a brief introduction to bones, joints, muscles, vessels and nerves; students study gross, histological and some surface anatomy of the head and neck and the back. The following regions are studied: skull and cranial cavity, brain and the associated nervous system, scalp and face, eye and ear, nasal and oral cavities, major structures of the neck, vertebral column and deep and superficial muscles of the back. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interchanged with those of the unit of study Functional Anatomy 2 and/or 3.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Five hours per week, 3h lectures, 2h practicals.

Required Reading: Moore, K.L. Clinically Oriented Anatomy, Williams & Wilkins, Baltimore, USA, 5th edition 2004.

Assessment: Topic Test x 2, 10%; Practical exam, 35%; Theory exam, 55%.

RBM1515 ANATOMY AND PHYSIOLOGY 1

Locations: St Albans.

Prerequisites: Nil

Description: The structure and function of the human body is introduced and placed in an integrated fashion within the context of midwifery. Following a brief overview of the organisation of the human body, students are introduced to the structure and function of cells and various types of tissues. Basic concepts in chemistry and biochemistry are covered in relation to the human body and students are introduced to microbiology within the context of infection control. The bones, joints and muscles of the body are taught in an integrated way using a regional approach. The nervous system and endocrine system are discussed to highlight their regulatory role for control, co-ordination and communication. The importance of homeostasis and the role of the neuro-endocrine system in maintaining equilibrium within the human body are emphasised. This is followed by a discussion of the special senses, in particular sight, hearing and balance. The integumentary system is covered to emphasise the importance of, for example, skin colour, temperature and sensation relevant to midwifery. Information presented in this unit will be useful in the clinical context.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Outline the structures and functions of human cells and tissues; Explain the basic concepts of chemistry, biochemistry, microbiology and infection control in relation to the human body; Describe the structures and functions of the integumentary, musculo-skeletal, endocrine and nervous systems; Explain homeostasis and the role of the neuro-endocrine system in regulating body functions.

Class Contact: Four hours per week for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Human anatomy and physiology, Marieb, E.N. & Hoehn (2007), 6th Edition, International, Benjamin cummings Publishing.

Assessment: Test and assignment (20%); laboratory work/test (40%); theory examination (40%).

RBM1518 HUMAN PHYSIOLOGY 1

Locations: St Albans.

Prerequisites: Nil.

Description: The importance of homeostasis and the role of the neuro-endocrine system in maintaining equilibrium within the body is emphasised. The nervous system and endocrine system are introduced in an integrated way to highlight their regulatory role for control, co-ordination and communication. The nervous system will be represented as the body's most rapid means of maintaining homeostasis via sensations, integration and response to changes, both within the body and in the outside environment. The physiology of nerve cells will be used to introduce bioelectrical concepts. This provides the groundwork to support an understanding of the various types of cells within the body and their functions. The musculoskeletal system and cellular replication processes are covered. Topics studied in this subject may be interchanged with those of RBM1528 Physiology 2.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Five hours per week for one semester, comprising three hours of lectures, two hours of practical on alternate weeks and one hour tutorial class per week.

Required Reading: Seeley, R.,Stephens & T., Tate P. (2007), Anatomy and Physiology, 8th edn, McGraw-Hill.

Assessment: Practical reports/test and assignment/worksheets, 45%; test/ examination, 55%.

RBM1520 HUMAN BIOSCIENCE 2 - PSYCHOLOGY

Locations: St Albans, Werribee.

Prerequisites: Students would normally be expected to successfully complete RBM1510 Human Bioscience 1A.

Description: This subject aims to enable the students to extend theoretical knowledge of normal human structure and function developed in RBM1510 Human Bioscience 1A by examining more complex integrated functioning of the various systems in health and comparing these with selected deviations from health. Students will be introduced to fluid and electrolyte dynamics, the role of membrane structures and capillary dynamics, and integration of the neural, endocrine, circulatory, respiratory, and renal sub-systems in maintaining fluid, electrolyte and acid-base balance. Metabolism, body temperature control and nutrition are examined. Microbiology is introduced.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Six hours per week comprising three hours of lectures, three hours of laboratory and/or tutorials for one semester.

Required Reading: To be advised by lecturer.

Assessment: Test and examination, 55%; laboratory reports and assignments, 45%.

RBM1524 FUNCTIONAL ANATOMY 2

Locations: St Albans.

Prerequisites: RBM1514 - FUNCTIONAL ANATOMY 1

RBM1518 - HUMAN PHYSIOLOGY 1

Description: Students study gross, histological and some surface anatomy of the thorax, abdomen and pelvis. The following regions are studied: thoracic cage, pleura and lungs, heart, mediastinal structures, abdominal wall, pelvic girdle, gastrointestinal organs, urinary organs and reproductive organs. The relevance of functional anatomy to health and healing will be highlighted. Topics studied in this unit of study may be interchanged with those of the unit of study Functional Anatomy 2 and/or 3

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Five hours per week, 3h lectures, 2h practicals.

Required Reading: Moore, K.L. Clinically Oriented Anatomy, Williams & Wilkins, Baltimore, USA, 5th edition 2004.

Assessment: Topic Test x 2, 10%; Practical exam, 35%; Theory exam, 55%.

RBM1525 ANATOMY AND PHYSIOLOGY 2

Locations: St Albans.

Prerequisites: RBM1515 - ANATOMY AND PHYSIOLOGY 1

or equivalent.

Description: This unit continues the study of the structure and function of the human body, using homeostatic regulation o the internal environment as the ongoing theme. The cardiovascular, respiratory, urinary, gastrointestinal and reproductive systems are placed in context with their overall regulation and co-ordination via the neuro-endocrine system. This provides an understanding of how homeostatic mechanisms regulate variables such as blood pressure, blood gas status, fluid and electrolyte balance and acid-base balance. The provision of nutrients to the body by the gastrointestinal system is integrated with the study of biochemistry and metabolism. An introduction to basic concepts of inheritance is followed by the study of the male and female reproductive systems

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the structure and function of the cardiovascular, respiratory, urinary, gastrointestinal and reproductive systems in the human body; Explain how the homeostatic mechanisms regulate the blod pressure, blood gas stsus, fluid and electrolyte balance and acid-base balance; Explain the basic principles of normal human genetics.

Class Contact: Four hours per week for one semester comprising lectures, tutorials and laboratory work.

Required Reading: Marieb, E. N., & Hoehn, K. (2007). Human anatomy and physiology (7th ed.). Benjamin Cummings Publishing.

Assessment: Test and assignment (20%); laboratory work/test (40%); theory examination (40%).

RBM1528 HUMAN PHYSIOLOGY 2

Locations: St Albans.

Prerequisites: RBM1518 Physiology 1

Description: This subject continues the study of the structure and functions of the body, using homeostatic regulation of the internal environment as the ongoing theme. The cardiovascular, respiratory, urinary, gastrointestinal and reproductive systems are placed in context with their overall regulation and co-ordination via the neuro-endocrine system. This provides an understanding of how homeostatic mechanisms regulate variables such as blood pressure, blood gas status, acid-base balance, fluid and electrolyte balance and blood glucose. The provision of nutrients to the body by the gastrointestinal system is integrated with the study of biochemistry and metabolism. An introduction to basic concepts of inheritance is followed by the study of the male and female reproductive systems. Topics studied in this subject may be interchanged with those of RBM1518 Physiology 1.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Five hours per week for one semester, comprising three hours of lectures, two hours of practical on alternate weeks and one hour tutorial class per week.

Required Reading: Seeley, Stephens & Tate 2008, Anatomy and Physiology, 8th edn, McGraw-Hill.

Assessment: Practical reports/test and assignment/worksheets, 45%; test/ examination, 55%.

RBM1536 HUMAN BIOSCIENCE B

Locations: St Albans.

Prerequisites: Nil.

Description: In this subject, anatomy and physiology will be taught using a systems approach. The following systems will be covered nervous, endocrine, cardiovascular, lymphatic, respiratory, gastrointestinal, renal, reproductive, musculoskeletal, integumentary. Their relevance to Nursing will be highlighted.

Credit Points: 12

Learning Outcomes: On successful completion of this bridging subject, students should have a thorough knowledge of human anatomy and physiology.

Class Contact: A total of 32 hours comprising lectures, laboratories, tutorials.

Required Reading: Marieb EN. (2003). Human Anatomy and Physiology. 5th Edition, Addison Wesley Longman, California, USA. Available with five CDs on Interactive Physiology for Windows & Macintosh.

Assessment: Theory Examination (60%); Practical Examination 40%

RBM1820 NUTRITION, SOCIETY, AND COMMUNICATION

Locations: St Albans.

Prerequisites: Nil.

Description: Fundamental principles of nutrition science, common cultural dietary practices; effect of cultural and socioeconomic influences on dietary habits; common nutritional epidemics; media and communication tools; strategies and attributes of nutrition health campaigns; the potential impact of such campaigns.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate academic and professional written and oral skills to a standard consistent with skills of nutrition and food science professionals; Demonstrate competency in the retrieval of information from libraries and library databases; Discuss the evolution of diet and nutrition with agriculture and industrialisation; Recall nutritional epidemics and risks; Demonstrate competency in the use of standard referencing systems; Discuss the influence of culture and religion on nutrition; Discuss strategies used in common nutritional health campaigns.

Class Contact: Sixty hours (60) for one semester comprising lectures and tutorial/ workshops.

Required Reading: VU Faculty of Arts. (2007). Handbook of communication skills for the first year students in the Faculty of Health, Engineering and Science (9th ed.). Author.

Assessment: Presentation, Oral, 20%. Assignment, Two - 1500 words each, 40%. Examination, Final, 40%.

RBM1830 DIET THERAPY 1

Locations: St Albans.

Prerequisites: Nil.

Description: Dietary assessment techniques, case history taking to assess the dietary habits of clients, dietary nutrient requirements for a balanced and healthy diet, basic counselling skills with respect to the assessment and evaluation of dietary habits and the communication of corrective strategies to clients, codes of ethical practice in dealing with clients.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours/week for one semester comprising 3hours lecture, 1 hour tutorial.

Required Reading: Colbin A (1996) Food and Healing, 2nd edition, USA, Ballantine. Thomas B, (2001) The Manual of Dietetic Practice, 3 rd Ed, Oxford Blackwell Science.

Assessment: Examination (3 hour), 50%; Clinic observation journal, 50%.

RBM1910 MICROBIOLOGY FOR CHINESE MEDICINE PRACTITIONERS

Locations: St Albans.

Prerequisites: Nil

Description: Types of micro-organism and their place in, on and around us; how micro-organisms grow and how their growth is prevented or controlled in clinical settings; micro-organisms as agents of disease in the individual and in the population; how the body defends itself against microbial invasion and the role of the health practitioner in preventing the spread of disease.Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Laboratory and practical sessions have a hurdle requirement of at least 80% attendance.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: The equivalent of 36 hours for one semestercomprising lectures, tutorials and laboratory practicals.

Required Reading: Lee, G., & Bishop, B. (2002). Microbiology and infection control for health professionals (2nd ed.). Australia: Prentice Hall.

Assessment: Participation in practical sessions with at leas 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); practical reports and laboratory work (30%); one topic test (15%); one 2-hour end-of-semester examination (55%). This unit is a hurdle requirement.

RBM2061 OCCUPATIONAL HYGIENE SCIENCE

Locations: St Albans.

Description: This unit covers and reviews basic chemical, microbial and physical concepts, that relate to occupational hygiene. Particular attention is given to sampling strategies and the measurement of exposures that lead to energy transfer to organisms or disruption of energy within organisms

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three and half hour lecture equivalents for 12 weeks and one hour tutorial equivalents delivered over 6 weeks online for one semester.

Required Reading: Ashton, I Gill, FS. 2000 Monitoring for Health Hazards at Work. 3rd Ed. Blackwell Science Oxford Fisher J. Arnold JRP. 2004 Instant Notes Chemistry for Biologists 2nd Ed. Bios Scientific Publishers, Taylor and Francis Group.

Assessment: Assignments, tutorial topic questions and tests.

RBM2100 REHABILITATION ANATOMY

Locations: St Albans.

Prerequisites: RBM1200 - FUNCTIONAL ANATOMY OF THE LIMBS

Description: The relevance of functional and clinical anatomy to health and healing will be highlighted through a detailed study of the mechanics and muscles affecting the movement of joints in the body. This information will be presented and highlighted through the study of a number of different areas including kinesiology, biomechanics, gait analysis, posture, massage, muscle testing, exercise, stretching, basic soft tissue techniques, and awareness through movement and posture. There will be a particular emphasis on muscle testing and surface anatomy. Topics studied in this unit may be interchanged with those in other Functional Anatomy units.

Credit Points: 12

Learning Outcomes: At the completion of this unit students should be able to: . understand and perform clinical tests on muscles and joints of the body.

Class Contact: Five hours per week for one semester; 3 hours lecture, 2 hours practical/tutorial.

Required Reading: Behnke, R.S., 2000, Kinetic Anatomy, Human Kinetics Australia.

Assessment: Theory examination 55%, practical examination 20% written assignment 25%.

RBM2104 PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 1

Locations: St Albans.

Prerequisites: RBM1203 - BIOSCIENCE 2: HUMAN BODY STRUCTURE & FUNCTION

HNB1202 - HEALTH PRIORITIES & NURSING 1

HNB1203 - CLINICAL PRACTICUM 1

Description: The aim of this unit is to present major concepts and principles of pathophysiology, illustrating their relationship to a range of common/important acute and chronic illnesses. This unit supports the topics in concurrent nursing units by: providing a scientific basis for understanding disease processes such as cellular injury, inflammation, infection, and shock; by elucidating the underlying mechanisms which result in clinical manifestations; and by presenting the rationale for therapeutic interventions. In particular, students will be introduced to pharmacokinetics, pharmacodynamics and pharmacological interventions related to the pathophysiology studied. Microbiology will also be discussed with reference to the growth and physiology of micro-organisms, their pathogenic potential, infection control and antibiotic treatment. In this unit, major disorders of the cardiovascular, respiratory, renal and nervous systems will be examined, as well as fluid and electrolyte imbalances, acid/base imbalances and shock. The pathophysiological principles underlying disorders of major body systems and subsystems will also be discussed - for example, in cardiovascular pathophysiology, hypertension and atherosclerosis will be examined. However, specific systems in this subject may be interchanged with those in the fourth semester subject based on the relevant National Health Priorities studied in the associated nursing unit.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Explain the fundamentals of microbiology and infection control; Explain the relevance of microbiology in the work of health professionals; Describe the major pathophysiological processes, which underlie commonly encountered diseases/ conditions; Describe the major pathophysiological concepts of disease and how diseases progress such as: aetiology, risk factors; pathogenesis, acute and chronic conditions, and complications; Identify the environmental influences, which contribute to various pathophysiological processes, and relate these to disease prevention as well as pathogenesis; Describe severe and life-threatening complications, which may develop in particular disease conditions; Describe the scientific basis for preventative interventions, diagnosis and management of important pathophysiological conditions; Apply all of the above concepts to commonly encountered diseases/conditions of the: cardiovascular system, respiratory system, renal system, nervous system and acid/base imbalances and fluid/electrolyte imbalances; Discuss the principles of pharmacodynamics and pharmacokinetics as they apply to specific drugs or drug classifications; Discuss medication administration and nursing management of the client receiving medications including legal and ethical issues; Accurately calculate drug dosages; and Demonstrate skills in the safe practice of medication management.

Class Contact: Sixty (60) hours for one semester comprising lectures, tutorials and laboratories.

Required Reading: National Medicines Policy: Quality use of medicines. Australian Government Department of Health and Ageing. (2005). Canberra: Author. (http://www.health.gov.au/internet/wcms/publishing.nsf/Content/nmp-quality.htm) Pathophysiology: The Biologic Basis for Disease in Adults and Children McCance, K.L., & Huether, S.E. (2009). (6th ed.). Missouri, Mosby. Fundamentals of Pharmacology Shane Bullock and Elizabeth Manias (2010) 6th ed Pearson Australia Nursing and Midwifery Drug Handbook McKenna, L, Mirkov L (2010) 5th ed Australia & New Zealand

Assessment: Students must achieve an aggregate score of 50% and pass the assignment (Pharmacology 1000 words) in order to pass this unit.Test, 2 Tests 10 % each based on lectures and laboratory work, 20%. Assignment, Pharmacology (1000 words), 30%. Examination, 3 hour written final examination, 50%.

RBM2109 BIOSCIENCE FOR PARAMEDICS 3

Locations: St Albans.

Prerequisites: RBM1208 - BIOSCIENCE FOR PARAMEDICS 2

Description: This unit will introduce the student to anatomy and physiology of the major body systems including: musculoskeletal, digestive, male and female reproduction. Additionally major physiological processes including the following will be introduced: pregnancy/birth, cellular response to injury, inflammation, wound healing, neoplasma and immunopathology.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Describe the anatomy and physiology of the musculoskeletal system
2. Describe the anatomy and physiology of the digestive system
3. Explain the processes of inflammation and neoplasia.
4. Explain the anatomy and physiology of the reproductive systems, pregnancy and human development.
5. Describe cellular changes in response to injury, wound healing and immunopathological processes.
6. Discuss basic pathophysiological processes within each system listed above and their relationship to paramedic practice.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and practical classes.

Required Reading: Human anatomy and physiology. Marieb, E., and K. Hoehn (2009). (8th ed.). Benjamin Cummings

Assessment: Test, 2 semester tests (10% each), 20%. Assignment, written assignment (1000 words), 20%. Examination, 2.5 hour written examination, 60%. 80% attendance at practical classes is a hurdle requirement for this unit.

RBM2123 PATHOPHYSIOLOGY IN MIDWIFERY

Locations: St Albans.

Prerequisites: RBM1121 - ANATOMY & PHYSIOLOGY 1

RBM1222 - ANATOMY & PHYSIOLOGY 2

Description: This unit of study will introduce pathophysiological concepts, principles and disease processes, illustrating their relationship to a range of common and important acute and chronic disease conditions, relevant to midwifery practice. The aims of the unit are: to provide a scientific basis for understanding disease processes such as cellular injury, inflammation and neoplasia; to elucidate the underlying mechanisms which result in clinical manifestation; and to present the rationales for therapeutic interventions. Microbiology will be discussed with reference to the pathogenic potential and infection control of microorganisms. The pathophysiological principles underlying disorders of body systems will be discussed with an emphasis on midwifery; for example, in cardiovascular pathophysiology: hypertensive disorders of pregnancy and shock associated with blood loss will be examined. Other topics to be covered will include disorders of: blood (eg. anemias) and body defences (eg. incompatibilities), the renal system, fluid and electrolytes, the reproductive system (eg. sexually transmitted diseases, infertility), labour, endocrinology, metabolism (eg. diabetes) and nutrition associated with pregnancy. Genetic and developmental abnormalities of the foetus will also be examined.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the pathogenic potential and infection control of micro-organisms. Describe the relationship between normal and abnormal structure and function. Describe both normal and abnormal embryonic and foetal development, including genetic. and developmental abnormalities and causes of foetal distress and death. Discuss metabolic disorders especially diabetes mellitus. Explain disorders of blood and immunity such as anaemia and blood group incompatibility. Describe cardiovascular changes and abnormalities such as hypertension. Describe disorders of fluid and electrolyte balance including pre-eclampsia and eclampsia. Describe abnormalities of placental and membrane development and function. Identify the problems encountered during labour.

Class Contact: Sixty (60) hours for one semester comprising lectures, laboratories and tutorials.

Required Reading: Pathophysiology: concepts of Altered Health States Porth, C.M. 2005 7th ed. Lippincott Williams & Wilkins, Philadelphia

Assessment: Test, Written, 15%. Report, Laboratory, 15%. Examination, 3 hour written theory, 70%.

RBM2133 CELL AND MOLECULAR BIOLOGY

Locations: St Albans.

Prerequisites: RBF1310 - BIOLOGY 1

RBM1528 - HUMAN PHYSIOLOGY 2

Description: Cell and Molecular Biology focuses on the investigation of the human body at the molecular and cellular levels. The unit will discuss the components of cells, how they are regulated, where they are located and how they interact to produce an entity that can live and reproduce, with a particular focus on biomedicine. Lecture series will cover topics such as the molecular structure, organisation and functioning of the eukaryotic cell and will make direct links to understanding of the molecular basis of health and disease as emerging in the medical research. Topics to be covered include: compartmentalisation; macromolecules, plasma and internal membrane structure; the cytoskeleton and its role in structure, function, and movement; cellular transport and cell movement mechanisms including: cell motility; cell crawling; molecular protein motors; transport and docking of vesicles; transmembrane movements via channels (ion flux in disease) as well as endocytosis and pinocytosis; organisation and structure of the cell nucleus; organisation and function of the genome, including repetitive and non repetitive DNA sequences; regulation of gene expression; intracellular targeting of proteins including co translational and post translational pathways; communication and cell signalling between cells including chemical and hormonal signalling and receptor mediated communication, signal transduction pathways; Extracellaur matrix; Cell cycle and its regulation; Energy conversion; Cell to cell contact and adhesion; the molecular mechanisms of cell adherence and metastasis, and the role of apoptosis (programmed cell death) in development; investigation of current research into molecular mechanisms in immunity, inflammation and disease including cancer and neurodegenerative conditions, e.g., role of Tau protein in Alzheimer s and neurofibrillary tangles. Current research and laboratory techniques are covered as is current knowledge on molecular and cellular mechanisms in key areas of disease, immunity and inflammation.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the structures and function of the cell; Describe the role of the cytoskeleton in cell transport and structure; Explain cellular transport and cell movement mechanisms including the different mechanisms for protein uptake and excretion from cells: endocytosis, excoytosis, phagocytosis; Describe the molecular mechanism for cell adherence; Explain the cell cycle, its regulation and energy conversion and cell division; Describe communication and cell signalling between cells including chemical and hormonal signalling and receptor mediated communication, including understand and describe signal transduction events in cells; Describe protein trafficking in the cell; Explain how proteins are synthesized and processed by the human cell; Explain how ions move through lipid membranes; Describe the molecular structure, organisation and functioning of the eukaryotic cell; Discuss the molecular basis of health and disease as emerging in the medical research; Describe the organisation and structure of the cell nucleus and genome; Explain how cell function can be altered in some diseases, with reference to cancer, neurodegenerative disorders and ion channel disorders; Discuss current research findings about molecular mechanisms in immunity, inflammation and disease including neurodegenerative conditions.

Class Contact: Seventy-two (72) hours or equivalent for one semester comprising lectures, tutorials/laboratories/workshops and self-directed learning. Participation in practical/workshop sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement).

Required Reading: Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., & Walter, P. (2007). Molecular biology of the cell (5th ed.). New York : Garland Science.

Assessment: Participation in practical/workshop sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); In order to obtain a pass or higher in this graded unit, normally all components of assessment must be attempted and submitted and an aggregate mark of 50% must be attained.Laboratory Work, assessment items eg. written, model, poster, presentation, tests, 40%. Examination, Written, 60%.

RBM2141 PHARMACOLOGY AND NUTRITION

Locations: St Albans.

Prerequisites: RBM1810 - NUTRITIONAL BIOCHEMISTRY

Description: This unit covers the nutritional roles of functional foods; the classification of prescription drugs and their therapeutic uses and contra-indications; pharmacodynamics; polypharmacy; psychonutrition; drug-nutrient interactions.

Credit Points: 12

Learning Outcomes: At the conclusion of this unit the successful student will be able to: recall the functional foods commonly encountered in foodstuffs, and their nutritional roles; recall the major classes of prescription drugs, their therapeutic roles and contra-indications; explain the principles of pharmacodynamics; be aware of the potential for specific drug-nutrient interactions and be able to demonstrate ability to retrieve such published information; be aware of the potential effects of polypharmacy; recall the effects of selected psychonutrients.

Class Contact: 3 hrs/wk, made up of lectures, and tutorials/workshops.

Required Reading: Bryant B, Knights K; Pharmacolgy for Health Professionals. 2007. 2nd ed. Elsevier, NSW.

Assessment: Exam 60% assignments (2) 40%

RBM2161 ERGONOMIC SCIENCE

Locations: St Albans.

Description: Ergonomics utilizes a number of contemporary inter-disciplines - anatomy and physiology, sociology and psychology, physics and engineering etc., which will extend and merge together toward solving ergonomic problems. Topics will include the maintenance and distribution or impact of energy in the body, application of forces in regard to human movement, the physiology of sense organs, work design, man/machine information exchange; psychological, social, and economic contributions to work. The subject will also cover qualitative measurements, task analysis and job design.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three and half hour lecture equivalents for 12 weeks and one hour tutorial equivalents delivered online over 6 weeks for one semester.

Required Reading: Bridger RS 2003. Introduction to ergonomics. 2nd edition Taylor and Francis, Kumar S. (Ed).2000 Multidisciplinary approach to rehabilitation. Butterworth - Heinmann Woburn MA, Marieb EN 2003 Essentials of human anatomy

& physiology 7th ed Benjamin Cummings San Francisco, Wilson A. 2001. Medical terminology Tertiary Press Croydon, Victoria, Worth, D.R. (ed) 2000. Moving in on occupational injury. Melbourne, Butterworth-Heinemann.

Assessment: Assignments, tutorial topic questions and tests.

RBM2200 FUNCTIONAL ANATOMY OF THE HEAD AND BACK

Locations: St Albans.

Prerequisites: RBM1100 - FUNCTIONAL ANATOMY OF THE TRUNK

Description: Students study gross and histological anatomy of the head, neck and back. The following regions are studied: skull and cranial cavity, brain and the associated nervous system, scalp, face, eye, ear, nasal and oral cavities, major structures of the neck, vertebral column, spinal cord and nerves, deep and superficial back muscles. The relevance of functional anatomy to health and healing will be highlighted. Topics included in the unit may be interchanged with those in other Functional Anatomy units.

Credit Points: 12

Learning Outcomes: On successful completion of this unit students should be able to: understand the anatomy and histology of the structures of the head and neck understand the anatomy and histology of the structures of the back problem solve common clinical problems, such as stroke and sinusitis.

Class Contact: Five hours per week for one semester comprising 2-3hours lectures and 2-3hours tutorial/practical.

Required Reading: Moore, K.L. & Dalley, A.F. Clinically Oriented Anatomy, Lippincott Williams & Wilkins, Philadelphia, USA, 5th edition 2006. School of Biomedical Science: practical notes.

Assessment: Topic tests 10%, Theory examination 45%, practical examination 45%.

RBM2201 CONSERVATION GENETICS

Locations: St Albans.

Prerequisites: RBF1310 Biology 1, RBF1320 Biology 2, RBF2610 Fundamentals of Ecology

Description: Context and overview Genetic diversity: single loci Genetic diversity: quantitative variation Large population: natural selection, adaptation, mutation and migration Small populations: loss of diversity, genetic drift, effective population size, inbreeding and inbreeding depression Captive populations: Management, reintroductions, breeding and case studies Molecular tools Species biology: taxonomy, genetic distances, tree of life, phylogeography and phylochronology, consequences of hybridization, management of hybridization and kinship Populations: structure, gene flow and fragmentation, conservation units, management and viability analysis. Life states and extinction modelling. Laboratory/practical sessions DNA extraction Electrophoresis Determining ploidy levels Phylogenetics Polymerase Chain Reaction (PCR) methods for genetic analysis Inbreeding/outbreeding models Use of computer software for simulations (population viability analysis), and various genetic indices to determine phylogenetic relationships) Field Trips.

Credit Points: 12

Learning Outcomes: Upon completion of the subject, students will have a thorough understanding of the role and importance of genetics to the management of species and populations and its application to the field of natural resource management as a whole, including the limitations of genetic data. As well as having a theoretical basis on which to base management decisions, students will have practical experience with the methods used in modern genetics and how these tools can be applied to the management of species and populations. Students will be able to critically analyse published data relating to taxonomy and phylogenetic relationships and their implications for conservation. Students will therefore be equipped to make decisions about the appropriateness of reintroduction of plants or animals, and the implications of reproductive interventions such as manual pollination or selective breeding.

Class Contact: Five hours per week comprising two hours lecture per week and the equivalent of three hours per week practical work including laboratory sessions, field trips and computer sessions.

Required Reading: Frankham R, Ballou JD, Briscoe DA (2002) Introduction to Conservation Genetics. Cambridge University Press, Cambridge. 617pp

Assessment: Two hour written examination (40%). CGA: A2, P2, I2 Written assignment of 2000 words (30%). CGA: I2/3, P3, W2/3Class Presentation of the assignment (10%). CGA: -O2/3, I2Practical reports and simulations (20%). CGA: C2, P2, W2, A2

RBM2205 PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 2

Locations: St Albans.

Prerequisites: RBM2104 - PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 1

Description: This unit furthers the understanding of pathophysiological principles and disease processes introduced in Pathophysiology & Quality Use of Medicine 1 and supports the content in concurrent nursing units. Topics will include neoplasia, disorders of the endocrine, musculoskeletal and haematological systems and the gastrointestinal tract and the quality use of medicines. Disorders of the reproductive tract including infertility will be presented. Important genetic disorders and their modes of inheritance will also be examined. Specific systems in this subject may be interchanged with those in the third semester subject based on the relevant National Health Priorities studied in the associated nursing unit Students will further develop their knowledge of medications, their administration and management with a particular focus on drugs used in clients with a mental illness, diabetes mellitus, cancer, arthritis and musculoskeletal conditions and related co-morbidities.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: understand the fundamentals of microbiology and infection control; appreciate the relevance of microbiology in the work of health professionals; describe the major pathophysiological processes, which underlie commonly encountered diseases/conditions; understand the major pathophysiological concepts of disease and how diseases progress such as: aetiology, risk factors; pathogenesis, acute and chronic conditions, and complications; identify the environmental influences, which contribute to various pathophysiological processes, and relate these to disease prevention as well as pathogenesis; discuss severe and life-threatening complications, which may develop in particular disease conditions; discuss the scientific basis for preventative interventions, diagnosis and management of important pathophysiological conditions; apply all of the above concepts to commonly encountered diseases/conditions of the: cardiovascular system, respiratory system, renal system, nervous system and acid/base imbalances and fluid/electrolyte imbalances; discuss the principles of pharmacodynamics and pharmacokinetics as they apply to specific drugs or drug classifications; discuss medication administration and nursing management of the client receiving medications including legal and ethical issues; accurately calculate drug dosages; and demonstrate skills in the safe practice of medication management.

Class Contact: A total of 60 hours; comprising 3-4 hours of lectures (total = 40 hours) and 1-2 hours of tutorial/laboratory or equivalent (total = 20 hours). Class contact hours per week may vary according to clinical placement allocations.

Required Reading: Australian Government Department of Health and Ageing. (2005). National Medicines Policy: Quality use of medicines. Canberra: Author. (http://www.health.gov.au/internet/wcms/publishing.nsf/Content/nmp-quality.htm) McCance, K.L., & Huether, S.E. (2005). Pathophysiology: The Biologic Basis for Disease in Adults and Children (5th ed.). Missouri, Mosby. Prosser, S., Worster, B. & Dewar, K. (2000) Applied Pharmacology for Nurses and Other Health Care Professionals. Sydney: Mosby

Assessment:

1. Written test (10%) Week 4 or 5

2. Written test (10%) Week 8 or 9

3. Written assessment (1000 words) (30%) Week 12

4. Written examination (2.5 hours) (50%) Exam period Students must achieve an

aggregate score of 50% and pass the written assessment to pass this subject. Supplementary assessment in the form of a supplementary theory exam will normally be offered to students achieving an N (45-49%) grade where they have also scored at least 40% for the end of semester theory exam and 50% for the written assessment. Students must achieve at least 50% on the supplementary exam to be granted a pass (P 50) as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail).

RBM2218 PRACTITIONER HEALTH 2

Locations: St Albans.

Prerequisites: AHE2111 - PRACTITIONER HEALTH 1

RBM1211 - BIOSCIENCE 2

Description: This unit will contain: Overview of Nutrition Digestion, Absorption and Transport The Carbohydrates: Sugars, Starches and Fibre The Lipids: Triglycerides, Phospholipids and Sterols Protein: Amino Acids Metabolism Vitamins: Water Soluble and Fat Soluble Vitamins Minerals: Major Minerals and Trace Minerals Diet and Health: Food Choices Diet Planning Food Labels Diet and the Shift Worker Lifelong Nutrition: Children Adolescence Pregnancy/Lactation Elderly.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Provide the key concepts and definitions related to nutrition; Define the various essential nutrients, and identify the chemical compositions of those nutrients; Discuss the role energy plays, and identify the energy-yielding nutrients available to the human body; Discuss the concepts of digestion, absorption and transportation in relation to nutrition; Assess food choices against recommended dietary intakes, and implement appropriate diet planning for health; Discuss nutritional requirements across the lifespan.

Class Contact: Forty-eight (48) hours over one 12-week semester comprising lectures and practical classes delivered as laboratories or tutorials.

Required Reading: Whitney, E. N., & Rolfes, S. R (2008). Understanding nutrition (11th ed.). Wadsworth Publishing Company.

Assessment: To obtain a pass or higher in this graded unit, all components of assessment must be passed. Failed assessments may be re-attempted/re-submitted once only. Maximum possible marks to be obtained on any resubmission will be 50%. This unit is a hurdle requirement.Test, Test, 20%. Assignment, Diet Evaluation (2000 Words), 30%. Examination, 2-hour written end-of-semester, 50%.

RBM2220 NUTRITIONAL BIOCHEMISTRY 2

Locations: St Albans.

Prerequisites: RBM1110 - NUTRITIONAL BIOCHEMISTRY 1

Description: Mechanisms of enzyme action and inhibition. Roles of micronutrients, vitamins and minerals. Mechanisms of gene expression. Metabolism of macronutrients,carbohydrates, proteins, lipids steroids and other hormones. Mechanisms of energy transfer; antioxidant function. Physiological consequences of disturbances in metabolism, inborn errors of metabolism. Receptors, ligands, antagonists. Integration and regulation of metabolism. Metabolic profiling and assessments.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Recall the major metabolic pathways and their essential components, and describe their integration and regulation; Name and explain the metabolic roles of micronutrients and dietary antioxidants; Explain the mechanisms of enzyme action and inhibition; Explain the physiological consequences of important genetic diseases; Explain the action of ligands, antagonists and receptors and how these have regulatory roles in metabolism; Discuss the neuro-endocrine influences on metabolic regulation; Describe the metabolic transformations of steroid and other major hormones; Explain the principles underpinning laboratory medicine.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and product workshops.

Required Reading: Gropper, S.S., Smith, J. L., & Groff, J. L. (2005). Advanced nutrition and human metabolism (4th ed.). USA: Thomson.

Assessment: Test, Topic tests, 30%. Assignment, Practical, 20%. Examination, Final, 50%.

RBM2221 NUTRITIONAL BIOCHEMISTRY

Locations: St Albans.

Prerequisites: RBM1810 - NUTRITIONAL BIOCHEMISTRY

Description: Mechanisms of enzyme action and inhibition. Roles of micronutrients, vitamins and minerals. Mechanisms of gene expression. Metabolism of macronutrients,carbohydrates, proteins, lipids steroids and other hormones. Mechanisms of energy tranfer; antioxidant function.Mechanisms of gene expression. Physiological consequences of disturbances in metabolism, inborn errors of metabolism. Receptors, ligands, antagonist. Integration and regulation of metabolism. Principles of laboratory medicine.Metabolic profiling and assessments.

Credit Points: 12

Learning Outcomes: At the conclusion of this unit the successful student will be able to: recall the major metabolic pathways and their essential components, and describe their integration and regulation; recall the mechanisms of gene expression, and the various potential sites of disease causation; recall and explain the metabolic roles of micronutients and dietary antioxidants; explain the mechanisms of enzyme action and inhibition; explain the physiological consequences of important genetic diseases; explain the action of ligands, antagonists and receptors and how these have regulatory roles in metabolism; recall the neuro-endocrine influences on metabolic regulation; recall the metabolic transformations of steroid and other major hormones; explain the principles underpinning laboratory medicine.

Class Contact: 5 hrs/wk; comprising 3 hrs lecture and 2hrs tutorial/workshop; or equivalent.

Required Reading: Gropper S.S, Smith J.L., Groff J.L. 2005, Advanced Nutrition and Human Metabolism. 4 th ed. Thomson. USA

Assessment: examination 60% case studies reports (2) 20% assignments (2) 20%

RBM2222 PERFORMANCE NUTRITION

Locations: St Albans.

Prerequisites: RBM2260 - DIET AND NUTRITION

RBM2221 - NUTRITIONAL BIOCHEMISTRY

Description: The importance of nutrition and specific ergonomic aids to enhancing physical performance will be demonstrated. This unit integrates nutrition, biochemistry and intermediary metabolism with the physiology of exercise, allowing the student to apply this knowledge to the designing of nutritional advice to enhance human performance. The macro- and micro- nutrient needs of different sport and exercise types will be discussed with the aim of arriving at the skills to provide appropriate practical dietary and nutritional therapeutic advice for athletes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Integrate their knowledge of biochemistry and physiology of exercise with the nutritional and ergonomic needs to optimize performance; Assess the nutritional needs of different exercise modalities; Discuss the parameters influencing the nutrient and fluid availability before, during and recovery after exercise; Develop skills in prescribing nutritional and ergonomic aids to enhance exercise performance.

Class Contact: Four hours per week or equivalent for one semester, comprising lectures/tutorials and off-campus portfolio preparation.

Required Reading: Brouns, F. (2002). Essentials of sports nutrition (2nd ed.). Wiley. Burke, L., & Deakin, V. (2006). Clinical Sports Nutrition (3rd ed.). Sydney: McGraw-Hill Australia. McArdle, W. D., Katch, F. I., & Katch, V. L. (2005). Sports and exercise nutrition (2nd ed.). Baltimore: Lippincott Williams & Wilkins.

Assessment: Case study/portfolio (20%); dietary and supplement prescription exercise (20%); final examination (60%).

RBM2260 DIET AND NUTRITION

Locations: St Albans.

Prerequisites: RBM1528 - HUMAN PHYSIOLOGY 2

Description: This subject will demonstrate the relationships between gastrointestinal function, diet and human health. The subject examines the gastrointestinal structure and function, body composition, anthropometry, chemical nature of the nutrients, and their roles in body structure and function, energy intake and regulation, metabolism of nutrients, nutritional requirements under various environmental and physiological states, diet and disease, dietary guidelines, hormonal control of digestion, vitamins as antioxidants, nutrition and prevention of disease, role of intestinal flora in nutrition.

Credit Points: 12

Learning Outcomes: At the successful completion of this unit, students should have: a) developed a detailed knowledge of the different classes of nutrients, e.g. carbohydrates, lipids, proteins, vitamins and mineralsb) described the composition, role and regulation of these nutrients within a range of different diets.c) described the importance of digestion, metabolism, nutrition and energy balance to the wellbeing of an individual.

Class Contact: To be advised.

Required Reading: Understanding Nutrition, Whitney and Rolfes 2008, 11th Edition, Thomson Wadsworth

Assessment: Tests, 20%; laboratory reports, 30%; final examination, 50%.

RBM2361 SAFETY PRACTICE

Locations: St Albans.

Prerequisites: RBM2161 - ERGONOMIC SCIENCE

Description: Skills in making the Occupational Health and Safety unit of a business become part of the organization. These require that there is sufficient understanding of ergonomics - to achieve optimum productivity and cost efficiency and minimum risk of injury, quality management, environmental affairs, behavioural safety and basic financial management.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hour lecture and one hour tutorial equivalents delivered online per week for one semester.

Required Reading: Frick K Jensen PL Quinlan M Wilthagen T Ed.2000 Systematic occupational health and safety management: perspectives on an international development. Elsevier Science Ltd, Oxford, Institute of Medicine. 2000. Safe work in the 21st century. Education and training needs for next decades occupational safety and health personnel. Washington, National Academy Press, Manuele FA. 2003 On the Practice of Safety. 3rd Ed. Wiley-Interscience. John Wiley and Sons Inc. Hoboken NJ Premium Calculations Links.

Assessment: Assignments, tutorial topic questions and tests.

RBM2365 MEDICAL MICROBIOLOGY

Locations: St Albans.

Prerequisites: RBM1528 Human Physiology 2 or equivalent.

Description: Topics include: nature and classification of micro organisms and their growth requirements, microbial genetics, normal flora, host defence mechanisms, immunoresponse, host microbe interaction, infection, sterilisation, disinfection, asepsis, antisepsis, sources and mode of transfer of infectious agents and the compromised host, principles of safe clinical practice, antibiotics, epidemiology, analytical methods and food safety. To investigate application of microorganisms in medicine, industry and biological work products.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Identify and describe the differences of main groups of microorganisms, including bacteria, viruses, fungi, protozoa and helminthes; Describe the microflora associated with the human body and in various environments; Discuss the transmission and infection control of microorganisms; Explain micobial genetics; and Describe the chemotherapeutic agents and the importance of epidemiology, and their relevance to a helath practiononer.

Class Contact: 48 hours or equivalent for one semester comprising lectures and laboratories.

Required Reading: Microbiology: an Introduction Tortora, G.J, Fuuke, B.R. and Case, C.L., (2007) 9th ed. Redwood City, California

Assessment: Test, Topic test, 10%. Report, Laboratory reports, 30%. Examination, End of semester examination, 60%.

RBM2517 HUMAN BIOSCIENCE 3

Locations: St Albans.

Prerequisites: RBM1530 Human Bioscience 2.

Description: The presentation of major concepts and principles of pathophysiology; illustrating their relationship to a range of common/important acute and chronic illness. This subject supports the topics in concurrent nursing units by providing a scientific basis for understanding disease processes such as cellular injury, inflammation, infection, and shock; by elucidating the underlying mechanisms which results in clinical manifestations; and by presenting the rationale for therapeutic interventions. Microbiology will be discussed with reference to the growth and physiology of micro-organisms, their pathogenic potential, infection control and antibiotic treatment. The pathophysiological principles underlying disorders of major body systems and subsystems will be discussed; for example, in cardiovascular pathophysiology, shock, cardiac failure, hypertension and atherosclerosis will be examined. Other topics covered may include haematology, the respiratory system, renal system, and fluid and electrolyte imbalances, however specific systems in this subject may be interchanged with those in the fourth semester subject as appropriate.

Credit Points: 8

Learning Outcomes: To be advised.

Class Contact: 40 hours comprising three per week (3 hours of lectures and two-hours of tutorial/laboratory) for eleven weeks.

Required Reading: Perth, C.M., 2002, Pathophysiology: Concepts of Altered Health States, 6th edn, Lippincott Williams & Wilkins, Philadelphia or McCance, K.L., and Huether, S.E., 2002, Pathophysiology: The Biologic Basis for Disease in Adults and Children, 4th edn, Mosby, Missouri.

Assessment: Assignment and tutorial/laboratory reports, 40%; examination, 60%.

RBM2527 HUMAN BIOSCIENCE 4

Locations: St Albans.

Prerequisites: RBM2517 Human Bioscience 3

Description: This unit furthers the understanding of pathophysiological principles and disease processes introduced in SBM2517 Bioscience 3. Topics will include neoplasia, and disorders of the nervous, endocrine and musculoskeletal systems and gastrointestinal tract. Disorders of the reproductive tract including infertility will be presented. Important genetic disorders such as cystic fibrosis and their modes of inheritance will also be examined. But this content may be interchanged with systems listed in the third semester subject.

Credit Points: 8

Learning Outcomes: To be advised.

Class Contact: 40 hours per semester of lectures and tutorial.

Required Reading: Perth, C.M., 2002, Pathophysiology: Concepts of Altered Health States, 6th edn, Lippincott Williams & Wilkins, Philadelphia. or McCance, K.L., and Huether, S.E., 2002, Pathophysiology: The Biologic Basis for Disease in Adults and Children, 4th edn, Mosby, Missouri.

Assessment: Test, 30%; examination, 70%.

RBM2528 PATHOPHYSIOLOGY IN MIDWIFERY

Locations: St Albans.

Prerequisites: RBM1525 - ANATOMY AND PHYSIOLOGY 2

Description: This unit of study will introduce pathophysiological concepts, principles and disease processes, illustrating their relationship to a range of common and important acute and chronic disease conditions, relevant to midwifery practice. The aims of the subject are: to provide a scientific basis for understanding disease processes such as cellular injury, inflammation and neoplasia; to elucidate the underlying mechanisms which result in clinical manifestation; and to present the rationales for therapeutic interventions. Microbiology will be discussed with reference to the pathogenic potential and infection control of microorganisms. The pathophysiological principles underlying disorders of body systems will be discussed with an emphasis on midwifery; for example, in cardiovascular pathophysiology: hypertensive disorders of pregnancy and shock associated with blood loss will be examined. Other topics to be covered will include disorders of: blood (eg. anemias) and body defences (eg. incompatibilities), the renal system, fluid and electrolytes, the reproductive system (eg. sexually transmitted diseases, infertility), endocrinology, metabolism (eg. diabetes) and nutrition associated with pregnancy. Genetic and developmental abnormalities of the foetus will also be examined.

Credit Points: 8

Learning Outcomes: To be advised.

Class Contact: 56 hours comprising lectures (3 hours/week); laboratories/tutorial (1 hour/week). Laboratory report - 15%, Test -15%, Examination - 70%.

Required Reading: Porth, C.M. 2005, Pathophysiology: Concepts of Altered Health States, 7th ed., Lippincott Williams & Wilkins, Philadelphia.

Assessment: To be advised.

RBM2530 PATHOPHYSIOLOGY 1

Locations: St Albans.

Prerequisites: RBM1520 - HUMAN BIOSCIENCE 2 - PSYCHOLOGY

RBM1528 - HUMAN PHYSIOLOGY 2

Description: This unit aims to provide students with an understanding of the control and co-ordination of body systems and the effects of disturbances to body functions. The mental status and some psychosocial factors associated with these processes will be discussed. Students are introduced to major pathologic processes which may affect all parts of the body. Topics include tissue injury, inflammation and repair, normal immune function and deviations from normal, cancer from the molecular level to the whole person, neural and endocrine dysfunction including impaired cognition such as dementia and impaired co-ordination and control. In the laboratory, students will be introduced to basic laboratory techniques and apply scientific principles to the assessment of dysfunction in humans. Students are also introduced to the research literature, research techniques and the communication of scientific information by a series of presentations. There may be some interchange of topic material relating to specific body systems between RBM2530 and RBM2540 and the specific diseases chosen to illustrate major processes may vary as appropriate.

Credit Points: 12

Learning Outcomes: At the successful completion of this unit, students will be able to: Recognise the need for, locate and critically analyse scientific data, especially with respect to epidemiology, disease causation and normal reference ranges for physiological parameters. Recognise the main types of study used to identify the causes of disease and critically assess the quality of these studies. Describe and explain the major concepts of disease and how homeostatic imbalances may progress to disease: for example, aetiology, risk factors, pathogenesis, acute and chronic conditions, sequelae and complications. Describe and explain how a range of general pathologic (disease) processes and homeostatic imbalances interplay with body systems. These processes may include: injury, inflammation and immunopathology, neoplasia, genetic disorders and dysfunction, endocrine disorders and neurological disorders. Utilise basic scientific principles of adequate and appropriate controls in the investigation of disease. Apply scientific thought and process to the investigation of pathological conditions, especially with respect to physical examination and measurement of physiological parameters. Utilise knowledge of pathophysiology to solve moderately complex problems and analyse case studies of disease. Discuss the scientific basis for preventative interventions, and management of important pathophysiological conditions. Recognise how psychosocial and cultural issues may contribute to disease processes, and apply this knowledge to understand how different strategies may be necessary to prevent the development or worsening of disease in a context of social diversity. Undertake group tasks and reflect critically on processes, specifically in the context of laboratory exercises where data is collected and analysed. Recognise a range of written scientific formats, such as case studies, reviews and original reports of research. Produce assignments and laboratory reports in a range of formats. Communicate orally with peers through presentations, discussion and debate in the context of understanding and investigating disease.

Class Contact: 78 hours per semester, comprising three hours of lectures per week, ten three-hour laboratory sessions incorporating 2.5 hours of experimental work Plus 0.5 hours of tutorial, and eleven hours of formal tutorial for one semester.

Required Reading: Pathophysiology: the biologic Basis for Disease in Adults and Children, McCance KL and Huether SE, 2006 5th Edition, Mosby, or Rubin R, Straver D. Rubins Pathology: clinicopathologic foundations of medicine Rubin E, McDonald J, Michalopoulos G, Ward P (2008) 5th Edition, Lippincott williams and Wilkins, Philadelphia

Assessment: Test and examinations, 50%; practical work, 35%; Assignment, 15%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM2540 PATHOPHYSIOLOGY 2

Locations: St Albans.

Prerequisites: RBM2530 - PATHOPHYSIOLOGY 1

Description: This subject primarily examines the effects of dysfunction in particular human body systems, drawing on the knowledge of basic pathological processes and overall regulation of the human body discussed in RBM2530. Overall organ and system dysfunction such as hepatic, renal, cardiovascular and respiratory failure will be discussed. Specific disorders of the following systems will also be discussed: cardiovascular, renal, respiratory, blood, reproductive, gastrointestinal and musculoskeletal. Major disease types and processes such as circulatory shock, atherosclerosis, disorders of acid-base balance and sexually transmitted diseases will be examined and the psychosocial effects of such disorders will be included. Specific diseases will be chosen to illustrate the major concepts as appropriate. Students are introduced to further techniques for assessment of disorders, which may include physical assessements, spirometry, electocardiography and various biochemical analyses. There may be some interchange of topic material relating to specific body systems between RBM2530 and RBM2540 and the specificdiseases chosen to illustrate major processes may vary as appropriate.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students will be able to Recognise the need for, locate and critically analyse scientific data, especially with respect to epidemiology, disease causation and normal reference ranges for physiological parameters. Recognise the main types of study used to identify the causes of disease and critically assess the quality of these studies. Describe and explain a range of disease processes and homeostatic imbalances with reference to specific organ systems and their interplay. These systems may include: respiratory, reproductive, renal, cardiovascular, musculo-skeletal, gastrointestinal and blood. Utilise basic scientific principles of adequate and appropriate controls in the investigation of disease. Apply scientific thought and process to the investigation of pathological conditions, especially with respect to physical examination and measurement of physiological parameters. Utilise knowledge of pathophysiology to solve moderately complex problems and analyse case studies of disease. Discuss the scientific basis for preventative interventions, and management of important pathophysiological conditions. Recognise how psychosocial and cultural issues may contribute to disease processes, and apply this knowledge to understand how different strategies may be necessary to prevent the development or worsening of disease in a context of social diversity. Undertake group tasks and reflect critically on processes, specifically in the context of laboratory exercises where data is collected and analysed. Recognise a range of written scientific formats, such as case studies, reviews and original reports of research. Produce assignments and laboratory reports in a range of formats. Communicate orally with peers through presentations, discussion and debate in the context of understanding and investigating disease.

Class Contact: To be advised.

Required Reading: Rubin E, Gorstein F, Rubin R, Schwarting R and Strayer D (eds). (2005). Rubins Pathology: clinicopathologic foundations of medicine. (4th edition). Lippincott Williams and Wilkins, Philadelphia or McCance KL and Huether SE, 2006, Pathophysiology: the Biologic Basis for Disease in Adults and Children (5th edition), St Louis, Elsevier Mosby.

Assessment: Test and examinations, 50%; practical work, 35%, assignment 15%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM2560 MEDICAL BIOCHEMISTRY

Locations: St Albans.

Prerequisites: RCS1120 CHEMISTRY FOR BIOLOGICAL SCIENCES B; or RBM2220 - NUTRITIONAL BIOCHEMISTRY 2

Description: The aim of this unit is to provide a foundation in biochemical principles with special emphasis on medical and nutritional applications. Firstly, foundations of biochemistry will be covered, e.g. biological buffers, structures of amino acids, nucleotides, carbohydrates, proteins, vitamins and cofactors. Other topics covered include enzymes, bioenergetics, and carbohydrate metabolism pathways, the molecular basis of gene expression and protein expression and synthesis. The clinical significance of various metabolic disorders will be discussed from a biochemical perspective. The practical component (compulsory), consisting of experimental sessions related to the theoretical topics covered in the lectures, will allow students to develop manual, observational, and recording skills.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the chemical elements present in living systems & the structure and roles played by water in living systems. Explain the role of amino acids as biological building blocks and recognise amino acids according to the functional groups in side chains. Demonstrate the necessary knowledge to calculate [H+] and Ka given pH and pKa and define the Henderson-Hasselbach equation. Explain the primary, secondary, tertiary, and quaternary structure of proteins, and describe diseases with incorrect protein folding. Describe the principles of amino acid analysis, gel filtration, and gel electrophoresis under denaturing and non-denaturing conditions. Describe the use of lactate dehydrogenase in clinical enzymology and solve problems using the Michaelis-Menten equation. Describe the effects of various factors on enzymatic activity, describe the different types of enzyme inhibition, and explain the physiological regulation of enzyme activity and give examples from glycolysis. Describe the structure, function, of carbohydrates, nucleotides, and mitochondria. Explain glucose metabolism including mechanisms of glucose uptake, glycolysis (individual reactions, regulation, enzymes, intermediates, inhibitors, activators, ATP yield, high energy compounds generated), PDH reaction (reactions, coenzymes, regulation), Krebs/TCA cycle (individual reactions, regulation, enzymes, high energy compounds generated, inhibitors, activators), electron transfer & oxidative phosphorylation (complexes, inhibitors, uncouplers, chemiosmotic theory), metabolic shuttles, and gluconeogenesis. Describe the clinical significance of the metabolic disorders covered in this unit from a biochemical perspective and describe the molecular basis of gene expression, as well as protein expression and synthesis.

Class Contact: Sixty (60) hours for one semester comprising lectures, practicals and tutorials.

Required Reading: Lehninger principles of biochemistry Nelson, D.L., & Cox, M.M. (2008). (5th ed.). W.H. Freeman.

Assessment: Practicum, Practical Work, 40%. Examination, Final, 60%.

RBM2570 PHYTOPHARMACEUTICS

Locations: St Albans.

Prerequisites: RBM1525 - ANATOMY AND PHYSIOLOGY 2

Description: Basic pharmacokinetics, LD50, toxicity, phytopharmacology, plant materials commonly used in therapy, and indications for their use. Basis for drug/herb interactions with nutrients.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students will be able to Demonstrate knowledge of basic pharmacokinetics, concepts of LD50 and toxicity, and drug-nutrient interactions. Demonstrate knowledge of the major groups of plant materials commonly used in complementary therapies, and indications for their use. Demonstrate an awareness of the potential for drug/herb/nutrient interactions.

Class Contact: Four hrs per week for one semester, or equivalent.

Required Reading: Kanagaratnum N, Botany Monograph. Victoria University, St Albans, 2005

Assessment: Assignment, 2000 words, 40%Examination, 2 hrs, 60%

RBM2750 NUTRITION

Locations: Werribee.

Prerequisites: RBF1310 - BIOLOGY 1

Description: The unit aims to provide an introduction to the principles of human nutrition as a background for further studies in Food Technology (units RBF3731 and RBF3732), to enable students to appreciate the nutritional consequences and responsibilities associated with the provision, processing and development of food and food products. This subject examines: body composition and anthropometry; nutrient requirements and role in body structure and function; energy intake and expenditure; food and nutrient supply; nutritional requirements under different environmental and physiological states; diet and health; dietary guidelines; dietary requirements and special dietary foods.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising three hours of lectures and one hour of tutorials.

Required Reading: Whitney, E.N. and Rolfes, S.R., 1998, Understanding Nutrition, 8th edn, West Publishing Co.

Assessment: Assignments, 30%; final examination, 70%.

RBM2800 CARDIORESPIRATORY AND RENAL PHYSIOLOGY

Locations: Footscray Park.

Prerequisites: RBM1518 Human Physiology 1 and RBM1528 Human Physiology 2.

Description: This subject aims to provide students with an understanding of the function, control and co-ordination of the cardiovascular, respiratory and renal systems. The subject will examine cardiac, pulmonary and renal function and normal circulatory, respiratory and renal dynamics. An overview of the co-ordination of these systems will be achieved through an examination of the mechanisms involved in maintaining fluid and electrolyte balance including; the role of membrane structures and capillary dynamics, and the integration of neural, endocrine function in the control of cardiovascular, respiratory and renal systems. Homeostatic control of the cardiac, pulmonary and renal systems will also be examined by investigating their responses to stresses, including exercise, high altitude, increased temperature, spaceflight and aging.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Six hours per week for one semester comprising three hours of lectures and three hours of practical and/or tutorial per week.

Required Reading: Beachey, W. 1998, Respiratory Core Anatomy and Physiology: Foundations for a Clinical Practice, Mosby.

Assessment: Semester examination, 60%; practical reports, 20%; assignment, 20%.

RBM2850 NUTRITIONAL THERAPEUTICS A

Locations: St Albans.

Prerequisites: RBM1110 - NUTRITIONAL BIOCHEMISTRY 1

RBM1820 - NUTRITION, SOCIETY, AND COMMUNICATION

RBM1830 - DIET THERAPY 1

Description: Normal GIT function; signs and pathophysiology of GIT dysfunction; lifestyle effects on normal function; effects of stress on function; pathogenesis of untreated signs and symptoms; nutritional support of liver function; clinical laboratory evaluation of GIT; nutrients required for normal GIT function; use of dietary supplements to restore normal GIT function; contraindications to the use of food supplements.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe normal and abnormal signs of GIT function; Explain abnormal GIT function from a pathophysiological perspective; Relate lifestyle and stress to body function; Discuss normal and abnormal liver function; Describe nutrient requirements and dietary supplementation for support of normal GIT function; Discuss contraindications to the use of food supplements.

Class Contact: Four hours per week for one semester comprising lectures and tutorial/workshops.

Required Reading: Jamison, J. R. (2004). Clinical guide to nutrition and dietary supplements. Melbourne: Churchill Livingstone. Toohey, L., & Krettle, M.S. (1999). Nutritional physiology: Clinical applications and scientific research. Healthquest Publishing.

Assessment: Assignment, 2000 words, 20%. Case Study, Case Study, 20%. Examination, final, 60%.

RBM2855 NUTRITIONAL THERAPEUTICS B

Locations: St Albans.

Prerequisites: RBM 1830 Diet Therapy 1; RBM 2850 Nutritional Therapeutics A.

Description: Symptoms of system dysfunction in the following body systems - skin, respiratory system, nervous system, circulatory system, genetio-urinary system, immune system, musculoskeletal system and hormonal system; using observation and evaluating case histories; working from case history records; identification of nutritional deficiency within a patients case history; prioritising treatment, including the use of dietary supplements; lifestyle effects that may flow from the treatment; lifestyle effects on normal function.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: four hours per week for one semester comprising two hours lecture, two hours tutorial/workshop.

Required Reading: Jamison, J.R., 2004, Clinical Guide to Nutrition and Dietary Supplements, Churchill Livingstone, Melb. Pizzono, J., Murray, M., Joiner-Bey, H., 2002, The Clinician's Handbook of Nutritional Medicine, Churchill Livingstone. Toohey, L., Krettle, M.S., 1999, Nutritional Physiology: Clinical Applications and Scientific Research, Healthquest Publishing.

Assessment: Examination (3 hours), 50%; case history, 50%.

RBM2911 PATHOPHYSIOLOGY 1

Locations: St Albans.

Prerequisites: RBM1525 - ANATOMY AND PHYSIOLOGY 2

Description: Emphasis on fundamental pathophysiological processes affecting body and cellular systems; introduction to acute and chronic conditions and common and rare disease profiles affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems; presentation and aetiology of common conditions affecting those systems across the lifespan; diagnostic and treatment regimes and outcomes relevant to those systems; pertinent medical terminology and medical case note reporting.Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe the key milestones indicative of normal infant and childhood development; Briefly describe typical age-related biological changes found in the adolescent and young, middle-aged, older-aged and frail-aged adult; Describe the signs and symptoms of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems; Describe the pathophysiology and immunology of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and lymphatic systems; State the routine clinical laboratory, radiology and other functional tests for common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and lymphatic systems; List classes of drugs and other treatment modalities used for common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems; Predict the typical outcomes, with and without treatment, of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems; Outline the basic epidemiology of common conditions and diseases affecting the cardiovascular, respiratory, gastrointestinal, hepatic, renal, endocrine and immunological systems; Demonstrate development of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills;

independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Six hours per week or equivalent for one semester comprising lectures, tutorials and practicals. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: McCance, K., & Huether, S. (1994). Pathophysiology: The biologic basis for disease in adults and children. St. Louis, MO: Mosby. Springhouse Corporation. (2005). Pathophysiology made incredibly easy! (3rd ed.). Lippincott Williams and Wilkins.

Assessment: Assessment Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (1500 words each) (20% each); one 3-hour examination (60%). This unit is a hurdle requirement.

RBM2912 PATHOPHYSIOLOGY 2

Locations: St Albans.

Prerequisites: RBM2911 - PATHOPHYSIOLOGY 1

Description: Emphasis on fundamental pathophysiological processes affecting body and cellular systems; introduction to acute and chronic conditions and common and rare disease profiles affecting the reproductive, urogenital, nervous, skin and musculoskeletal systems; presentation and aetiology of common conditions affecting those systems across the lifespan; diagnostic and treatment regimes and outcomes relevant to those systems; skills for communicating with special patient groups; pertinent medical terminology and medical case note reporting.Students should reasonably expect to devote additional private contact hours of atleast 3 times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe the signs and symptoms of common conditions and diseases affecting the reproductive, urogenital, nervous, skin and musculoskeletal systems; Describe the pathophysiology and immunology of common conditions and diseases affecting the reproductive, urogenital, nervous, skin and musculoskeletal systems; Describe the main types of commonly-presenting cancers, and outline the cancer staging and descriptors currently in use; Outline the characteristic presentations of and pathophysiological explanations for common psychiatric and common degenerative conditions; State the routine clinical laboratory, radiology and other functional tests for common conditions and diseases affecting the reproductive, urogenital, nervous, skin and musculoskeletal systems; List classes of drugs and other treatment modalities used for common conditions and diseases affecting the reproductive, urogenital, nervous, skin and musculoskeletal systems; Predict the typical outcomes, with and without treatment, of common conditions and diseases affecting the reproductive, urogenital, nervous, skin and musculoskeletal systems; Outline best practice western medicine communications skills when talking with people who are dying or have a psychiatric condition; Outline the basic epidemiology of common conditions and diseases affecting the reproductive, urogenital, nervous, skin and musculoskeletal systems; Demonstrate development of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Six hours per week or equivalent for one semester comprising lectures, tutorials and practicals. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: McCance, K., & Huether, S. (1994). Pathophysiology: The biologic basis for disease in adults and children. St. Louis, MO: Mosby. Springhouse Corporation. (2005). Pathophysiology made incredibly easy! (3rd ed.). Lippincott Williams and Wilkins

Assessment: Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (1500 words each) (20% each); one 3-hour examination (60%). This unit is a hurdle requirement.

RBM3122 NUTRITION FOR PERFORMANCE

Locations: St Albans.

Prerequisites: RBM2260 - DIET AND NUTRITION

RBM2220 - NUTRITIONAL BIOCHEMISTRY 2

Description: The importance of nutrition and specific ergonomic aids to enhancing physical performance will be demonstrated. This unit integrates nutrition, biochemistry and intermediary metabolism with the physiology of exercise, allowing the student to apply this knowledge to the designing of nutritional advice to enhance human performance. The macro- and micro- nutrient needs of different sport and exercise types will be discussed with the aim of arriving at the skills to provide appropriate practical dietary and nutritional therapeutic advice for athletes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Integrate knowledge of biochemistry and physiology of exercise with the nutritional and ergonomic needs to optimize performance; Assess the nutritional needs of different exercise modalities; Discuss the parameters influencing the nutrient and fluid availability before, during and recovery after exercise; Prescribe nutritional supplements and ergonomic aids to enhance exercise performance.

Class Contact: Forty-eight (48) hours for one semester, comprising lectures, tutorials and workshops.

Required Reading: Essentials of sports nutrition Brouns, F. (2002 2nd ed. Wiley. Clinical Sports Nutrition Burke, L., & Deakin, V. (2006) 3rd ed. Sydney: McGraw-Hill Australia Sports and exercise nutrition McArdle, W. D., Katch, F. I., & Katch, V. L. (2005) 2nd ed. Baltimore: Lippincott Williams & Wilkins.

Assessment: Case Study, portfolio, 20%. Exercise, dietary program for athletic performance, 20%. Examination, final, 60%.

RBM3264 ADVANCED NERVE AND MUSCLE PHYSIOLOGY

Locations: Footscray Park.

Prerequisites: RBM2800 - CARDIORESPIRATORY AND RENAL PHYSIOLOGY

Description: The aim of the unit is to examine in detail the mechanisms of nerve and muscle function. Topics include: physico-chemical principles underlying nerve and muscle function; behaviour of excitable cells; mechanisms of muscle contraction; neural influences over muscles and muscle fibre types; muscle fibre recruitment; metabolic processes in active muscle; neuromuscular fatigue; co-ordinating motor activity, and diseases of the nervous and muscular systems. Research techniques in nerve and muscle physiology.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours of lectures, one one-hour tutorial and three hours of practical work each week for one semester.

Required Reading: Nerve and muscle physiology section of any basic physiology textbook.

Assessment: Based on laboratory reports, tutorial assignments and an end-of-semester examination.

RBM3265 EXERCISE BIOCHEMISTRY AND INTEGRATED METABOLISM

Locations: St Albans.

Prerequisites: RBM2800 - CARDIORESPIRATORY AND RENAL PHYSIOLOGY

RBM2220 Nutritional Biochemistry 2 or RBM2560 Medical Biochemistry or equivalent.

Description: This unit introduces the concepts of exercise as a model for understanding biochemical changes in the human system in response to various models of exercise stress. It will look at the integrated nature of the biochemical and physiological responses of different organs and systems in homeostatic responses to exercise. It will also introduce aspects of current literature research in exercise metabolism which are also assisting with positive clinical and general health benefits. Current research literature in the area will be analysed and human research and evaluation will be presented throughout the series of lectures. A practical component will be delivered to introduce basic concepts of metabolism via indirect testing methods and to expose the students to a variety of modern testing techniques.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Evaluate and explain changes in physiological systems with different and varied exercise challenges. Evaluate and explain the physiological and biochemical interaction between the muscle and other tissues following different and varied exercise challenges. Describe the biochemical events in the muscle during different and varied exercise conditions and the interpretation of such events via direct and indirect scientific techniques. Complete a scientific literature review relevant to exercise metabolism. Demonstrate a satisfactory level of competency in administering practical exercise and metabolic testing.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and practicals.

Required Reading: Human Kinetics Mougios, V. 2006 Champaiagn, Il, US

Assessment: Assignment, Assignment/tutorial work/practical competency assessment, 30%. Test, Topic, 20%. Examination, Final, 50%.

RBM3550 GROWTH AND EARLY DEVELOPMENT

Locations: St Albans.

Prerequisites: RBM2540 - PATHOPHYSIOLOGY 2

Description: This subject builds on the work of first and second year Human Bioscience. The overall concept to be studied is the process of human development and aging and the physiological and pathological changes that occur throughout the life cycle. This subject presents the major regulating systems of the body and thus involves advanced study in the areas of neurological, hormonal and reproductive changes. Life stages from the embryo to senescence will be studied and environmental, societal, psychological and cultural influences will also be discussed. The subject allows exposure to a range of scientific techniques through the laboratory component and may include a minor project.

Credit Points: 12

Learning Outcomes: At the completion of this unit, student should be able to: describe the major physiological changes that occur throughout the life cycle, from conception to early childhood identify the environmental influences that contribute to various disease processes gain an understanding of the relationship between embryonic phases of life, the development of the major systems of the body and their subsequent degeneration gain an understanding of the inter-relationship between the individual and psychosocial and environmental influences on health and development be introduced to various scientific techniques and methodologies through reading and practise, including research design and ethical consideration. Further, laboratory, workshop and group activites will support the development and refinement of GRADUATE CAPABILITIES through completion of exercises designed, including a minor project, to foster effective communicative, organisational, problem solving, and teamwork skills,evaluative, reflective & critical scientific thinking.

Class Contact: To be advised.

Required Reading: A selection of readings complied by the lecturers.Class Contact Hours Five hours per week, comprising two to three hours of lectures and up to three hours of workshop/laboratory/tutorial work per week.

Assessment: Examination 55% and project/practical work 45%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM3560 GROWTH, DEVELOPMENT AND AGING

Locations: St Albans.

Prerequisites: RBM3550 - GROWTH AND EARLY DEVELOPMENT

Description: This unit continues on the theme of human development and ageing and the physiological processes that occur, building on RBM3550 Growth and Early Development. This includes the exploration of changes that occur throughout the life cycle and interaction with the environment. The subject allows exposure to a range of scientific skills and techniques through the laboratory/workshop component and includes a minor project.

Credit Points: 12

Learning Outcomes: At the completion of this unit, students should be able to: describe the anatomical and physiological changes that occur as the body ages including major diseases; describe the inter relationship between individual behaviours, life experience, environmental, psychosocial and cultural factors which affect development, health, well being, life satisfaction and aging, be introduced to various scientific techniques and methodologies through reading and practise, including research design and ethical consideration. Further, laboratory, workshop and group activites will support the development and refinement of GRADUATE CAPABILITIES through completion of exercises designed, including a minor project, to foster effective communicative, organizational, problem solving, and teamwork skills,evaluative, reflective & critical scientific thinking.

Class Contact: To be advised.

Required Reading: A selection of readings compiled by the lecturers.Class Contact Hours Five hours per week, comprising two to three hours of lectures and up to three hours of workshop/laboratory/tutorial work per week.

Assessment: Examination 55% and laboratory work and project 45%. Students are required to obtain a satisfactory grade in all components of the assessment to obtain a pass grade.

RBM3590 ADVANCED EXPERIMENTAL TECHNIQUES

Locations: St Albans.

Prerequisites: RBM2800 Cardiorespiratory and Renal Physiology.

Description: This unit introduces students to a variety of experimental techniques and the role they play in medical research. There will be a particular emphasis on students receiving practical skills in a laboratory setting. Students will obtain skills in animal surgery, sterile technique, tissue sampling, preparation of fixed and frozen sections for light and electron microscopy, basic tissue staining, immunohistochemistry, electrophoresis and PCR. This unit is recommended for students wishing to complete a laboratory based RBM3910 Project in semester 2 and a laboratory based RBM4000 Honours project.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: design novel experiments to test scientific questions, collect and analyse data, interpret findings, and make conclusions. dress in surgical attire and perform a sterile operation on a rat. collect, process and section tissue samples for light and electron microscopy. use immunohistochemistry to localise proteins in tissue sections. use florescence to measure metabolites in muscle cells. use electrophoresis and PCR to measure gene expression.

Class Contact: To be advised.

Required Reading: A selection of readings compiled by the lecturer.Class Contact HoursFive hours per week for one semester comprising two hours of lectures and three hours of practicals

Assessment: Grant application 40%, Journal article 20%, assignment 20%, laboratory reports 20%.

RBM3610 BIOMEDICAL SCIENCE, ETHICS AND VALUES

Locations: St Albans.

Description: Students will be introduced to ethical practice in animal and human research, incorporating the various policies and codes of practice for conducting research within Victoria University.This subject discusses, with examples, how scientists have investigated the functioning of the human body in health and disease: in-vitro experiments, forced or voluntary participation in experimentation, the use of animal models etc. The ethics of these practices are examined - how do we justify or choose the practices which elucidate the function of the human body   Who regulates the conduct of research   Can research into humans be objective and is objectivity a gendered concept   Issues arising from the practice of biomedical sciences will be examined, such as in-vitro fertilisation, the human genome project, genetic screening, competition and fraud, and toxicity testing. Reference may also be made to ethical practice in sociological and psychological research. The selected topics may vary as appropriate.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week comprising two one hour lectures and one two hour tutorial/seminar session for one semester.

Required Reading: Cartwright, S. 1988, The report of the cervical cancer inquiry, Committee of Inquiry into allegations concerning the treatment of cervical cancer at National Women's Hospital and into other related matters, Auckland. Coney, S. 1988, The Unfortunate Experiment, Penguin, Auckland. Suzuki, D. and Knudson 1988, Genethics: The Ethics of Engineering Life, Allen and Unwin, Sydney.

Assessment: One essays, 30%; one VU animal or human ethics proposal 30%, one tutorial presentation/debate, 25%; tutorial attendance and participation, 15%.

RBM3640 ADVANCED NEUROSCIENCES

Locations: St Albans.

Prerequisites: RBM2530 Pathophysiology.

Description: This unit aims to provide insights into the most important current ideas in the study of neuroanatomy, neurophysiology and developmental neurobiology. This subject provides an advanced series of lectures in specialised areas of neuroscience research. The content of the subject may vary with the expertise and research interests of the lecturing staff.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours of lectures per week for one semester.

Required Reading: Various scientific journals

Assessment: Theory examination 55%, practical examination/assignment 45%

RBM3650 ADVANCED REPRODUCTION AND DEVELOPMENT

Locations: St Albans.

Prerequisites: RBM2540 Pathophysiology.

Description: This unit provides an advanced series of lectures examining current research questions in the area of reproduction and development. Topics include: maternal recognition of pregnancy via foetal signalling and the resultant maternal response during the period of implantation; development of the embryonic neural crest, including epithelial-mesenchymal transformation, migration, and contribution to mature differentiated cell types; the role of steroid hormones in placental function; the role of autocrine and paracrine growth factors in the development of the foetal lung; the role of various extracellular matrix cytokines in the breakdown of the foetal membranes at birth. The content of this subject may vary with the expertise and research interests of the lecturing staff.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Three hours of lectures per week for one semester.

Required Reading: Various scientific journals

Assessment: Theory examination 55%, practical examination/assignment 45%

RBM3660 HUMAN DEVELOPMENTAL AND CLINICAL GENETICS

Locations: St Albans.

Prerequisites: RBM 2540 Pathophysiology 2 and either RBM 2560 Medical Biochemistry or RBF2330 Cell Biology

Description: The unit is designed to introduce students to developmental and clinical genetics with a specifically human focus. The major emphasis is on the importance of gene expression in normal development and variation, and the contribution of genetic abnormalities to disease. Topics may include: The role of genes in development; differentiation and congenital malformation; human genetic principles such as assortment and segregation of genes, genetic variation and genetic defects, the importance of genetic heterogeneity, Mendelian inheritance and gene frequencies in populations; Diagnosis and classification of genetic disorders; prenatal screening and diagnosis; disorders with genetic and environmental associations.

Credit Points: 12

Learning Outcomes: At the successful completion of this unit, students will be expected to understand describe: The structure of the human genome, and the function of different components. The difference between protein-coding genes and non-coding repeat sequence elements. The organisation of genes into clusters and families, and how they are related. Different types of gene maps: how they are made, the information given by each type, and how they differ from each other. Molecular processes involved in gene expression: regulatory molecules, and the levels of control provided. Cellular processes of cleavage and axis formation, and how differential gene expression induces and maintains the differentiated state. Neural development and the genes expressed during the process. The chromosomal basis for sex determination. The nature of mutations and how genetic instability contributes to mutation. Inheritance patterns of genetic disease in humans, and the molecular defects involved in particular disease states at the chromosomal or individual gene level. Methods used to detect mutations and diagnose genetic diseases; advantages and limitations of each method.

Class Contact: 54 hours per semester, consisting of three hours of lectures each week and three hours practical/tutorial work in alternate weeks for one semester.

Required Reading: Research and review articles as appropriate. Human Molecular Genetics 3 Tom Strachan and Andrew P. Read Garland Science.

Assessment: Theory examination 50%, practical reports/assignment 50%

RBM3720 IMMUNOLOGY

Locations: St Albans.

Prerequisites: RBM2530 - PATHOPHYSIOLOGY 1

RBM2540 - PATHOPHYSIOLOGY 2

OR RBM2530 Pathophysiology and RBM2540 Pathophysiology 2.

Description: The aim of this unit is to provide students with an understanding of theoretical and practical bases of immunology. Subject topics include: active and passive immunity, components of the immune system, the immune response, immunological techniques and their application, molecular diagnostics including the use of monoclonal antibodies. The subject will be explored as a basic science with applications in the agriculture industry, food science, environmental science and medical science.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Six hours per week comprising three hours of lectures and three hours of laboratory/tutorial work for one semester.

Required Reading: Roitt, I.M., Brostoff, J. and Male, D.K. 1993, Immunology, 3rd edn, Mosby, St Louis.

Assessment: Assignments, 20%; practical work, 30%; final examination, 50%.

RBM3800 PHARMACOLOGY

Locations: St Albans.

Prerequisites: RBM2540 - PATHOPHYSIOLOGY 2

RBM2560 - MEDICAL BIOCHEMISTRY

Description: The unit begins with an introduction to the general principles of pharmacokinetics and pharmacodynamics. A wide range of drug groups will then be studied with attention focused on the pharmacokinetics, pharmacodynamics, clinical uses, and side effects of each drug. Aspects relating to medicinal chemistry, toxicity testing, clinical trials and requirements for the admission of new drugs are covered in topics that relate to new drug development. Pharmacokinetics, pharmacogenetics, sensitivity and resistance to drug therapies are further topics that address variation in drug outcomes. Social drug abuse and types of drug dependence are also discussed in this unit.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students should be able to: explain the general principles of pharmacokinetics and pharmacodynamics list the major drug groups used to target the autonomic nervous system and cardiorespiratory system, and understand mechanism of action of each name the major drug groups used to target the blood, kidney, gastrointestinal system, and endocrine system, and explain the mechanism of action name the major groups of chemotherapeutic agents and anti-microbials and describe the mechanism of action describe the principles of psychopharmacology provide examples and understand the mechanism of action of anaesthetics, analgesics, and anti-inflammatory drugs describe processes involved in new drug development and requirements for the admission of new drugs.

Class Contact: To be advised.

Required Reading: Rang, H.P., Dale, M.M., Ritter, J.M., Moore PK 2003, Pharmacology, 5th edn, Churchill Livinstone.

Assessment: Presentation 10%; Practical reports 20%; Online tests 20%; Examination 50%.

RBM3810 WELLNESS 1

Locations: St Albans.

Prerequisites: RBM2530 - PATHOPHYSIOLOGY 1

RBM2540 - PATHOPHYSIOLOGY 2

RBM2800 - CARDIORESPIRATORY AND RENAL PHYSIOLOGY

Description: Module A: This unit introduces the concepts of mind, body and spirit. These areas are explored from psychological, physiological, philosophical and sociological perspectives. Current literature will be used to introduce the areas of psychophysiology and psychoneuroimmunology and their connections to the mind/body/spirit paradigm. The ethics of human research and evaluation will be discussed throughout the series of lectures. In addition, students will be introduced to basic methods of information gathering with respect to the mind-body-spirit paradigm including the evaluation of its status in individuals. Further, aspects of psychophysiology and psychoneuroimmunology such as stress and disease, sexuality and the impact of environment on the health of the mind, body and spirit are examined. Current research literature in the area will be analysed.Module B: Students will be introduced to fundamental concepts of health and wellness. The difference between professional/scientific concepts and lay concepts will be explored. Wellness promotion will be presented primarily in the context of established public health approaches utilised in health education, promotion and prevention including medical, behavioural, educational, social and empowerment strategies. Some of the dilemmas and pitfalls in health promotion will be canvassed. Students will also be introduced to base concepts of occupational health and safety and workplace health promotion. Risk assessment, material safety, manual handling and relevant legislation will be discussed. Context will be provided by guest speakers from relevant organisations.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Module A: Three hours per week for one semester, comprising two hours of lectures and one hour of tutorial. Module B: Three hours per week for one semester comprising one and a half hours of lectures and one and a half hours tutorial/seminar.

Required Reading: Module A: To be advised by lecturers. Module B: Wass, A., 1995, Promoting Health, the Primary Health Care Approach, Harcourt Brace and Company. Naidoo, J. and Wills, J., 1994, Health Promotion: Foundations for Practice, Bailliere Tindall. WHO, 1978, Alma Ata Declaration. WHO, 1986, Ottawa.Charter for Health Promotion.

Assessment: Assignment/tutorial work, 25%; examination, 25% for each of Module A and B.

RBM3820 WELLNESS 2

Locations: St Albans.

Prerequisites: RBM3810 Wellness 1.

Description: Module A: The unit extends the material covered with respect to Mind, Body and Spirit, and explores complimentary therapies, techniques, treatments and strategies that are used to promote and maintain health and well-being as well as treat disease. Module B: Students will be introduced to the systematic planning of health and wellness education and promotion. Examples and discussion will be provided in the context of relevant issues, for example, community participation, the role of professionals, young people and STD's/AIDs, alcohol use, and the role of the media in health. Guest speakers from health-promoting organisations will be provided to explore health education and promotion issues. Examples include the local government planning process/healthy cities approach, Alzheimers Disease, Eating disorders and the Quit campaign. Other relevant speakers/issues may be discussed as appropriate. An individual health promotion project within the unit requires students to assess their own health/wellness needs, then design, implement and evaluate an appropriate program for themselves over the semester. Students are further strongly encouraged to take the third year project in conjunction with this unit, and to apply their skills to the development of the project as a health promotion and education exercise oriented to the workplace or conducted within an organisation that promotes health.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Module A: Three hours per week for one semester, comprising two hours of lectures and one hour of tutorial. Module B: Three hours per week for one semester comprising one and a half hours of lectures and one and a half hours tutorial/seminar.

Required Reading: Module A: To be advised by lecturers. Module B: Wass, A., 1995, Promoting Health, the Primary Health Care Approach, Harcourt Brace and Company. Naidoo, J. and Wills, J., 1994, Health Promotion: Foundations for Practice, Bailliere Tindall.

Assessment: Assignment/tutorial work, 30%; examination, 20% for each of Module A and B.

RBM3850 NUTRITIONAL THERAPEUTICS C

Locations: St Albans.

Prerequisites: RBM2850 and RBM2855 Nutritional Therapeutics A and B. RBM2540 Pathophysiolgy 2.

Description: Diet, novel and common food supplementation support for the following - energy metabolism dysfunction, neurological dysfunction, behavioural disorders, life threatening illnesses; laboratory testing for system dysfunction; formulation and costing of supplementation programs to meet patient needs; regulation and boundaries when working with practitioners who treat patients with life threatening illnesses; Analysis of patient follow-up and reformulation of treatment protocols where required.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours lecture, two hours tutorial/workshop.

Required Reading: Jamison, J.R., 2004, Clinical Guide to Nutrition and Dietary Supplements, Churchill Livingstone, Melb. Pizzono, J., Murray, M., Joiner-Bey, H., 2002, The Clinician's Handbook of Nutritional Medicine, Churchill Livingstone. Toohey, L., Krettle, M.S., 1999, Nutritional Physiology: Clinical Applications and Scientific Research, Healthquest Publishing. Werbach, M.R., 1996, Nutritional Influences on Illness, 2nd edn, Third Line Press.

Assessment: Examination (3 hours), 50%; case history, 50%.

RBM3855 NUTRITIONAL THERAPEUTICS D

Locations: St Albans.

Prerequisites: RBM2540 - PATHOPHYSIOLOGY 2

RBM3850 - NUTRITIONAL THERAPEUTICS C

Description: Diet, novel and common food supplementation support, laboratory testing for system dysfunction, formulation and costing of supplementation programs to meet patient needs: Analysis of patient follow-up and reformulation of treatment protocols.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours lecture, two hours tutorial/workshop.

Required Reading: Jamison, J.R., 2004, Clinical Guide to Nutrition and Dietary Supplements, Churchill Livingstone, Melb. Pizzono, J., Murray, M., Joiner-Bey, H., 2002, The Clinician's Handbook of Nutritional Medicine, Churchill Livingstone. Toohey, L., Krettle, M.S., 1999, Nutritional Physiology: Clinical Applications and Scientific Research, Healthquest Publishing. Werbach, M.R., 1996, Nutritional Influences on Illness, 2nd edn, Third Line Press.

Assessment: Examination (3 hours), 50%; case history, 50%.

RBM3910 PROJECT

Locations: St Albans, Werribee, Footscray Park.

Description: Third year student projects provide students with an opportunity to select and undertake either (a) a brief research project in an area of interest with members of the Biomedical Sciences staff; or (b) a work-based placement in the industry he/she intends to enter. Both the research and work-based placements enable the student to undertake a structured work experience program as an integral part of their degree course. Gaining practical experience in their chosen field enables students to test interest and ability in these areas.Selection The number of Project places will be limited by the number of available projects. Places will be allocated on the basis of academic merit. It would be expected that students wishing to do Project would have a Credit average and be in their final semester of the course.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Six hours per week for one semester comprising laboratory work or work-based placement.

Required Reading: Selected material as advised by the project supervisor

Assessment: Project Presentation and Report 100%

RBM3921 WESTERN MEDICAL DIAGNOSIS AND INTERVENTIONS 1

Locations: St Albans.

Prerequisites: RBM2912 - PATHOPHYSIOLOGY 2

OR equivalent.

Description: Introduction to the basic and clinical concepts in pharmacology and toxicology. Routes of administration. Pharmacokinetics: absorption, distribution, metabolism and excretion of drugs. Pharmacodynamics: receptors, mechanisms of action, dose-response effects. Indications, and contraindications for safe use of drugs. Adverse and toxic reactions of the major classes of drugs. Resistance and tolerance. Drug/herb/nutrient interactions; plant contaminants. Australian drugs and poisoning schedules and reporting mechanisms. Pharmacotherapeutics: analgesics, opioids, NSAIDs, cardiovascular-renal and lipid lowering drugs, psychoactives and other nervous system agents, hormone replacement and endocrine drugs, paediatric, recreational and over-the-counter drugs. Western prescription writing, patient compliance and polypharmacy. A western medical emphasis will be given to the treatment of conditions presented in the CM and western clinical specialties, including management of drug-related disorders and drug-related emergencies and appropriate use of available antidotes.Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe basic pharmacology and toxicology terms in plain English; Explain the nomenclature, classifications, formulations and routes of administration of western pharmaceuticals; Explain mechanisms of actions, indications, contraindications, adverse reactions of the major classes of drugs as outlined in western pharmacopoeia; Describe the absorption, distribution and excretion of and detoxification for common prescription, over-the-counter and recreational drugs, including xenobiotics and plant contaminants where relevant; Explain the factors that influence the dose-response relationship; Explain the dose-response relationship in terms of effectiveness of treatment; Outline and predict the main types of drug-herb-nutrient interactions; Explain the types and mechanisms of adverse reactions to drugs and outline the management of drug-related adverse outcomes and other emergencies; Explain the appropriate use of antidotes; Explain the drugs and poisoning schedule as it applies in Australia; State the reporting procedures for adverse drug and drug/herb outcomes; Identify pharmacological conditions warranting referral to other health professionals; Use reference materials and information services to obtain information on drugs; Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Six hours per week or equivalent for one semester comprising lectures, tutorials and practicals. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Students should have access to a copy of the most recent MIMS or the Australian medicines handbook available from Australian Medicines Handbook Website, http://www.amh.org.au Galbraith, A, Bullock, S., & Minias, E. (2004). Fundamentals of pharmacology: A text for nurses and allied health professionals (4th. ed.). Australia: Pearson Ed. Springhouse Corporation. (2000). Clinical pharmacology made incredibly easy. New York: Lippincott Williams & Wilkins. Therapeutic Goods Act, (1989 & Am.). Available from Australian Government Website, http://www.tga.gov.au/docs/html Therapeutic Goods (Victoria) Act, (1994 & Am.). Available from Government of Victoria Website, http://dms003.dpc.vic.gov.au/l2d/T/

Assessment: Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (1500 words each) (20% each); one 2-hour examination (60%). This unit is a hurdle requirement.

RBM3922 WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 2

Locations: St Albans.

Prerequisites: RBM3921 - WESTERN MEDICAL DIAGNOSIS AND INTERVENTIONS 1

OR equivalent.

Description: Development of material covered in pathophysiology, with particular emphasis on the identification of potentially life-threatening acute and chronic conditions that warrant referral. Knowledge of the main clinical laboratory tests and western medical treatment techniques; indications, contra-indications and complications of diagnostic and screening procedures; interpretation of clinical results and reliability of clinical tests. The use of the stethoscope, sphygmomanometer, otoscope, ECG, organ palpation and knowledge of other investigative procedures including contemporary imaging and laboratory procedures employed by health care professionals. A standardized systems approach to western medical history taking and case note recording and interpreting, with emphasis on conditions presenting in the CM clinical specialties. Social, cultural and interpersonal factors that impact on the clinical interview and physical examination, and best practice western communications strategies that mentally prepare patients for clinical laboratory tests and minor medical procedures.Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Explain the principles of western medical history taking and western physical examination techniques; Discuss key social, cultural and demographic factors that impact in health care, and outline the factors, including interpersonal, that need to be considered in the clinical interview; Conduct interviews sufficient to record western medical case notes in a legal (legible, accurate, orderly) manner; Accurately record medical histories as western medical case notes, using accepted abbreviations and format, e.g., POMR; Explain the processes and issues involved in specific physical examinations; Conduct examination procedures in a way to minimize patient distress, embarrassment and risk of injury; Demonstrate skilful use of standard western diagnostic instruments, e.g., stethoscope, sphygmomanometer, otoscope, and palpate organs to proficiency standards acceptable in CM clinics; Outline best practice western communications strategies that mentally prepare patients for clinical laboratory tests and minor medical procedures; List common and routine diagnostic and screening tests conducted in haematology, serology, biochemistry, microbiology and pathology laboratories, and explain the indications and any contraindications of these clinical laboratory tests; Distinguish amongst reference, normal, clinical and abnormal values on clinical laboratory reports; Explain the principles of interpreting clinical laboratory results and interpreting the reliability (accuracy, precision, specificity, sensitivity) of clinical laboratory tests; Define terminology commonly used in radiology and x-ray reports, and explain the clinical significance of those terms; Explain the clinical indications for requesting specialised clinical laboratory tests and radiographic procedures such as contrast, Doppler, tomographic and labelling techniques; Apply the basic principles of radiographic interpretation to diagnostic images of normal and pathological anatomy; Use appropriate terminology when referring to findings on radiographic and other imaging procedures; Identify conditions warranting referral to other health professionals; Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: Six hours per week or equivalent for one semester comprising lectures, tutorials and practicals. Students should reasonably expect to devote additional private contact hours of at least three times more than the stipulated class contact hours.

Required Reading: Ferri, F. F. (2004). Ferri's best test: A practical guide to clinical laboratory medicine and diagnostic imaging. St Louis, MO: Mosby. Jones, M. A., & Rivett, D. A. (2004). Clinical reasoning for manual therapists. Edinburgh: Butterworth Heinemann.

Assessment: Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (1500 words each) (20% each); one 2-hour examination (60%). This unit is a hurdle requirement.

RBM3950 NUTRITIONAL THERAPY IN PRACTICE 1

Locations: St Albans.

Prerequisites: HHN0021 Counselling Skills for Natural Therapies. RBM2540 Pathophysiolgy 2

Description: Nutritional treatment for patients at critical life stages; managing patients with challenging nutritional and behavioural characteristics, eg addiction, non-compliance, aggression, eating disorders, vulnerable client groups; ethical dilemmas in clinical practice, patient record keeping.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Minimum of 90 hours supervised clinical practice.

Required Reading: Jamison, J.R., 2004, Clinical Guide to Nutrition and Dietary Supplements, Churchill Livingstone, Melb. Pizzono, J., Murray, M., Joiner-Bey, H., 2002, The Clinician's Handbook of Nutritional Medicine, Churchill Livingstone. Toohey, L., Krettle, M.S., 1999, Nutritional Physiology: Clinical Applications and Scientific Research, Healthquest Publishing. Werbach, M.R., 1996, Nutritional Influences on Illness, 2nd edn, Third Line Press.

Assessment: Examination (3 hours),50%; case history, 50%.

RBM3955 NUTRITIONAL THERAPY IN PRACTICE 2

Locations: St Albans.

Prerequisites: RBM3950 Nutritional Therapy in Practice 1; RBM3850 Nutritional Therapeutics C. RBM2540 Pathophysiolgy 2

Description: Nutritional treatment for patients at critical life stages, managing patients with challenging nutritional and behavioural characteristics, eg addiction, non-compliance, aggression, eating disorders, vulnerable client groups; ethical dilemmas in clinical practice; patient record keeping.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Minimum 90 hours supervised clinical practice.

Required Reading: Jamison, J.R., 2004, Clinical Guide to Nutrition and Dietary Supplements, Churchill Livingstone, Melb. Pizzono, J., Murray, M, Joiner-Bey, H., 2002, The Clinician's Handbook of Nutritional Medicine, Churchill Livingstone. Toohey, L., Krettle, M.S., 1999, Nutritional Physiology: Clinical Applications and Scientific Research, Healthquest Publishing. Werbach, M.R., 1996, Nutritional Influences on Illness, 2nd edn, Third Line Press.

Assessment: Examination (3 hours), 50%; case history, 50%.

RBM3960 NUTRITIONAL FRONTIERS

Locations: St Albans.

Prerequisites: RBM2260 - DIET AND NUTRITION

Description: Advances in nutrition research in selected topics, including cardiovascular, metabolic, mental, reproductive and public health, cancer, infectious disease and nutrigenomics. Evidence for and against the effectiveness of various therapies and non-invasive solutions.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Evaluate recent research in the area of nutrition. Monitor and evaluate nutritional therapies in a clinical setting.

Class Contact: Four hours per week for one semester comprising two hours of lectures, two hours of tutorials/seminars.

Required Reading: Current nutrition scientific journals.

Assessment: Two essays (2500 words each) 50% total; one 2-hour examination (50%).

RBM3970 OPERATING A CLINICAL PRACTICE

Locations: St Albans.

Description: Factors in establishing and operating a clinical practice; legal, professional and insurance issues, including personal and professional indemnity and OHS regulations; business banking and accountancy, including taxation laws and essential business record keeping and reporting requirements; basic marketing techniques; codes of ethics and practice; using media in practice; to find appropriate employment.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Four hours per week for one semester comprising two hours lecture, two hours workshop.

Required Reading: Jones, G., 1999, How to Start Business from Home, 4th edn, How To Books. Brown, R. and Barrow, C., 2001, The Business Plan Workbook, 4th edn, Kogan Page, London.

Assessment: Examination (3 hours), 40%; assignment 2500 words each, 40%; written application and interview, 20%.

RBM4001 SCIENCE HONOURS 1

Locations: St Albans, Footscray Park.

Prerequisites: Satisfactory completion of an undergraduate degree program with a credit average (65%) in the final year; or at the discretion of the Course Co-ordinator.

Description: The Honours program consists of a research project and coursework. The research project will be undertaken in one of the research areas of the School of Biomedical Sciences and may, subject to approval, be undertaken at an external location. The coursework components cover a range of information including advanced areas of medical research, literature analysis and critical appraisal, ethics in research, scientific writing, oral presentation, methodological techniques, experimental design, statistics, data analysis, computer applications and software data presentation. The literature review will provide the scientific background and rationale for the research project, while the experimental design will provide the methodology to be applied in the research project.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: No formal contact hours, although a normal fulltime load is considered a minimum of 20 hours per week. Regular meetings with the supervisor are recommended.

Required Reading: To be advised by the supervisor and searched by student as part of research training

Assessment: The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written statistics or experimental design examination. The research project assessment will consist of a written literature review, an oral presentation and submission of an experimental design.

RBM4002 SCIENCE HONOURS 2

Locations: St Albans, Werribee, Footscray Park.

Description: The Honours program consists of a research project and coursework. The research project will be undertaken in one of the research areas of the School of Biomedical and Health Sciences and may, subject to approval, be undertaken at an external location. The coursework components cover a range of information including advanced areas of medical research, literature analysis and critical appraisal, ethics in research, scientific writing, oral presentation, methodological techniques, research design, statistics and data analysis, computer applications and software data presentation. The literature review will provide the scientific background and rationale for the research project, while the design will inform the methodology to be applied in the research project. Students will conduct a research project under supervision. The project will comprise a novel scientific investigation in an area of expertise of the approved supervisor(s). The results of the project will be reported in an oral presentation and a written thesis.

Credit Points: 48

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Plan, implement, conduct and communicate a research project. Critically evaluate research papers. Interpret a body of knowledge leading to innovative research questions and testable hypotheses. Design an appropriate research project and undertake appropriate data analyses. Conduct research sufficient to obtain a substantial body of work. Produce a written research thesis. Critically evaluate one s own findings and their impact on current knowledge. Demonstrate clear, concise and precise communication, both oral and written. Demonstrate aptitude and ability to work without close supervision and with a high degree of responsibility.

Class Contact: The normal full-time load is a minimum of 20 (twenty) hours per week for each of the two semesters and will be determined in negotiation with the supervisor. Regular meetings with the student's approved supervisor are required and will be determined by negotiation with that supervisor.

Required Reading: To be advised by the supervisor and searched by student as part of research training

Assessment: The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written statistics or research design examination. The research project assessment will consist of a written literature review, submission of a research design, and the quality of the research and its presentation in the written thesis as well as the ability to answer questions regarding the research work undertaken.

Assignment, Statistics and Research Design, 10%. Other, Research Plan (not more than 10 pages), 5%. Literature Review, Literature Review (not more than 6,000 words), 15%. Presentation, Oral Presentation, 5%. Research Thesis, Research Thesis (not more than 12,000 words), 55%. Presentation, Oral Presentation and Thesis Defence, 10%. The Honours course is a one year (full-time) course in which the students receive one final mark and grade for the whole year. Thus, students will submit/undertake items 1 - 4 in their 1st semester of enrolment, and submit/ undertake items 5 - 6 in their 2nd semester of enrolment, after which a single, final mark and grade will be awarded.

RBM4011 SCIENCE HONOURS (PART TIME)

Locations: St Albans, Werribee, Footscray Park.

Description: The Honours program consists of a research project and coursework. The research project will be undertaken in one of the research areas of the School of Biomedical and Health Sciences and may, subject to approval, be undertaken at an external location. The coursework components cover a range of information including advanced areas of medical research, literature analysis and critical appraisal, ethics in research, scientific writing, oral presentation, methodological techniques, research design, statistics and data analysis, computer applications and software data presentation. The literature review will provide the scientific background and rationale for the research project, while the design will inform the methodology to be applied in the research project. Students will conduct a research project under supervision. The project will comprise a novel scientific investigation in an area of expertise of the approved supervisor(s). The results of the project will be reported in an oral presentation and a written thesis.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Plan, implement, conduct and communicate a research project. Critically evaluate research papers. Interpret a body of knowledge leading to innovative research questions and testable hypotheses. Design an appropriate research project and undertake appropriate data analyses. Conduct research sufficient to obtain a substantial body of work. Produce a written research thesis. Critically evaluate one s own findings and their impact on current knowledge. Demonstrate clear, concise and precise communication, both oral and written. Demonstrate aptitude and ability to work without close supervision and with a high degree of responsibility.

Class Contact: The normal part-time load is a minimum of 10 (ten) hours per week for each of the four semesters and will be determined in negotiation with the supervisor. Regular meetings with the student's approved supervisor are required and will be determined by negotiation with that supervisor.

Required Reading: To be advised by the supervisor and searched by student as part of research training

Assessment: The nature of the coursework assessment will vary and may be based on written assignments, seminar presentations and a written statistics or research design examination. The research project assessment will consist of a written literature review, submission of a research design, and the quality of the research and its presentation in the written thesis as well as the ability to answer questions regarding the research work undertaken.

Assignment, Statistics and Research Design, 10%. Other, Research Plan (not more than 10 pages), 5%. Literature Review, Literature Review (not more than 6,000 words), 15%. Presentation, Oral Presentation, 5%. Research Thesis, Research Thesis (not more than 12,000 words), 55%. Presentation, Oral Presentation and Thesis Defence, 10%. The Honours course is a two year (part-time) course in which the students receive one final mark and grade. Thus, students will submit/undertake items 1 - 2 in their 1st semester of enrolment, items 3 - 4 in their 2nd semester of enrolment, and submit/undertake items 5 - 6 after their 3rd and 4th semesters of enrolment, after which a single, final mark and grade will be awarded.

RBM4923 WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 3

Locations: St Albans.

Prerequisites: RBM3922 - WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 2

Description: Development of material covered in pathophysiology with particular emphasis on the identification of potentially life-threatening acute and chronic conditions presenting in western medical gastroenterology, urology, rheumatology, dermatology and orthopaedics. An understanding of advanced clinical laboratory, imaging and functional tests and complex diagnostic techniques; reinforcement of skills in using the stethoscope, sphygmomanometer, otoscope, organ palpation and other procedures used by health care professionals. A multi-systems approach is used to present a western medical emphasis on conditions presented in the CM clinical specialities.Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions and workshops have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Evaluate differences amongst western and Chinese medical approaches to acute and chronic health problems; Distinguish amongst western and Chinese medical treatment and management regimes in terms of the diagnosis of gastrointestinal, renal, urogenital, musculoskeletal, immunological and skin conditions; Explain within a contemporary western medical framework, the presentation, investigations, diagnosis, aetiology, treatment options and management of patients with common acute and chronic conditions typically presenting at western medical gastroenterology, urology, rheumatology, dermatology and orthopaedics clinics; Explain within a contemporary western medical framework, differential diagnoses of various symptom presentations and investigative findings for patients presenting with gastrointestinal, renal, urogenital, musculoskeletal, immunological and skin conditions; Demonstrate skilful use of relevant diagnostic equipment, including the use of the stethoscope, sphygmomanometer, otoscope, and organ palpation and other region-specific procedures; Explain the features and applications of typical invasive and non-invasive western medicine techniques, such as EKG, echocardiography, angiography, lung function, CT scan, MRI, reflux tests, barium meal, barium enema, endoscopy, colonoscopy, laparoscopy, liver function tests, biopsy, radio-active implants, radio-tracing; Explain, in plain English and in professional language, the need for routine and advanced clinical laboratory, imaging and functional tests of, and complex diagnostic procedures on the gastrointestinal, renal, urogenital, musculoskeletal, immunological and integumentary systems; Discriminate amongst conditions warranting routine and urgent referral to medical practitioners and other health professionals; Communicate orally and in writing, in plain English and in professional language, the need for a patient referral to any of the western medical specialist clinics in gastroenterology, urology, rheumatology, dermatology and orthopaedics; Demonstrate development and consolidation of attributes in effective problem solving and clinical reasoning; information management and processing; communication skills; independent and collaborative empowerment; and appropriate social and cultural awareness and responsiveness.

Class Contact: The equivalent of 72 hours for one semester comprising lectures, tutorials and practicals. Practical sessions have a hurdle requirement of at least 80% attendance.

Required Reading: Students should have access to a copy of the most recent MIMS or the Australian medicines handbook available from Australian Medicines Handbook Website, http://www.amh.org.au Bickley, L. S. (2004). Bates' guide to physical examination and history taking (8th ed.). Lippincott Williams and Wilkins.Jarrell, B. E., & Carabasi, R. A. (Eds.) (2000). National medical series for independent study: Surgery (4th ed.). Hagerstown, MD: Lippoincott Williams and Wilkins.Longmore, J., Wilkinson, I., & Rajagopalan, S. (2004). Oxford handbook of clinical medicine (6th ed.). Oxford: OUP.Springhouse Corporation. (2005). Pathophysiology made incredibly easy! (3rd ed.). Lippincott Williams and Wilkins.

Assessment: Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (2500 words each) (20% each); one 3-hour examination (60%). This unit is a hurdle requirement.

RBM4924 WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 4

Locations: St Albans.

Prerequisites: RBM4923 - WESTERN MEDICAL DIAGNOSES AND INTERVENTIONS 3

Description: Development of material covered in pathophysiology with particular emphasis on the identification of potentially life-threatening acute and chronic conditions. An understanding of advanced pathology tests and complex diagnostic techniques; reinforcement of skills in using the stethoscope, sphygmomanometer, otoscope, organ palpation and other procedures used by health care professionals. Conditions discussed in the CM clinical specialties are presented using a western medicine systems approach. Contemporary medical and psychiatric conditions are included.Students should reasonably expect to devote additional private contact hours of at least 3 times more than the stipulated class contact hours. Practical sessions have a hurdle requirement of at least 80% attendance. This unit may be delivered in its entirety in burst mode to allow students the opportunity to undertake their VU-approved final clinical internship.

Credit Points: 8

Learning Outcomes: To be advised.

Class Contact: Six hours per week or equivalent.

Required Reading: Bickley, L. S. (2004). Bates' Guide To Physical Examination And History Taking (8th. Ed.). Lippincott, Williams and Wilkins. Gascoigne, S. (1994). The manual of conventional medicine for alternative practitioners. Surrey: Jime Press. Newman Dorland, W. A. (2003). Dorland's illustrated medical dictionary (30th ed.). W. B. Saunders Co.

Assessment: Participation in practical sessions with at least 80% attendance unless well-documented acceptable reasons are provided (hurdle requirement); two assignments (2500 words each) (20% each); one 3-hour examination (60%). This unit is a hurdle requirement.

RBM5510 NEUROL AND NEUROMUSCULAR DIS FOR EXE REHAB

Locations: Footscray Park.

Description: The unit content will include (i) mechanisms of injury and repair in neurological and neuromuscular tissue; (ii) spinal cord and peripheral nerve injuries; (iii) acquired brain injury; (iv) stroke (cerebro-vascular accident): neurological and neuromuscular deficits; (v) multiple sclerosis; (vi) Parkinson's disease; (vii) muscular dystrophy; (viii) mitochondrial myopathies; (ix) cerebral palsy; (x) ageing; (xi) detrimental effects of long term inactivity and bed rest.

Credit Points: 12

Learning Outcomes: To be advised.

Class Contact: Two hours of lectures per week for one semester.

Required Reading: American College of Sports Medicine 1998, ACSM's Resource Manual For Guidelines For Exercise Testing And Exercise Prescription, 3rd edition, Williams & Wilkins, Baltimore. Anderson MK, Hall SJ, Martin M. 2000, Sports Injury Management 2nd edition, Lippincott, Williams & Wilkins, Philadelphia, USA. Fredericks, CM &. Saladin LK (Editors) 1996, Pathophysiology Of The Motor Systems: Principles And Clinical Presentations. FA Davis. Philadelphia, USA. Hampton,J.R. 1997, The ECG Made Easy. 3rd edition, Churchill Livingstone, Edinburgh, U.K. Huff, J., Doernbach, DP & White, RD. 1993, ECG Workout: Exercises in Rhythm Interpretation 2nd edition, JB Lippincott Company, Philadelphia, USA. Lillegard WA, Butcher JD, Rucker KS (editors) 1999, Handbook of Sports Medicine, 2nd edition, Butterworth Heinemann, Boston, USA. McCance, KL, Huether, SE. 1998, Pathophysiology: The Biological Basis For Disease In Adults And Children 3rd edition, Mosby, St. Louis. Moore KL, Dalley AF (editors), Donohoe LS & Moore M. 1999, Clinically Oriented Anatomy, 4th edition, Lippincott Williams & Wilkins, Philadelphia. Prentice WE. 1999, Rehabilitation Techniques in Sports Medicine, 3rd edition, WCB/McGraw Hill. Van de Graaf K.M. 1998, Human Anatomy 5th edition, WCB/McGraw Hill, Boston, USA.

Assessment: Written assignment (40%); case studies x2 (30% each).

RBM5610 CLINICAL NUTRITION

Locations: Footscray Park.

Description: Food components, Nutritional assessment, Healthy eating patterns, Sports nutrition. Role of nutrition in: Cardiovascular disease, Diabetes, Obesity, Neuropathy, Muscularskeletal conditionsMental illness, Chronic obstructive airways disease.Treatment aspects of these conditions. Fad diets

Credit Points: 12

Learning Outcomes: Demonstrated knowledge of the roles of macro and micronutrients, their altered requirements in various pathologies, and appropriate dietary sources. Demonstrated knowledge of appropriate dietary patterns suitable for patients with various conditions and in rehabilitation. Ability to recognise rehabilitation patients requiring referral to nutritional support services.

Class Contact: Two hours lecture or equivalent for one semester.

Required Reading: Understanding Normal And Clinical Nutrition; Whitney E.N, Cataldo C.B, Rolfes S.R, Wadsworth, 2002

Assessment: case studies (x 3) each approx. 2000 words, 100 %Supplementary assessment will only be offered if all assessable components have been submitted, and a mark of 40-49% is achieved in all assessable components.

RBM8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RBM8002 RESEARCH THESIS 2 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RBM8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RBM8012 RESEARCH THESIS 2 PART TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RBT8001 RESEARCH THESIS 1 FULL TIME

Locations: .

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RBT8002 RESEARCH THESIS - SEM 2 (FULL-TIME)

Locations: Werribee.

Description: This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: To be advised.

Assessment: To be advised.

RBT8011 RESEARCH THESIS 1 PART TIME

Locations: .

Description: Eligibility for entry to a Master of Science or Doctor of Philosophy program. This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RBT8012 RESEARCH THESIS - SEM 2 (PART-TIME)

Locations: Werribee.

Description: Eligibility for entry to a Master of Science or Doctor of Philosophy program. This unit of study is part of a research degree program. Information on research topics for the Faculty of Health, Engineering and Science may be found on the faculty website at the following link: http://www.vu.edu.au/Faculties/HealthEngineeringandScience/ResearchandResearchTraining/MajorResearchAreas/ Assessment criteria and Core Research Graduate Attributes can be found on the Office for Postgraduate Research website at the following link: http://www.vu.edu.au/Research/OfficeforPostgraduateResearch/PolicyProcessesandGuidelines/

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: To be advised.

Required Reading:

Assessment: To be advised.

RMS1171 BIOCHEMISTRY 1 (OSTEOPATHY)

Locations: St Albans, City Flinders.

Description: Insights into biochemical events that occur in the human body. This includes an overview of nutrients such as proteins, carbohydrates, vitamins and fats, and how nutrients are metabolized. Specific biochemical systems occurring in muscle that will be studied include glycolysis, the tricarboxylic acid (TCA) cycle, oxidative phosphorylation, gluconeogenesis, glycogen and lipid metabolism. Other topics include the biochemistry of allergy and inflammation; nervous system biochemistry; the extracellular matrix, calcium and bone metabolism. The importance of clinical biochemistry and clinical enzymology will be discussed. Cellular signalling will be dealt with in detail.

Credit Points: 6

Learning Outcomes: On successful completion of this unit, it is expected that students will be able to: Describe various nutrients, and discuss the structures and functions of biological macromolecules and their component subunits; Explain how nutrients are metabolized; Discuss the importance of clinical biochemistry and the role of clinical enzymology in the diagnosis and prognosis of various diseases in the human body; Explain the biological mechanism of inflammation and allergy; Define the different types of muscle; Use muscle biochemistry to explain muscle contraction and relaxation; Outline various metabolic pathways for energy production in muscle; Predict and explain the clinical implications resulting from aberrations in pathways or deficits in nutrient intake; Describe cellular signalling from intracellular and extracellular perspectives, including the molecules involved.

Class Contact: To be advised.

Required Reading: Baynes, J. W. (Ed.), & Dominiczak, M. H. (2004). Medical biochemistry (2nd ed.). Philadelphia: Elsevier Mosby.Campbell, M. K., & Farrell, S. O. (2003). Biochemistry (4th ed.). Pacific Grove, CA: Brooks/Cole.

Assessment: Tutorial participation (10%); two (2) tests (20% each, total 40%); one 3-hour end-of-semester written examination (50%).

RNH2110 DISEASE AND HEALTH

Locations: Werribee.

Description: The unit will study inflammatory and immune responses and pathogenic process of common disorders. Inflammatory and immune responses, essentials of the pathologic process of the common disorders with nutritional involvement, including; anaemia, alimentary dysfunction, cardiovascular disease, cancer, obesity, diabetes, inborn errors of metabolism. Diagnostic and therapeutic modalities.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Briefly discuss the pathogenic process of common diseases and disorders;

2. Correlate structure and function disturbances;

3. Indicate how disturbances cause the clinical manifestations of the various diseases;
4. Describe the inflammatory and the immune responses;
5. Discuss the pathologic processes of common disorders with nutritional involvement;
6. Predict diagnostic and treatment strategies for various common disorders with nutritional involvement.

Class Contact: Forty-eight (48) hours for one semester comprising lectures, tutorials and workshops.

Required Reading: An introduction to human disease: Pathology and pathophysiology correlations Crowley, L. V. (2006). (7th ed.). Boston: MA: Jones and Bartlett Publishers.

Assessment: Assignment, One assignment (2000 words), 40%. Examination, One 2.5 hour final examination, 60%.

RNH3210 SPECIAL TOPICS IN NUTRITION, FOOD AND HEALTH SCIENCE

Locations: Werribee.

Prerequisites: RBF2210 - NUTRITION AND FOOD ANALYSIS 1

OR equivalent

Description: To develop and study a selected aspect of nutrition and food science, requiring conduct of a project of a selected topic. Recent advances and controversies in selected topics of nutrition and food science, including: GMO's, nutrition labelling, nutrient fortification, reference intake levels, nutrigenomics.

Credit Points: 6

Learning Outcomes: To be advised.

Class Contact: Nil, however, students are expected to spend at least three hours per week in the library.

Required Reading: Student will be responsible for reviewing current literature on their project topic.

Assessment: Presentation 20%, report 80%.

SCHOOL OF NURSING AND MIDWIFERY

Below are details of courses offered by the School of Nursing and Midwifery in 2012.

This information is also available online on the University's searchable courses database at www.vu.edu.au/courses

NOTE: Courses available to international students are marked with the (I) symbol.

BACHELOR OF NURSING (I)

Course Code: HBBN

Campus: St Albans.

Course Objectives: To prepare work-ready graduates as beginning practitioners who meet requirements for registration as Division 1 nurses with the Nurses Board of Victoria. Through their program of study, graduates will have been enabled to: take a lifespan and developmental approach to providing culturally sensitive nursing care to the diverse Australian community; provide quality nursing care in a range of healthcare settings; apply a health promotion and educational focus to their work; undertake a team based and multidisciplinary approach to care; have well-developed clinical decision-making skills; and adopt a lifelong approach to learning.

Careers: Registration as a Division 1 Nurse.

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course applicants must:

1. have successfully completed the Victorian Certificate of Education (VCE) or equivalent and meet all extra requirements and selection procedures listed through VTAC Prerequisites: Units 1 and 2 mathematics (any). Units 3 and 4 - a study score of at least 25 in English (any) and a study score of at least 20 in one of biology, chemistry, health and human development, mathematics (any), physics or psychology. OR
2. be currently registered (or eligible to register) as an Enrolled nurse (formally Div 2) having successfully completed a Certificate IV in Nursing. Enrolled nurses may apply for and may be offered a place in either the three year or admitted directly into the second year of the course, after satisfactorily completing a summer school program which includes a bioscience unit and the prescribed foundation unit. Selection Criteria Year 12 ATAR and two-stage process with a middle band of approximately 20%. Enrolled Nurses and Non-Year 12 Academic record, VTAC Pi (Personal Information) form. For international students the following English language requirement is needed for entry to the course where the international students' education was conducted in a language other than English. * An International English Language Testing System (IELTS) Academic test score of at least 6.5 in Reading and Listening, and a score of at least 6.5 in Writing and Speaking and an overall band score of at least 6.5 Students require this level of English proficiency because they will be practising and communicating in the workplace from semester 2 of the course. Registration requirements. Please refer to the Nursing and Midwifery Board of Australia website http://www.nursingmidwiferyboard.gov.au for the most current registration requirements that may impact on an applicant's registration application. Students whose secondary education was not taught and assessed in English to the requisite level for entry to the course may have to meet English language requirements for registration

Admission Requirements Other: Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission. Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course. Applicants who consider their capacity to qualify under normal entry provisions have been limited by some disadvantage, for example, illness, disability, economic hardship or isolation may apply to be considered as a disadvantaged person. Applicants will be assessed on an individual basis to determine their suitability and potential for success in the course. Clinical placement requirements In order to undertake clinical components of the course, students are required to provide a Working with Children check as well as an annual Police record check. Additionally students will need to sign a declaration of eligibility and fitness for clinical practice.

COURSE STRUCTURE

The course is offered over three years on a full-time basis.

Year 1, Semester 1

RBM1102	BIOSCIENCE 1: HUMAN BODY STRUCTURE AND FUNCTION	12
ASE1101	HEALTH & DIVERSITY IN A GLOBAL CONTEXT	12
APT1311	PSYCHOLOGY ACROSS THE LIFESPAN	12
HNB1101	FRAMEWORKS FOR NURSING PRACTICE	12

Year 1, Semester 2

RBM1203	BIOSCIENCE 2: HUMAN BODY STRUCTURE & FUNCTION	12
HNB1201	WORKING WITH FAMILIES	12
HNB1202	HEALTH PRIORITIES & NURSING 1	12
HNB1203	CLINICAL PRACTICUM 1	12

Year 2, Semester 1

RBM2104	PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 1	12
HNB2101	WORKING WITH EVIDENCE IN PRACTICE	12
HNB2102	HEALTH PRIORITIES & NURSING 2	12
HNB2103	CLINICAL PRACTICUM 2	12

Year 2, Semester 2

RBM2205	PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 2	12
HNB2202	HEALTH PRIORITIES & NURSING 3	12
HNB2203	CLINICAL PRACTICUM 3	12
HNB2204	HEALTH PRIORITIES & NURSING 4	12

Year 3, Semester 1

HNB3117	HEALTH PRIORITIES & NURSING 5	12
HNB3118	NURSING AND COMPLEX CARE	12
HNB3119	CLINICAL PRACTICUM 4	12
HNB3120	ISSUES IN PROFESSIONAL PRACTICE	12

Year 3, Semester 2

HNB3205	NURSING SPECIFIC POPULATIONS	12
HNB3206	CLINICAL PRACTICUM 5	24

Elective Unit HNB3208 Directed Studies in Nursing (12 credit points) or any 12 credit point elective within the University approved by the Course Coordinator

Summer School

HNB1101	FRAMEWORKS FOR NURSING PRACTICE	12
RBM1203	BIOSCIENCE 2: HUMAN BODY STRUCTURE & FUNCTION	12

On successful completion of summer school, Division 2 registered nurses will enter the second year of HBBN with the following structure

Year 2, Semester 1

RBM2104	PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 1	12
HNB2101	WORKING WITH EVIDENCE IN PRACTICE	12
HNB2102	HEALTH PRIORITIES & NURSING 2	12
HNB2103	CLINICAL PRACTICUM 2	12
APT1311	PSYCHOLOGY ACROSS THE LIFESPAN	12

Year 2, Semester 2

RBM2205	PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 2	12
HNB2202	HEALTH PRIORITIES & NURSING 3	12
HNB2203	CLINICAL PRACTICUM 3	12
HNB2204	HEALTH PRIORITIES & NURSING 4	12
HNB1201	WORKING WITH FAMILIES	12

Year 3, Semester 1

HNB3117	HEALTH PRIORITIES & NURSING 5	12
HNB3118	NURSING AND COMPLEX CARE	12
HNB3119	CLINICAL PRACTICUM 4	12
HNB3120	ISSUES IN PROFESSIONAL PRACTICE	12

Year 3, Semester 2

HNB3205	NURSING SPECIFIC POPULATIONS	12
HNB3206	CLINICAL PRACTICUM 5	24

Elective Unit HNB3208 Directed Studies in Nursing (12 credit points) or any 12 credit point elective within the University approved by the Course Coordinator

BACHELOR OF MIDWIFERY

Course Code: HBMW

Campus: St Albans.

About this course: The Bachelor of Midwifery is a 3 year full-time undergraduate degree which prepares students to register to practise as midwives with the Nurses Board of Victoria on completion. It comprises theoretical hours integrated with clinical practice to gain the necessary experience to prepare for practice.

Course Objectives: The aim of the course is to prepare a competent midwife who can practise in a variety of maternity settings to the full capacity of the internationally defined role and scope of practice of the midwife, and according to the ANMC 'National Competency Standards for the Midwife' (2006) and the ANMC 'Code of Ethics for Midwives' (2008). The course will prepare midwives who will be expected to: practice competently and confidently at a beginning level in a variety of maternity settings and demonstrate practice which is evidence-informed; demonstrate practice that reflects cultural safety and sensitivity with woman; reflect attitudes which are congruent with the philosophy of being woman-centred with woman aiming for continuity of care within professional relationships; work both as a primary carer and in collaboration with other healthcare professionals in providing comprehensive care through women's reproductive lives and experiences; and, achieve employment in a variety of maternity care settings.

Careers: The Bachelor of Midwifery will prepare graduate midwives with a thorough knowledge of contemporary midwifery who are able to practise competently and confidently at a beginning practitioner level and demonstrate practice which is evidence-informed. Furthermore, graduates of the course will be 'marketable' in a wide variety of maternity settings. These settings can include both public and private maternity and women's health care settings.

Course Duration: 3 years.

Admission Requirements Year 12: Year 12 applicants: To qualify for admission to the course, the applicant must have successfully completed the Victorian Certificate of Education (VCE) or equivalent (and meet all extra requirements and selection procedures listed through VTAC) with: Units 1 and 2 Maths (any); Units 3 and 4 English and a study score of at least 25; and, a study score of least 20 in one of the following: Biology, Chemistry, Health Education, Psychology, Human Development, Physics or Maths (any). Selection occurs through screening of ENTER scores and a two-stage process with a middle band of approximately 20%. Middle-band: A study score of at least 30 in English (any) and a study score of at least 25 in one of biology, chemistry, physics, mathematics (any), psychology or health and human development = an aggregate 1 point higher per study, to a maximum 2 points. Non-year 12 applicants: Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission. All applicants are required to complete and submit a VTAC Personal Information form.

Admission Requirements Other: Aboriginal and Torres Strait Islander applicants: Persons of Aboriginal or Torres Strait Islander descent are encouraged to apply for admission. Applicants will be assessed on an individual basis to determine the suitability and potential for success in the course. Portfolio Partnerships Program: Victoria University is committed to strengthening partnerships with schools and communities in its local region. The Portfolio Partnership Program is an alternative entry scheme available to students in participating secondary schools in Western metropolitan, Sunbury and Macedon regions. Selected courses are included in the program and provide opportunities for students with strong vocational commitment and the potential to succeed at university in their selected course to submit a portfolio of evidence. This gives the applicant an opportunity to provide additional information related to their goals and achievements, previous studies, work experience, skills, personal qualities as well as examples of work and other evidence that indicates a commitment to the proposed area of study in midwifery. Recognition of Prior Learning: Applicants who have undertaken part of a Bachelor of Midwifery degree or a nursing degree may be given advanced standard according to the University's 'Recognition of Prior Learning (RPL)' policy. Each case is dealt with on an individual basis. This is carried out through the School's RPL Committee (convened under University guidelines).

COURSE STRUCTURE

Course duration: The course is 6 semesters in length and is offered to fulltime students over three years. The University has a maximum length of course policy that for three year degree units, stipulates that the maximum time a student can take to complete a course of that length is 10 years unless a shorter time is stipulated. Apart from the clinical practicum units, all units are currently offered in an 'on campus' mode, however there are online components to some units. In the future more use may be made of this teaching medium with some units being offered in 'off campus' or 'mixed' mode. The University recognises its responsibility to notify the Nurses Board of Victoria of any changes to the course before they can be implemented. Brief outline of the course: Year 1: Lays the foundations for the following years with foundational studies in both professional topics and normal midwifery theory and skills, supported by psychology, sociology and anatomy & physiology. The study of midwifery theory commences with a focus on normal pregnancy, labour and birth and early parenting. This includes introduction to medications. The philosophy of 'with woman' is emphasised with the students commencing follow-throughs with women through formulation of professional relationships within the Continuity of Care program. Year 2: With a focus on the pathophysiology of childbearing, students are introduced to the theory and skills related to childbearing complications and women's health across the lifespan with a focus on consolidating clinical skills and medication management learnt thus far. Working with women from diverse backgrounds will also be highlighted. Students will have further opportunities to facilitate follow-through relationships with women. Year 3: Childbearing complications theory and skills will be examined further supported by additional studies in medication management. The role of the midwife will encompass the development of skills used for enhanced practice to provide a basis for students as graduates to practice within midwife-led models of care. Students will also undertake studies related to babies needing extra care. A consolidation unit will also be undertaken to prepare students for the world of professional midwifery practice.

Year 1, Semester 1

RBM1121	ANATOMY & PHYSIOLOGY 1	12
HMB1101	FOUNDATIONS IN MIDWIFERY	12
HMB1102	MIDWIFERY PRACTICE 1	12
APT1310	PSYCHOLOGY 1	12

Year 1, Semester 2

RBM1222	ANATOMY & PHYSIOLOGY 2	12
ASE1325	SOCIOLOGY OF INDIGENOUS HEALTH	12
HMB1203	SUPPORTING WOMEN BECOMING MOTHERS	12
HMB1204	MIDWIFERY PRACTICE 2	12

Year 2, Semester 1

HMB2105	WORKING AS A PROFESSIONAL 1	12
RBM2123	PATHOPHYSIOLOGY IN MIDWIFERY	12
HMB2106	COMPLEX PREGNANCY AND BIRTH 1	12
HMB2107	MIDWIFERY PRACTICE 3	12

Year 2, Semester 2

HMB2208	QUALITY USE OF MEDICINES FOR MIDWIFERY 1	12
HMB2209	DIVERSITY IN MIDWIFERY PRACTICE	12
HMB2210	WOMEN'S HEALTH	12
HMB2211	MIDWIFERY PRACTICE 4	12

Year 3, Semester 1

HMB3112	QUALITY USE OF MEDICINES FOR MIDWIFERY 2	12
HMB3113	COMPLEX PREGNANCY AND BIRTH 2	12
HMB3114	MIDWIFERY PRACTICE 5	12
HMB3115	WORKING AS A PROFESSIONAL 2	12

Year 3, Semester 2

HMB3216	WORKING WITH EVIDENCE IN MIDWIFERY PRACTICE	12
HMB3217	COMPLICATIONS OF THE NEWBORN	12
HMB3218	MIDWIFERY PRACTICE 6	12
HMB3219	MIDWIFERY PRACTICE 7: CONSOLIDATION	12

BACHELOR OF MIDWIFERY

Course Code: HBNW

Campus: St Albans.

About this course: This degree prepares graduates to be competent midwives, within a woman-centred philosophy, able to work collaboratively with other health care professionals. Studies include anatomy and physiology, psychology, sociology and women s health.

Course Objectives: The course aims to prepare midwives who will be able to: practise competently and confidently in a variety of maternity settings; demonstrate practice which is evidence-informed, according to the Australian Nursing and Midwifery Council (ANMC) (2006); reflect attitudes which are congruent with the philosophy of valuing women, women-centred care, and woman-midwife partnership; work both as a primary carer and in collaboration with other healthcare professionals in providing comprehensive care through women's reproductive life; and achieve employment in a variety of maternity care settings.

Careers: Registration with AHPRA as a Midwife.

Course Duration: 3 years.

Admission Requirements Year 12: To qualify for admission to the course, an applicant must have successfully completed the Victorian Certificate of Education (VCE), with Units 1 and 2 Maths (any); Units 3 and 4 English and a study score of at least 25; Units 3 and 4 of at least one of the following: Biology, Chemistry, Health Education, Psychology, Human Development, Physics, or Maths (any).

Admission Requirements Mature Age: Applicants who do not meet the normal admission requirements but who possess appropriate educational qualifications, work or life experiences which would enable them to successfully undertake the course, will be considered for admission.

Admission Requirements Other: Clinical Placement Requirements In order to undertake clinical components of the course, students are required to provide a Working with Children check as well as an annual Police record check. Additionally students will need to sign a declaration of eligibility and fitness for clinical practice. Students may also be asked to declare their immunisation status to satisfy the requirements of the hospital/agency at which they will be placed.

COURSE STRUCTURE

Students' progress towards competency is gauged against the expected minimum competency rating for each semester of the course. Absence from practice placement may affect a student's ability to demonstrate the expected level of competency. Students who have been absent from practice experience during semester, are required to provide appropriate documentation (eg medical certificate or a statutory declaration) to account for their absence. The provision of make-up time is at the discretion of the School and students should not assume that it is an automatic right. At the discretion of the School additional midwifery practice may be negotiated within a maximum stated time frame to attain competency. Students who do not provide documentary evidence or do not attend the arranged additional practice hours will incur a 'fail' grade and will be required to repeat the relevant Midwifery subjects. Academic Progression Unsatisfactory progress Students will be deemed to have made unsatisfactory progress if they fail to complete the course in six calendar years (on full-time basis).

Year 1

Semester One

RBM1515	ANATOMY AND PHYSIOLOGY 1	8
APT1310	PSYCHOLOGY 1	12
HNM7113	FOUNDATIONS IN MIDWIFERY PRACTICE	12
HNM7115	MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY	8
HNM7114	CONTINUITY OF CARE 1	8

Semester Two

RBM1525	ANATOMY AND PHYSIOLOGY 2	8
ASE1320	SOCIOLOGY OF INDIGENOUS HEALTH	8
HNM7201	MIDWIFERY STUDIES 2: THE CHILDBEARING JOURNEY	8
HNM7202	MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY	24

Year 2

Semester Three

HNB1115	HEALTHCARE LAW AND ETHICS	8
RBM2528	PATHOPHYSIOLOGY IN MIDWIFERY	8
HNM7203	MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS	8
HNM7204	MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS	24

Semester Four

HNB3237	RESEARCH PRACTICE	8
HNM7205	MIDWIVES WRKG WITH WOMEN FROM DIV BCKGRD	8
HNM7226	MIDWIFERY STUDIES 4 WOMEN'S HEALTH	8
HNM7227	MIDWIFERY PRACTICE 4	16
HNM7208	CONTINUITY OF CARE TWO	8

Year 3

Semester Five

HNB7309	APPLIED MEDICATION MANAGEMENT	8
HNM7310	MIDWIFERY STUDIES 5 CHILDBEARING COMPLICATIONS	8
HNM7311	MIDWIFERY PRACTICE 5 CHILDBEARING COMPLICATIONS	24
HNM7312	CONTINUITY OF CARE THREE	8

Semester Six

HNM7313	MIDWIFERY STUD 6-BABIES NEED EXTRA CARE	8
HNM7314	MIDWIFERY PRACTICE 6-BABIES NEED EXTRA CARE	16
HNM7315	MIDWIFERY PRACTICE 7 CONSOLIDATION	24

For theoretical subjects 1 credit point = 7 hours approximately

For clinical subjects 1 credit point = 10 hours approximately but varies according to NMBA (2010) requirements.

BACHELOR OF MIDWIFERY (HONOURS)

Course Code: HHMI

Campus: St Albans.

About this course: The overall aim of the course is to provide midwives with the opportunity to develop knowledge and skills appropriate to Honours degree level of study to undertake a method of enquiry to investigate a clinical problem or issue.

Course Objectives: The objectives of the course are to provide students with the skills to: critically analyse existing knowledge about midwifery; develop a plan to address their research question; perform their investigation in an ethical manner; analyse data related to the research question; and present findings in relation to existing knowledge in a scientific way. Students will acquire knowledge in the areas of: research methods and design; ethical principles of human research; various methods of research dissemination; and critical appraisal of existing literature relevant to midwifery theory and practice.

Careers: Completion of the course will prepare successful graduates for higher degree research studies and/or research in the clinical setting.

Course Duration: 1.5 years.

Admission Requirements Year 12: To qualify for admission to the course applicants must: have satisfactorily completed a Bachelor Degree in Midwifery with a grade average of Credit (C) or higher throughout the course; or have satisfactorily completed a one-year post-registration degree in Midwifery with a grade average of Credit (C) or higher throughout the course. For selection into all places, good academic achievement is essential.

COURSE STRUCTURE

Students are required to study two specified subjects and to complete a minor thesis. The two units are to be completed within two semesters of part-time study. The minor thesis can be completed on a full-time (one semester) or part-time (two semesters) schedule. Part-time students will need to complete the course of study in 24 months. In order to be awarded a Bachelor of Midwifery (Honours) - students must complete all units with Honours H3 or above.

sYear 1, Semester 2

HNH4210	EXAMINING PRACTICE	24

Year 1, Semester 1

HNH4110	HONOURS THESIS PREPARATION	24

Year 2, Semester 2

HNH4211	MINOR THESIS A (PART TIME)	24

OR

HNH4213	MINOR THESIS C (FULL TIME)	48

Year 2, Semester 1

HNH4112	MINOR THESIS B (PART TIME)	24

Total Credit Points = 96

BACHELOR OF NURSING (HONOURS)

Course Code: HHNO

Campus: St Albans.

About this course: The overall aim of the course is to provide nurses with the opportunity to develop knowledge and skills appropriate to Honours degree level of study to undertake a method of enquiry to investigate a clinical problem or issue. The objectives of the course are to provide students with the skills to: critically analyse existing knowledge about nursing; develop a plan to address their research question; perform their investigation in an ethical manner; analyse data related to the research question; and present findings in relation to existing knowledge in a scientific way.

Course Objectives: Aims The overall aim of the course is to provide nurses with the opportunity to develop knowledge and skills appropriate to Honours degree level of study to undertake a method of enquiry to investigate a clinical problem or issue. Objectives The objectives of the course are to provide students with the skills to: critically analyse existing knowledge about nursing; develop a plan to address their research question; perform their investigation in an ethical manner; analyse data related to the research question; present findings in relation to existing knowledge in a scientific way; and produce a piece of scholarly writing.

Careers: Completion of the course will prepare successful graduates for higher degree research studies and/or research in the clinical setting.

Course Duration: 1.5 years.

Admission Requirements Year 12: To qualify for admission to the course applicants must: have satisfactorily completed a Bachelor Degree in Nursing with a grade average of Credit (C) or higher throughout the course; or have satisfactorily completed a one-year post-registration degree in nursing with a grade average of Credit (C) or higher throughout the course. For selection into all places, good academic achievement is essential. Most Honours places will be allocated to those with the highest academic results. However, some applicants will be selected on a wider range of factors, including appropriate involvement in nursing related employment, and interest and enthusiasm in developing research mindedness. It is preferable that applicants provide supporting documentation from their current employer, indicating employer endorsement for their study.

COURSE STRUCTURE

Students are required to study two specified units and to complete a minor thesis. The two units are to be completed within two semesters of part-time study. The minor thesis can be completed on a full-time (one semester) or part-time (two semesters) schedule. Part-time students will need to complete the course of study in 24 months. In order to be awarded a Bachelor of Nursing (Honours) students must complete all units with Honours H3 or above.

Year 1, Semester 2

HNH4210	EXAMINING PRACTICE	24

Year 1, Semester 1

HNH4110	HONOURS THESIS PREPARATION	24

Year 2, Semester 2

HNH4211	MINOR THESIS A (PART TIME)	24
OR		
HNH4213	MINOR THESIS C (FULL TIME)	48

Year 2, Semester 1

HNH4112	MINOR THESIS B (PART TIME)	24

Total Credit Points = 96

DOCTOR OF PHILOSOPHY

Course Code: HPNU

Campus: St Albans.

This course is for Continuing students only.

About this course: The School of Nursing and Midwifery offers PhD research supervision in the following areas:

- Acute Care
- Mental Health
- Public Health
- Family Health
- Ontology and Epistemology of Caring
- Human Health and Illness experiences

Students who have areas of interest in nursing other than those listed are nevertheless encouraged to discuss enrolment possibilities with the School, which can facilitate co-supervisory links with other schools or institutions. In order to be awarded the Doctor of Philosophy students must undertake an appropriate research design subject, or any other subject as required by the School; have their candidature approved by the University and present their proposal to an appropriate research committee; and successfully complete a thesis undertaken with appropriate supervision. Students must receive a satisfactory progress report each semester.

Course Objectives: The Doctor of Philosophy (PhD) is normally undertaken purely by research on a topic that is agreed between the student and supervisor and is endorsed through university processes. Students may include some coursework studies during their candidature as recommended by the university. Academic staff, with suitable qualifications and proven research skills, supervise students in various research fields in nursing.

Careers: Research related career options in the healthcare field.

Course Duration: 3 years.

Admission Requirements International: In addition to the requirements specified under 'Other' applicants must have achieved an IELTS, (Academic Module) result with an overall score of 6.5 (no band less than 6) or equivalent.

Admission Requirements Other: To qualify for admission to the Doctor of Philosophy applicants must have: - a Master degree; or - a four-year undergraduate degree with honours normally at upper second class level (H2A) or equivalent; - exceptional related research experience. Some students may be required to undertake additional studies in specific areas, for example advanced research subjects.

COURSE STRUCTURE

This is a 3 year course on a Full - Time basis or Part-Time equivalent.

HNM6800 RESEARCH THESIS (FULL TIME) 48 credit points OR HNM6801 RESEARCH THESIS (PART TIME) 24 credit points

Year 1, Semester 1

MASTER OF NURSING (BY RESEARCH) (I)

Course Code: HRNR

Campus: St Albans.

Course Objectives: The Master of Nursing (by Research) is offered to students who have demonstrated the ability to undertake extensive study and research in a focused area of nursing. Although expected to demonstrate a high degree of independence, the student works under the guidance of a qualified and experienced supervisor. While the successful completion of this qualification depends entirely upon the examination of the thesis, the School of Nursing also places great emphasis on the development of research skills and background knowledge deemed necessary for successful completion of the research project. Areas of Specialisation Staff within the School will supervise research in a number of areas of specialisation including: acute care nursing; community health nursing; mental health; midwifery; neuroscience nursing; nursing education; nursing theory and clinical practice; ontology and epistemology of caring; professional nursing issues; substance abuse; women's health. These areas of study are not exhaustive and applicants are advised to contact the School directly to discuss their proposed area of study.

Careers: Research related career options in the healthcare field and platform to undertake higher studies like PhD.

Course Duration: 2 years.

Admission Requirements Year 12: To qualify for admission to the Master of Nursing applicants must hold an undergraduate degree in nursing or equivalent. Some students may be required to undertake additional studies in specific areas, for example advanced research subjects. Degree Requirements In order to be awarded the Master in Nursing (by Research) students must undertake an appropriate research design subject, or any other subject, as required by the School; have their candidature approved by the Faculty; and successfully complete a thesis undertaken with appropriate supervision.

COURSE STRUCTURE

Completion of the Master of Nursing (by Research) normally requires two years of full-time study or part-time equivalent.

HNM6800	RESEARCH THESIS (FULL-TIME)	48
HNM6801	RESEARCH THESIS (PART-TIME)	24

UNITS

Below are unit details for courses offered by the School of Nursing and Midwifery in 2012.

IMPORTANT NOTICE: Not all elective subjects for courses offered by the school are listed below. There are numerous elective possibilities that the school can choose to offer and those selected will vary from year to year. Details of these electives will be advised by the school.

HMB1101 FOUNDATIONS IN MIDWIFERY

Locations: St Albans.

Description: The aims of this unit are to introduce students to the core midwifery knowledge and skills required for conducting a comprehensive health assessment and care of the woman during the childbearing period. The unit will focus on the the practice of health assessment of the woman and her baby in a multicultural society. It will also provide the foundational knowledge required by midwifery students to work effectively as the primary carer with women during preconception, pregnancy, labour and birth. Students will be provided with the opportunity to explore the primary functions of a midwife with a focus on the principles of basic midwifery care, principles of health promotion, introduction to pregnancy and labour assessment and primary health counselling. The understanding and application of evidence-based knowledge will be utilised related to midwifery practice. The unit will include: Functional Health Patterns Occupational health and safety Procedural hand washing and asepsis The complete general and midwifery health history and general survey Cultural assessment Exploration of woman-midwife partnership Pre-conception Sexuality Fertility Pre-conception health Environmental issues Growth & development of the pregnancy: physiological and psychosocial alteration & adaptation during pregnancy; maintenance of health; principles of optimal nutrition for the woman and her baby; pregnancy assessment; labour and birth. Facilitating a normal process of birth: supporting the woman during labour; assessment and care in pregnancy, labour and birth; reception of the newborn. Skill development and application of principles in basic midwifery care: assessment, history taking, interviewing techniques, data collection and recording; introduction to clinical pathways; Introduction to primary health counselling: guidelines for undertaking primary health counselling; facilitating informed decision making; accessing relevant information; engaging in health promotion activities; communication; Accessing and evaluating information to inform practice and research.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate beginning health assessment skills; Practise beginning assessment for mental health; Utilise interpersonal and professional communication skills required for interviewing for health assessment; Incorporate the principles of occupational health and safety to the practice of midwifery health assessment; Practise the principles and process of infection control in the conduct of health assessment; Integrate the relevant ethical and legal issues associated with the conduct of health assessment; Incorporate relevant theoretical concepts from associated subjects in the planning, implementation and evaluation of the practice of midwifery health assessment; Describe in detail the anatomy and physiology of the human reproductive system, including pre-conception, pregnancy, foetal development, birth, lactation and the baby; Discuss the physiology of pregnancy, labour and birth, and its relationship to providing effective midwifery care; Demonstrate principles and practices of midwifery care during pregnancy and labour and birth including assessment of maternal and foetal well-being; Develop beginning midwifery practice skills for the promotion of individual health, growth and development within a woman-centred focus of learning in midwifery practice; Perform fundamental clinical midwifery skills in a simulated laboratory and clinical environment; Assess, collect and document data for health profiles/histories of the pregnant woman in a midwifery context; Describe the principles of primary health counselling during the childbearing period; Complete a mathematics mastery test; and Apply evidence-based knowledge to midwifery practice by: Searching for midwifery and health related articles using appropriate databases; and Evaluating the information found for its accuracy and quality.

Class Contact: Seventy (70) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: Fundamentals of nursing and midwifery, Dempsey, J, French, J, Hillege, S & Wilson, V, 2009, Lippincott Williams & Wilkins, Sydney. Myles textbook for midwives, Fraser, DM, Cooper, MA, 2009, 15th edn, Churchill Livingstone, Edinburgh. Skills for midwifery practice, Johnson, R, Taylor, W, 2006, 2nd edn, Churchill Livingstone, Edinburgh. Physiology in childbearing with anatomy and related biosciences, Stables, D, Rankin, J, 2005, 2nd edn, Bailliere Tindall, Edinburgh. Bailliere's midwives' dictionary, Tiran, D, 2008, 11th edn, Bailliere, London. How to master nursing calculations, Tyreman, C, 2009, Woodslane Press, NSW. Health assessment in nursing, Weber, J, Kelley, J, 2010, 4th edn, Lippincott Williams & Wilkins, Sydney.

Assessment: Examination, 3 hours, 50%. Essay, 1500 words, 30%. Test, Practical exam, 20%. Hurdle requirement: Mathematics mastery test. All students are required to achieve 100% in the mathematics mastery test.

HMB1102 MIDWIFERY PRACTICE 1

Locations: St Albans.

Description: The student will be expected to complete 160 hours of clinical midwifery practice under supervision in a maternity care setting. Supervised practice will include application of principles of communication skills; reflection in and of action; journal writing. Students will apply theoretical principles, evidenced-based knowledge and midwifery practice skills learned in the related theoretical unit and, under supervision, assess the woman and her baby. Students will be introduced to the concept of continuity of care in midwifery practice. The Continuity of Care program is a fundamental component of the Bachelor of Midwifery course enabling students to meet with and provide care or women under supervision throughout the childbearing period. As part of minimum practice requirements of the Nurses Board of Victoria students will be required to meet and follow through 20 women over the three-year program. The aims and requirements of the program will be presented. The central concepts of the Continuity of Care program are to care for women using a woman-centred approach and being exposed to the benefits of continuity of care for women during their pregnancy, birth and the early weeks after birth. The student will be required to recruit and follow-through 5 women from pregnancy to the early weeks after birth. This process will begin in semester one and continue into semester

2. During the Continuity of Care program the student will apply an evidence-based approach to their care of women.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Undertake clinical midwifery practice under supervision in a maternity care setting; Demonstrate qualities of women-centred midwifery practice using theoretical understandings gained in the unit Foundations in Midwifery; Demonstrate developing midwifery practice skills necessary to provide woman-centred midwifery practice; Under supervision assess the woman and her baby at various stages of pregnancy, labour and birth; Recognise the importance of woman-centred care in the social context in the provision of maternity services; Demonstrate the ability to undertake beginning level health documentation in midwifery; Assess, collect and record data for health profiles/histories of women during childbearing; Make contact with a minimum of 5 women (in the clinical venue) expecting to give birth later in the year for the purpose of the "Continuity of Care" program; Discuss models of maternity care and service provision in Australia; Apply evidence-based knowledge to midwifery practice;

Class Contact: One hundred and sixty (160) hours for one semester of supervised clinical practice in a maternity setting. Twelve hours of theory.

Required Reading: Skills for midwifery practice, Johnson, R, Taylor, W, 2006, 2nd edn, Churchill Livingstone, Edinburgh. The clinical placement, Levett-Jones, T, Bourgeois, S, 2007, Churchill Livingstone, Sydney. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J, 2009, 4th edn, Social Science Press, Sydney, NSW.

Assessment: Journal, 3 reflective journals, Pass/Fail. Practicum, Clinical Performance Appraisal, Pass/Fail. Practice assessment is based on the Australian Nursing & Midwifery Council (ANMC) (2006) National Competency Standards for the Midwife.

HMB1203 SUPPORTING WOMEN BECOMING MOTHERS

Locations: St Albans.

Prerequisites: HMB1101 - FOUNDATIONS IN MIDWIFERY

RBM1121 - ANATOMY & PHYSIOLOGY 1

Description: This unit will explore the concept of pain and the role of the midwife in being with woman experiencing pain at any time during the childbearing continuum. Emphasis will be placed upon contemporary research evidence to determine appropriate pain strategies to employ when working with women experiencing pain. The understanding and application of evidence-based knowledge will be utilised related to midwifery practice. The unit will also provide the foundational knowledge required by midwifery students to effectively care for a woman and baby during the postpartum period. The unit will examine the role of the midwife as a primary carer during this time, including the physiological and psychological adaptation to becoming a mother. Nutrition of the baby emphasising lactation will also be examined. Students will be provided with the opportunity to explore procedural aspects of the midwife s role when caring for a woman and her baby during the postpartum period. The unit will include: Factors influencing the pain process: philosophical, psychosocial, physiological, environmental, spiritual and cultural; Exploration of pain theory, working with pain, recognition of pain as a normal component of labour, sources of pain, pain assessment and expression of pain; The process of loss and grief; Pain management options and strategies; After Birth With Woman And Baby; Adaptation to extrauterine life; Lactation, breastfeeding practices and support, attachment & bonding; Development of the family unit; Discharge planning; Assessment of mother & baby; Midwifery care requirements during labour, birth and the postpartum period; Showers, bathing, perineal care, mouth & hand washing; Oxygenation and oxygen administration; Cardiopulmonary resuscitation; Neonatal resuscitation; Examination of the newborn; Hygiene of the newborn; Safety of the newborn; Drug calculations and the principles of administration of oral and parenteral therapeutic substances; Skin integrity and wound care; Peri-operative midwifery care; Domicillary and home based care; No Lift policy; Use of technology in the clinical setting; Introduction to CTG and basic interpretation; Fluid balance; and Urinalysis.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the role of the midwife in being with woman across the childbearing continuum as a normal life event: Develop an awareness of the journey with woman during childbearing; Demonstrate principles and practices of midwifery care with woman and her baby during the postpartum period; Demonstrate the principles and practices being with woman in feeding her baby with emphasis on lactation; Provide fundamental midwifery care for women during an episode of illness/hospitalisation; Utilise interpersonal and professional communication skills including verbal, written, and electronic information management skills in the practise of midwifery care; Perform midwifery practice skills in a simulated laboratory and clinical environment; Integrate the practice of occupational health and safety requirements of the health care industry and the midwifery profession; Explore the philosophical, physiological, psychosocial, spiritual, cultural and environmental factors influencing the pain experience; Discuss the role of the midwife in being with woman to work with the normal pain associated with childbirth; Apply and demonstrate the principles of safe administration of therapeutic substances in midwifery; Apply evidence-based knowledge to midwifery practice; Discuss the theoretical concepts applied to pain assessment relevant to midwifery practice during birthing; and Discuss the pharmacological and non-pharmacological methods utilised to assist working with woman to cope with pain and Complete a drug calculation mastery test.

Class Contact: Seventy (70) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: Examination of the newborn, a practical guide, Baston, H, Durward, H 2010, 2nd edn, Routledge, London. Postnatal care: Evidence and guidelines for management, Bick, D, Macarthur, C, Winter, H, 2009, 2nd edn, Churchill Livingstone, Sydney. Breastfeeding management, Brodribb, W, 2004, Australian Breastfeeding Association, Malvern, Victoria. Myles textbook for midwives, Fraser, DM, Cooper, MA, (eds) 2009, 15th edn, Churchill Livingstone, Edinburgh. CTG made easy, Guage, S, Henderson, Christine, 2005, 3rd edn, Churchill Livingstone: Edinburgh. Pharmacology for midwives: The evidence for safe practice, Jordan, S, 2002, Palgrave, Hampshire. Pain in childbearing: key issues in management, Yerby, M, 2000, Bailliere Tindall, Edinburgh.

Assessment: Examination, 3 hour, 60%. Essay, 1500 words, 40%. Hurdle requirement: Drug calculation mastery test (100% needed for pass).

HMB1204 MIDWIFERY PRACTICE 2

Locations: St Albans.

Prerequisites: HMB1101 - FOUNDATIONS IN MIDWIFERY

HMB1102 - MIDWIFERY PRACTICE 1

Description: This unit provides students with midwifery practice opportunities in a clinical venue. Utilising experience from the clinical placement in Midwifery Practice I, midwifery students will be expected to extend their practice repertoire in providing midwifery care to women and families under the supervision of a clinical teacher/preceptor. Students will be expected to provide care for with woman and her baby during pregnancy, during labour and birth and the postpartum period using knowledge gained in previous units. Students maintain contact with women with whom they have made initial relationships as part of the Continuity of Care program. The understanding and application of evidence-based knowledge will be utilised related to midwifery practice. Supervised midwifery practice will include: Interviewing and history taking techniques; Reflection in and on action; Journal writing; Application of principles of communication; Assessment of the woman and her baby; Working with the woman giving birth; Working with the woman to give nourishment to her baby; Working with the woman to care for herself and her baby before and after birth; and Documentation of midwifery actions using 'with woman' attitudes and responses.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Participate under supervision in 'being with woman' when attending the clinical facility for pregnancy care; Demonstrate qualities of woman-centred midwifery practice using theoretical understandings gained in the subjects Foundations in Midwifery and Supporting Women Becoming Mothers; Describe working with the woman in childbearing using the theoretical understandings gained in the midwifery and anatomy and physiology subjects; Demonstrate developing skills necessary to provide women-centred midwifery practice; Recognise the importance of being with the woman and her social context in the provision of maternity services; Demonstrate beginning midwifery practice skills in health assessment of the woman and her baby at various stages of pregnancy; Demonstrate the ability to undertake beginning level health documentation in midwifery; Apply theoretical concepts of pain and pain theory when working in partnership with women birthing in health care settings; Demonstrate effective communication, counselling and pastoral expertise when working with the woman and her family; Undertake a comprehensive assessment of the woman birthing and her baby in terms of the birthing process; Employ a woman-centred approach to midwifery care supported by assessment and evidence based practice; Respect the rights, values and cultural beliefs of the woman and her family expressed during the birthing process by creating a culturally appropriate environment with the woman and her partner; Demonstrate knowledge and implementation of a variety of non-pharmacological and pharmacological pain relief in midwifery; Employ reflective practice when working with the woman and her baby; Provide optimum care of the birthing family in collaboration with other members of the health care team; Discuss the need for reflective practice for the implementation of evidence informed care; Apply evidence-based knowledge to midwifery practice; Discuss the relative merits of different choices in infant nutrition; and Provide assistance to the woman to gain understandings about breastfeeding, including offering support to develop skills and identify resources.

Class Contact: One hundred and ninety (190) hours for one semester of supervised clinical practice in a maternity setting.

Required Reading: Skills for midwifery practice, Johnson, R, Taylor, W, 2006, 2nd edn, Churchill Livingstone. The clinical placement, Levett-Jones, T, Bourgeois, S, 2007, Churchill Livingstone, Sydney. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J, 2009, 4th edn, Social Science Press, Sydney, NSW.

Assessment: Journal, 3 Reflective journals, Pass/Fail. Practicum, Clinical Performance Appraisal, Pass/Fail. Report, Continuity of Care report (1000 words), Pass/Fail. Practice assessment is based on the Australian Nursing & Midwifery Council (ANMC) (2006) National Competency Standards for the Midwife.

HMB2105 WORKING AS A PROFESSIONAL 1

Locations: St Albans.

Description: The aim of this unit is to assist students to develop an understanding of ethical and legal dimensions of practice with the opportunity to examine theory, principles and moral arguments related to professional practice and health care issues. It will also examine the way health services are structured at State and Federal levels. In addition, funding initiatives and mechanisms that impact on the midwifery care and women's wellbeing including the dichotomy between "main stream" and "alternative" health care choices will be explored. Finally the unit will also focus on the role of the midwife, ethical and legal aspects of the role, midwifery knowledge development and midwives' scope of practice. These aims will be addressed in three learning modules. Module 1 will include the following content: Defining the role of the midwife in contemporary practice including models of midwifery care; Exploring the desirable attributes of a midwife; Exploring the philosophical basis underpinning the role of the midwife in contemporary midwifery practice; Explore the Art of Midwifery: Midwife's role in collaborative practice. Module 2 introduces the student to core legal and ethical principles required for beginning professional practice within the Australian Health Care system and covers the following topics: Introduction to Australian Law; Working within the Law; Legal Concepts; Professional Regulation; The regulation of drugs; Life and Death Issues; Professional practice and the ethical perspective. Professional indemnity insurance; and Victorian legislation: Mental Health Act 1986, Human Tissue Act 1982, Age of Majority Act 1982, Medical Treatment Act 1988, Guardianship and Administration Act 2008, Mental Health (Amendment) Act 1995, Health Services Act 1988, Freedom of Information Act 1982, Privacy Act 2000 (Cth), Public Record Act 2008, Drugs, Poisons & Controlled Substances Act 2009,Drugs, Poisons & Controlled Substances Regulations 2006, Health Professionals Registration Act 2005 and the Coroners Act 200

8. Module 3 introduces the student to: The interrelations between Commonwealth, state and private sector roles in health care; Health insurance and the funding of health services including funding, DRGs and Casemix; Pressures on the Pharmaceutical Benefits Scheme; The organisation of Health care services; Reforms of the Health Service.

Credit Points: 12

Learning Outcomes: On successful completion of the unit, students are expected to be able to: Describe the role of the midwife in contemporary midwifery practice; Discuss the philosophical basis underpinning the role of the midwife in contemporary midwifery practice; Discuss legislation and common law relevant to professional midwifery practice; Discuss health law as an essential aspect of professional midwifery practice; Discuss the regulation of nursing and midwifery in Australia with particular reference to Victorian statutory laws; Distinguish between civil and criminal law and discuss how each may apply to professional midwifery practice; Explain what evidence is necessary to prove negligence in health care contexts; Discuss the legal requirements to maintain patient/client confidentiality; Value the importance of an ethical code of practice as foundational to midwifery practice; Apply ethical frameworks to issues that arise in professional midwifery practice; Examine the moral arguments for maintaining or breaching confidentiality in professional midwifery practice; Discuss meaning/s of the concept of advocacy as this is presented in professional midwifery practice; and Explore the differences and similarities of ethical and legal frameworks and their implications on the midwife s professional relationship with woman, her family and health care providers. Demonstrate an understanding of the role of State and Federal governments within the Australian Maternity Health Care context; Discuss the significance for midwifery care of public and private sector funding mechanisms; Discuss growing pressures on the Pharmaceutical Benefits Scheme and their implications for midwifery care; and Discuss medical pluralism and how this may impact on midwifery care.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Essentials of law for health professionals, Forrester, K, Griffiths, D, 2010, 3rd edn, Harcourt, Sydney. Bioethics: A nursing perspective, Johnstone, MJ, 2008, 5th edn, Harcourt, Sydney. Ethics in midwifery, Jones, SR, 2000, 2nd edn, Mosby, Sydney.

Assessment: Essay, 2500 words, 70%. Presentation, Group presentation, 30%.

HMB2106 COMPLEX PREGNANCY AND BIRTH 1

Locations: St Albans.

Prerequisites: HMB1101 - FOUNDATIONS IN MIDWIFERY

HMB1203 - SUPPORTING WOMEN BECOMING MOTHERS

RBM1121 - ANATOMY & PHYSIOLOGY 1

RBM1222 - ANATOMY & PHYSIOLOGY 2

Description: This unit introduces students to the care of women experiencing health problems during pregnancy with exploration of the physical and psychological outcomes of disease processes on the mother and/or baby. Emphasis is given to the collaborative role of the midwife, referral mechanisms, use of medical technology and intervention, and the implications for being with the woman, her baby, and the midwife. The unit will also examine mental health issues precipitated by or coinciding with childbearing with particular emphasis on the implications with woman and families experiencing them and the role of the midwife in assessment and referral. The unit explores the understanding and application of evidence-based knowledge related to midwifery practice. Pregnancy problems: anaemia; blood disorders including thalassamia and rhesus isoimmunisation; infections; fetal assessment; early pregnancy bleeding and loss; intrauterine growth restriction; fetal death in utero; antepartum haemorrhage; variations in blood pressure; diabetes; surgical and medical conditions. Care and assessment during pregnancy, labour and birth and after birth: conduct vaginal examination; episiotomy and perineal care; epidural infusions and care; venepuncture; intravenous cannulation; intravenous therapies; IV antibiotics; blood sugar monitoring. Mental health issues: psychopathology of pregnancy and childbirth; motherhood and mental illness; assessment and management; midwifery role; referral and collaboration.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Utilise knowledge from anatomy and physiology applicable to being with women experiencing complicated pregnancies; Examine specific medical and obstetric conditions that affect childbearing; Evaluate the implications of obstetric interventions with the woman related to midwifery practice; Critically examine the use of technology in midwifery and obstetric practice; Perform midwifery practice skills in a simulated laboratory and clinical environment; Demonstrate midwifery practice skills in the management of maternity care emergencies; Interpret the role of the midwife as a member of a collaborative health-care team; Apply evidence-based knowledge to midwifery practice; Explore community resources available with the woman for support in the community; Demonstrate mental health assessment of a woman using a family-centred approach; Complete a drug calculations mastery test; and Identify woman-centred midwifery care strategies for being with the woman to facilitate choice and partnership when complications in childbearing occur.

Class Contact: Seventy (70) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: Guide to effective care in pregnancy and childbirth, Enkin, M, Keirse, M, Neilson, J, Duley, L, Hodnett, E & Hofmeyr, J 2000, Oxford University Press, Oxford. Myles textbook for midwives, Fraser, DM, Cooper, MA (eds) 2009, 15th edn, Churchill Livingstone, Edinburgh. CTG made easy, Guage, S, Henderson, C 2005, 3rd edn, Churchill Livingstone: Edinburgh. The newborn child, Johnston, P, Flood, K, & Spinks, K 2003, 9th edn, Churchill Livingstone, Sydney. Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone. Sydney. Managing complications in pregnancy and childbirth. A guide for midwives and doctors, WHO, 2003, WHO, Geneva.

Assessment: Examination, 3 hour written exam, 60%. Essay, 1500 words, 40%. Hurdle requirement: Drug calculation mastery test (100% needed for pass).

HMB2107 MIDWIFERY PRACTICE 3

Locations: St Albans.

Prerequisites: HMB1101 - FOUNDATIONS IN MIDWIFERY

HMB1102 - MIDWIFERY PRACTICE 1

HMB1203 - SUPPORTING WOMEN BECOMING MOTHERS

HMB1204 - MIDWIFERY PRACTICE 2

Description: This practice unit complements the theoretical unit "Complex Pregnancy and Birth 1" and will focus on students developing their knowledge and skills relating to the care of women who experience complex pregnancy, labour and birth, and postpartum period. Emphasis is given to the recognition of problems and the collaborative and referral role of the midwife. Whilst recognising the role of other healthcare practitioners, midwifery care will be central. Students will be involved in providing midwifery care and support of women experiencing obstetrical intervention and the use of medical technology. The unit also allows students to combine the understandings and skills gained earlier to expand their scope of care practices of women and their babies. This includes the understanding and application of evidence-based knowledge to midwifery practice. Students maintain contact with women with whom they have made initial relationships as part of the Continuity of Care program. Supervised midwifery practice will include: Assessment of the woman and her baby; Assisting the woman to give birth; Assisting the woman to give nourishment to her baby; Assisting the woman to care for herself and her baby before and after birth; and Documentation of midwifery actions, the woman's attitudes and responses.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate woman-centred midwifery care strategies to facilitate choice and partnership when complications in childbearing occur; Apply appropriate knowledge in the care of women experiencing childbearing complexities; Develop plans of care together with the women experiencing childbearing complexities; Discuss specific conditions that affect pregnancy, labour and birth and the first weeks after birth; Evaluate the implications of obstetric interventions in maternity care; Critique the use of technology in maternity care; Demonstrate skills in the use of technology in midwifery and obstetric practice; Demonstrate the ability to manage maternity care emergencies; Demonstrate the ability to practice within a multidisciplinary team; Demonstrate skills in principles of primary level counselling applied to childbearing; Facilitate women's access to appropriate community resources; and Apply evidence-based knowledge to midwifery practice.

Class Contact: One hundred and ninety (190) hours for one semester of supervised clinical practice in a maternity setting.

Required Reading: Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone. Sydney. The clinical placement, Levett-Jones, T & Bourgeois, S 2007, Churchill Livingstone, Sydney. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J 2009, 4th edn, Social Science Press, Sydney, NSW.

Assessment: Journal, 3 Reflective journals, Pass/Fail. Practicum, Clinical Performance Appraisal, Pass/Fail. Report, Continuity of Care report (1000 words), Pass/Fail. Practice assessment is based on the Australian Nursing & Midwifery Council (ANMC) (2006) National Competency Standards for the Midwife.

HMB2208 QUALITY USE OF MEDICINES FOR MIDWIFERY 1

Locations: St Albans.

Prerequisites: HMB2106 - COMPLEX PREGNANCY AND BIRTH 1

RBM2123 - PATHOPHYSIOLOGY IN MIDWIFERY

Description: This unit introduces students to the general principles of pharmacology as they relate to midwifery. The unit aims to assist the students to attain knowledge and understanding of the general principles of pharmacology and pharmacokinetics; the ways in which individuals respond to medication; principles and guidelines for storage, checking, administration and documentation of medications; the legal and ethical principles of drug administration; quality use of medications including safety and efficacy issues; medication use across the lifespan and polypharmacy; socio-cultural factors influencing drug therapy; adverse drug reactions and interactions; the role of midwives in education and medication therapeutic intervention; and exemplars of commonly-used drug groups.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the general principles of pharmacology as they relate to midwifery practice; Discuss legislation and ethical considerations pertaining to the drug administration responsibilities of the midwife in midwifery practice; Explain the principles of pharmacological interventions in the care of the childbearing woman; Discuss safety and efficacy issues of medications pertaining to childbearing women; Apply evidence-based knowledge to midwifery practice; Discuss the relationship of conventional drug therapy to non-pharmacological and complementary therapies in the care of individuals; and Complete a drug calculations mastery test.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Pharmacology and medicines for nurses, Downie, G, Mackenzie, J, Williams, A 2008, 4th edn, Churchill Livingstone, Edinburgh. Pharmacology for midwives: the evidence base for safe practice, Jordan, S 2002, Palgrave, Basingstocke, U.K. Australia New Zealand nursing drug handbook, Lippincott, Williams & Wilkins, 2008, 4th edn, Lippincott, Williams and & Wilkins, Philadelphia. How to master nursing calculations, Tyreman, C 2009, Australian and New Zealand edn, Woodslane Press, NSW.

Assessment: Examination, 3 hours, 60%. Essay, 1500 words, 40%. Hurdle requirement: Drug calculation mastery test (100% needed for pass).

HMB2209 DIVERSITY IN MIDWIFERY PRACTICE

Locations: St Albans.

Description: This unit assists students to acquire an understanding of how social and cultural contexts impact on women and their health during childbearing in Australia. Students will be assisted to gain an understanding of how their own values, beliefs and prejudices are shaped by gender, race, social circumstance and culture. In gaining this understanding, students are encouraged to reflect on how such beliefs might determine the relationships they form with women who are other from themselves. The focus will be on cultural safety and sensitivity. This will include issues such as aboriginality, ethnicity, spiritual differences and female genital mutilation. Social inequity will also be explored in the areas of poverty, physical abuse, sexual abuse, rape, homelessness and chemical dependency. This unit will also provide students with an opportunity to debate socio-political aspects of working with women in the context of the Australian health care system. Broad concepts and frameworks utilised in the unit will present students with the potential to formulate individualised care strategies to apply in maternity care, including an understanding and the application of evidence-based knowledge to midwifery practice. In addition, the unit also provides students with theoretical concepts they can apply in health care provision when working with women across the life span as explored in, and linked to, the content of the unit Women s Health.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the challenges presented when working with women who are from diverse backgrounds; Discuss the impact that social inequities have on women during their childbearing experiences; Discuss social justice issues impacting on women's health in Australia; Demonstrate practice that reflects cultural safety and sensitivity when working with women; Discuss specific issues impacting on the health of Aboriginal women and their babies; Discuss the politics of women's health with reference to contemporary issues; Apply evidence-based knowledge to midwifery practice; and, Examine the woman's experiences as a recipient of health and maternity care, paying particular attention to socio-economic and cultural difference.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: From here to maternity: A report to the VACCHO members and the Victorian Department of Human Services about the maternity services for Aboriginal women of Victoria, Campbell, S 2000, Author, Melbourne. Mothers in a new country report (& shared care report, Centre for the Study of Mothers and Children's Health 1999, La Trobe University, Melbourne. Women at risk program, Department of Immigration and Multicultural Affairs 1998, AGPS, Melbourne. Koori health counts: Providing services to Koori women having a baby. Koori Pilot Birthing Service Projects, Koori Health Unit 1996, Department of Human Services, Melbourne. Women's health: a primary health care approach, Rogers-Clarke, C, Smith, A 1998, Maclennan & Petty, Sydney. Culture, religion and childbearing in a multiracial society, Schott, J, Henley, A 1996, Butterworth Heinnemann, Oxford. Additional readings will be provided during lectures and tutorials.

Assessment: Essay, 2000 words, 60%. Presentation, Oral, 30%. Other, On-line participation in discussion groups, 10%.

HMB2210 WOMEN'S HEALTH

Locations: St Albans.

Prerequisites: RBM2123 - PATHOPHYSIOLOGY IN MIDWIFERY

Description: This unit will build on women's health assessment and health promotion skills previously developed within the role of the midwife working with women during childbearing. This unit, through the introduction of the broader health context, explores the primary and collaborative role of the midwife working with women who experience common women's health problems and their responses to these experiences. Students will be introduced to the physical and psychological aspects associated with selected women's health problems. The focus will be on fostering a positive self image in women through facilitating participation in informed decision making and taking responsibility for self care and optimising wellness. The understanding and application of evidence-based knowledge will be utilised related to midwifery practice in women s health. Content that will be explored includes: puberty, controlling fertility/contraception, sexually transmitted diseases and infections (non HIV), menstrual disorders, eating disorders and body image, pelvic pain, endometriosis, infertility and IVF, HIV & AIDS, breast health and disease, women with cancer, continence, the pelvic floor, vaginal repair, hysterectomy, menopause, chronic illness, health in the workplace, working in the home, mental health and addictive disorders. This theoretical unit informs the women's health practice unit, Midwifery Practice 4.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the essential components to be considered when performing a comprehensive women's health assessment; Discuss the principles of primary health care in the promotion of health and wellness with diverse groups of women experiencing treatment for a range of women's health problems; Discuss the common health problems women may experience throughout various life stages; Recognise the physical and psychological aspects associated with selected women's health problems; Apply evidence-based knowledge to midwifery practice; Identify the range of responses women may experience when confronted with a body altering health problem; Explore strategies to promote women's participation in informed decision making and taking responsibility for self care; and Recognise the need for reflective practice and the implementation of evidence informed care in practice.

Class Contact: Seventy (70) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: Women's health a core curriculum, Finn, M, Bowyer, L, Carr, S, O'Connor, V & Vollenhoven, B (eds) 2005, Elsevier, Sydney. Women's health in general practice, Mazza, D 2010, 2nd edn, Elsevier, Sydney. Maternity and women's health care, Lowdermilk, D, Perry, S, Cashion, K 2007, 9th edn, Mosby, St.Louis.

Assessment: Examination, 3 hour written exam, 60%. Essay, 2000 words, 40%.

HMB2211 MIDWIFERY PRACTICE 4

Locations: St Albans.

Prerequisites: HMB2107 - MIDWIFERY PRACTICE 3

Description: This practice unit will focus on student s developing their knowledge and skills relating to midwives working in partnership with women experiencing breast and other women's reproductive health concerns. Students will be assisted to work in partnership with women experiencing diagnostic and/or therapeutic procedures within the context of reproductive health, including cancer and urinary conditions, whilst undertaking responsibility for woman-centred care in a variety of healthcare settings, including acute care environments. Student s learning will focus on the role of the midwife as a provider of primary and collaborative care of women across the reproductive health lifespan with an emphasis on skill development in women's health assessment, promoting wellness, discharge planning, woman-centred care planning, delivery and evaluation. Specifically the following will be explored: undertaking a comprehensive women's health assessment; guidelines for practice and skill development; primary care midwife promoting women's wellness; strategies for promoting breast awareness and mammography screening (mammocheck program); regular cervical screening; healthy diet, regular weight-bearing exercise, pelvic floor exercises; midwife providing woman- centered collaborative care in the acute care setting; physical and psychological pre and post operative considerations; care of the woman experiencing diagnostic & therapeutic procedures for reproductive, breast and urinary conditions, treatment for breast and gynaecological cancers reflecting the specific care requirements and consequences of chemotherapy to be taken into consideration when planning care of these women. The understanding and application of evidence-based knowledge will be utilised in midwifery practice in women s health care.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the role of the midwife working in partnership as the provider of primary and collaborative care of women throughout the reproductive health lifespan; Demonstrate skill in undertaking a women's health assessment in an acute healthcare setting; Demonstrate midwifery practice skill in promoting wellness, healthy lifestyle messages and routine screening programs of women in their care; Apply knowledge of women's physical and psychological health in women experiencing reproductive and breast health concerns; Discuss specific reproductive health concerns of women including cancer and urinary conditions; Develop a plan of woman-centred care for women experiencing diagnostic and/or therapeutic procedures in an acute care setting; Demonstrate midwifery practice skill in the delivery of woman-centred care of women experiencing diagnostic and/or therapeutic procedures in an acute care setting; Apply knowledge of discharge planning in partnership with women experiencing short in-patient and day procedures related to reproductive and breast health concerns; Apply knowledge of specific reproductive and breast health concerns in evaluating woman-centred care outcomes; Employ reflective practice and implement evidence-informed care; Apply evidence-based knowledge to midwifery practice; Explore community resources available to support women with specific reproductive or breast health concerns; Demonstrate the ability to practice within a multidisciplinary team; and Document the ongoing relationship with women they are following through in a way that reflects their own involvement and actions and the rationale for these, as well as the women's actions and attitudes and responses to midwifery actions.

Class Contact: One hundred and sixty (160) hours for one semester of supervised clinical practice in a maternity setting.

Required Reading: Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone, Edinburgh. The clinical placement, Levett-Jones, T & Bourgeois, S 2007, Churchill Livingstone, Sydney. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J 2009, 4th edn, Social Science Press, Sydney, NSW.

Assessment: Journal, 3 Reflective journals, Pass/Fail. Practicum, Clinical Performance Appraisal, Pass/Fail. Report, Continuity of Care - 1000 words, Pass/Fail. Practice assessment is based on the Australian Nursing & Midwifery Council (ANMC) (2006) National Competency Standards for the Midwife.

HMB3112 QUALITY USE OF MEDICINES FOR MIDWIFERY 2

Locations: St Albans.

Prerequisites: HMB2106 - COMPLEX PREGNANCY AND BIRTH 1

RBM2123 - PATHOPHYSIOLOGY IN MIDWIFERY

HMB2208 - QUALITY USE OF MEDICINES FOR MIDWIFERY 1

Description: This unit builds on the content of "Quality Use of Medicines for Midwifery 1" and introduces students to the use of medication in pregnancy, labour, postpartum with a focus on lactating women and neonates. The unit will also present the contemporary issues surrounding the legislation and the responsibilities of midwives in prescribing medication. The subject aims to assist the students to attain knowledge and understanding of the common medications used in pregnancy and the effect on the developing fetus; common medication used in labour and the effect on the unborn baby; drug therapy and breastfeeding; drug therapy and neonates; safety and efficacy issues; professional issues related to midwifery and prescribing medication. Specifically, the following topics will be presented: Identification of commonly used drugs in pregnancy, labour and birth and their effects on the developing baby; Investigation of drug therapy and breastfeeding by revision of the alveolar subunit, pharmcokenetics of drug transfer into human milk, calculating infant exposure via unique infant and maternal factors; minimizing the risk to the baby if the mother is taking medication and knowing where to access accurate information on drugs and breastfeeding; effects of medication on milk production in particular drugs that may inhibit/stimulate milk production and the use of natural remedies on milk production; a review of selected drug classes and their effects on breastfeeding; Drugs of abuse and their effects on pregnancy, breastfeeding and the neonate; Radioisotopes and their effects on pregnancy and breastfeeding; Radiocontrast agents and their effects on pregnancy and breastfeeding; Immunisation and breastfeeding; Commonly used drugs in neonates and their effects on term and premature babies; Minimising the risks of adverse drug effects in neonates; Paediatric oral, intramuscular and intravenous drug calculations; Paediatric intravenous therapy; Professional issues related to midwifery and prescribing medication.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the pharmacodynamics and pharmacokinetics of medications; Discuss commonly used drugs in pregnancy and labour and their effects on pregnancy; Discuss common drugs used in the postpartum period and their effects on breastfeeding; Discuss common medications that are prescribed to neonates; Calculate paediatric drug dosage rates accurately; Demonstrate skills in safe practice of medication management; Discuss legislation and prescribing rights for midwives; and Complete a drug calculations mastery test.

Class Contact: Sixty (60) hours for one semester comprising lectures and tutorials.

Required Reading: Pharmacology and medicines for nurses, Downie, G, Mackenzie, J, Williams, A 2008, 4th edn, Churchill Livingstone, Edinburgh. Medication and mother'smilk Hale,T, 2008, 13th edn, Hale Publishing, Pharmacology for midwives: the evidence base for safe practice, Jordan, S 2002, Palgrave, Basingstocke, U.K. Breast feeding and human lactation, Riordan, J, and Wamback, K, 2009, 4th edn Jones and Bartlett Publishers, Boston. Havard's nursing guide to drugs, Tiziani, A 2006, 7th edn, Mosby, Sydney. How to master nursing calculations, Tyreman, C 2009, Australian and New Zealand edn, Woodslane Press, NSW.

Assessment: Examination, 3 hour written exam, 50%. Essay, 1500 words, 30%. Test, Topic test, 20%. Hurdle requirement: Drug calculation mastery test (100% needed for pass).

HMB3113 COMPLEX PREGNANCY AND BIRTH 2

Locations: St Albans.

Prerequisites: HMB2106 - COMPLEX PREGNANCY AND BIRTH 1

RBM2123 - PATHOPHYSIOLOGY IN MIDWIFERY

Description: This unit builds on the content of "Complex Pregnancy And Birth 1" and introduces students to the more complex health problems that women may experience during labour, birth and the postpartum period. Students will be assisted to develop their existing knowledge and skills by working with women and other members of the healthcare team when problems arise during labour, birth and the first weeks after birth. Emphasis is given to the collaborative role of the midwife, referral mechanisms, use of medical technology and intervention, and the implications of these for the woman, her baby and the midwife. The understanding and application of evidence-based knowledge will be utilised related to midwifery practice. Specifically the content covered will include: Unexpected problems during labour and birth such as inco-ordinate uterine action, the intervention cascade, cord presentation and prolapse, fetal distress, primary postpartum haemorrhage, shoulder dystocia, maternal shock and collapse; Collaborative and referral role of the midwife; Maternal health problems in first weeks after birth such as breastfeeding problems, pyrexia, secondary postpartum haemorrhage, haematomas and post-caesarean section extra care; Medical technology and procedures such as ultrasound, cardiotocography, epidural analgesia, forceps & ventouse, caesarean birth and care and assisting with obstetrical interventions; Central venous pressure (CVP) monitoring; Magnesium sulphate infusion; Intravenous infusion pumps; Dynamap and blood pressure monitoring; Advanced CTG skills; Perineal suturing; Resuscitation and care of the sick woman.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Apply knowledge from anatomy and physiology in the care of women experiencing a complex labour and birth and/or postpartum period; Examine specific medical and obstetric conditions that affect labour, birth and the postpartum period; Examine perinatal mental health issues and the implications for mothers, families and caregivers; Evaluate the implications of obstetric interventions for the women and midwifery practice; Critically examine the use of technology in midwifery and obstetric practice; Perform midwifery practice skills in a simulated laboratory and clinical environment; Demonstrate skills in the management of maternity care emergencies; Apply evidence-based knowledge to midwifery practice; Interpret the role of the midwife as a member of a collaborative health-care team; and Explore community resources available to provide support for women in the community.

Class Contact: Seventy (70) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: A guide to effective care in pregnancy and childbirth, Enkin, M, Keirse, M, Neilson, J, Duley, L, Hodnett, E & Hofmeyr, J 2000, Oxford University Press, Oxford. Myles textbook for midwives, Fraser, DM, Cooper, MA (eds) 2009, 15th edn, Churchill Livingstone, Edinburgh. CTG made easy, Guage, S, Henderson, C 2005, 3rd edn, Churchill Livingstone: Edinburgh. Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone, Edinburgh. The newborn child, Johnston, P, Flood, K, & Spinks, K 2003, 9th edn, Churchill Livingstone, Sydney. Successful breastfeeding, Royal College of Midwives, 2002, 3rd edn, Churchill Livingstone, London. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J 2009, 4th edn, Social Science Press, Sydney, NSW. Managing complications in pregnancy and childbirth. A guide for midwives and doctors, WHO, 2003, WHO, Geneva. Pain in childbearing: key issues in management, Yerby, M 2000, Bailliere Tindall, Edinburgh.

Assessment: Examination, 3 hour written exam, 60%. Essay, 1500 words, 40%.

HMB3114 MIDWIFERY PRACTICE 5

Locations: St Albans.

Prerequisites: HMB2107 - MIDWIFERY PRACTICE 3

Description: This practice unit complements the units Complex Pregnancy and Birth 1 & 2 and will focus on students developing their knowledge and skills relating to women who experience complex pregnancy, labour, birth and the postpartum period. Emphasis is given to the recognition of problems and the collaborative and referral role of the midwife. Whilst recognising the role of other healthcare practitioners, midwifery care will be central. Students will be involved in providing midwifery care and support to women experiencing obstetrical intervention and the use of medical technology. This unit provides students with further midwifery practice opportunities in a clinical venue. This practice subject will assist students to build on skills obtained in previous semesters in working with women experiencing childbearing and application of evidence-based knowledge to midwifery practice. Students maintain partnerships with women with whom they have made initial relationships as part of the Continuity of Care program.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate emerging confidence and competence in midwifery practice; Recognise own attitudes, beliefs and values when working with childbearing women within a diverse cultural context; Value the journey of being with women through childbearing; Employ strategies to work with women in making the transition to parenthood which is viewed as an experience of growth and change; Integrate the knowledge and midwifery practice skills acquired from preceding units which inform the current stage of practice as a midwife; Apply evidence-based knowledge to midwifery practice; Critically reflect on self and practice as a midwife; and Implement evidence-informed care when working with women.

Class Contact: Two hundred (200) hours for one semester of supervised clinical practice in a maternity setting.

Required Reading: Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone, Edinburgh. The clinical placement, Levett-Jones, T & Bourgeois, S 2007, Churchill Livingstone, Sydney. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J 2009, 4th edn, Social Science Press, Sydney, NSW.

Assessment: Journal, 3 Reflective journals, Pass/Fail. Practicum, Clinical Performance Appraisal, Pass/Fail. Report, Continuity of Care report 1000 words, Pass/Fail. Practice assessment is based on the Australian Nursing & Midwifery Council (ANMC) (2006) National Competency Standards for the Midwife.

HMB3115 WORKING AS A PROFESSIONAL 2

Locations: St Albans.

Prerequisites: HMB2105 - WORKING AS A PROFESSIONAL 1

Description: This unit builds on the content of "Working As A Professional 1" and introduces students to advanced professional practice issues in the current midwifery climate. It will examine in detail the theoretical concepts underpinning the practice of the following: episiotomy and perineal repair; advanced examination of the newborn; antenatal screening investigations and associated referral mechanisms for women; requesting and interpreting relevant laboratory tests; the options for independent midwifery practice; management of conflict in the workplace and preparation for the graduate midwife role. Opportunities may be provided to experience a range of the above topics in the clinical maternity setting.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the role of the midwife in contemporary advanced midwifery practice; Describe the procedure involved in performing an episitotomy; Describe the procedure of perineal repair; Demonstrate an advanced examination of the newborn in the simulated environment; Recognise when to conduct antenatal screening investigations; Describe which antenatal tests and investigations are needed in specific situations or conditions; Discuss the interpretations of the results of such investigations; Apply the principles of conflict management to a scenario in the simulated environment.

Class Contact: Fifty (50) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: Examination of the newborn, a practical guide, Baston, H, Durward, H 2010, 2nd edn, Routledge, London. Midwifery essentials: labour care volume 3, Baston, H, Hall, J 2009, Churchill Livingstone, Sydney. Mayes' midwifery: A textbook for midwives, Henderson, C, MacDonald, S 2004, 14th edn Bailliere Tindall, Edinburgh. Examination of the newborn and neonatal health, Davies, L, McDonald, S (eds) 2008, Churchill Livingstone, Sydney. Midwife's guide to antenatal investigations, Sullivan, A, Kean, L, Cryer, A 2006, Churchill Livingstone, Sydney.

Assessment: Report, 2500 words, 60%. Essay, 1500 words, 40%.

HMB3216 WORKING WITH EVIDENCE IN MIDWIFERY PRACTICE

Locations: St Albans.

Description: This unit introduces students to the fundamental knowledge of the research process. It aims to provide a broad range of research designs and methodologies that are currently utilised by midwife researchers and to validate and refine existing midwifery knowledge in order to improve midwifery practice. It also presents the skills that are needed to understand and appraise a systematic review and meta-analysis, and how to appraise and use research in midwifery practice. Topics covered include the following: Significance of research in midwifery; Links between midwifery education, theory and practice; Approaches to research process: qualitative and quantitative designs including mixed and triangulation methods; Classification and characteristics of exploratory, descriptive and explanatory studies; Steps in the research process: identification of problem statement, literature review, theoretical framework, sampling, data collection and analysis using descriptive and inferential statistics; Ethics and research; Disseminating and applying midwifery research; Evaluating research reports; Appraising a systematic review of the literature; Utilise basic statistics for appraisal of systematic reviews, including statistical significance, chance, probability, confidence intervals, odds ratios, numbers needed to treat and pitfalls in analysis; and Appraising the professional application of a systematic review and meta analysis to an aspect of professional midwifery practice.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the research process in relation to midwifery practice; Critically examine the relationship between midwifery research and improvement in health care outcomes; Discuss research designs and methodologies; Critically evaluate a piece of midwifery research; Recognise the ethical implications of research; Develop a beginning knowledge in research proposal relevant to midwifery practice; Access and appraise research papers and systematic review; Develop the ability to appraise a systematic review of the literature on an aspect of midwifery practice; and Recognise how to utilise research to inform midwifery practice.

Class Contact: Fifty (50) hours for one semester comprising lectures and tutorials.

Required Reading: Introduction to research for midwives, Rees, C 2003, 2nd edn, Books for Midwives, Edinburgh. Nursing Research Processes- an Australian perspective, Roberts, K, Taylor, B 2002, 2nd edn, Thomson, Australia.

Assessment: Examination, 3 hour written exam, 50%. Essay, 2000 words, 50%.

HMB3217 COMPLICATIONS OF THE NEWBORN

Locations: St Albans.

Prerequisites: HMB3113 - COMPLEX PREGNANCY AND BIRTH 2

HMB3114 - MIDWIFERY PRACTICE 5

Description: This unit will assist students, within the context of the family, to acquire foundational knowledge of the care of babies with complications. Students will have the opportunity to study the circumstances that commonly result in a baby being admitted to a Level Two Nursery. The issues confronting the infant and family during this period will be explored and the role of the midwife in facilitating health and wellbeing of the family. Students will reflect upon and debate the ethico-legal issues involved in care of the baby with complications, and utilise and apply evidence-based knowledge as related to midwifery practice. Specifically the unit content will include the following topics: Environment: Growth & development, Level Two nursery, equipment, personnel, influence upon the wellbeing of the baby, impact upon the family and role of the midwife in the team; Circumstances that may require babies to be admitted to a Level Two nursery: pre-term, post-term, congenital anomalies, metabolic disturbances, small for gestational age, chemical dependency, birth asphyxia, jaundice, anaemia and birth trauma; pain management; Care of the baby: gestational assessment, facilitation of growth & development, oxygenation, elimination, nutrition, immunity and temperature; Care of the family: support & counselling, involvement in care and decision making, education and transition to parenthood; Ethico-legal issues: informed consent, rights of the baby, economic challenges and maintenance of life support; and Neonatal Emergency Transport Service: history and role of the service, referral, stabilization, retrieval and transport of the sick neonate.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the development of a baby during the second half of pregnancy; Discuss the circumstances that may necessitate admission of a baby to a level two nursery; Evaluate the level two nursery environment and its impact upon the baby and family; Discuss the role of the midwife within the context of the level two nursery multidisciplinary team; Utilise the clinical decision making process to demonstrate knowledge and understanding of the care required by the baby and the family;

Apply evidence-based knowledge to midwifery practice; Value the family s need for privacy, dignity and respect, as well as their right to be informed and to make decision regarding care of their baby; Value reflective practice in the implementation evidence informed care for the baby and family; Debate the ethico-legal issues, which arise in the care of babies with special needs; and Complete a drug calculations mastery test.

Class Contact: Seventy (70) hours for one semester comprising lectures, tutorials and laboratory sessions.

Required Reading: The newborn child, Johnston, P, Flood, K, & Spinks, K 2003, 9th edn Churchill Livingstone, Sydney.

Assessment: Examination, 3 hour written exam, 60%. Essay, 1500 words, 40%. Hurdle requirement: Drug calculation mastery test (100% needed to pass).

HMB3218 MIDWIFERY PRACTICE 6

Locations: St Albans.

Prerequisites: HMB3113 - COMPLEX PREGNANCY AND BIRTH 2

HMB3114 - MIDWIFERY PRACTICE 5

Description: This unit will assist students, within the context of the family to apply foundational knowledge in the care of babies with complications admitted to a Level Two nursery. The student will gain beginning skills necessary for a midwife to be a competent member of the multidisciplinary team. Supervised practice in a Level Two Nursery will facilitate the development of competency, and reflection and application of evidence-based knowledge to care for babies with complications and their families. Clinical learning objectives will assist students during this supervised practice. Experience in this environment will allow the student to appreciate the complexity of the family experience. The topics covered in this unit include the following: Neonatal Nursery Environment; cots, oxygen saturation equipment, assisted ventilation equipment, monitors, stress management strategies, neonatal nursery environment; Care of the baby: gestational, physical & psychosocial assessment, facilitation of growth & development, touch/stimulation/position, rest/comfort/pain control, kangaroo care, resuscitation, oxygenation/oxygen therapy/CPAP/surfactant therapy, oxygen saturation/blood gases, nutrition & elimination, breast feeding, expand on previous knowledge/breast milk substitutes, donor milk banking, gastric feeds, IV therapy/fluid balance & electrolytes, specimen collections, phototherapy, immunity, universal precautions/hygiene and neutral thermal environment.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Discuss the circumstances that necessitate admission of a baby to a Level Two Nursery; Evaluate the environment of the nursery and implement strategies to promote the wellbeing of the baby and family; Develop competency within the context of the multidisciplinary Health Care team; Utilise a clinical decision making process to apply the necessary knowledge and understanding required to meet the needs of the baby and family in the nursery; Apply strategies for maintaining the families need for privacy, dignity and respect, as well as their right to be informed and to make decision regarding care of their baby; Facilitate family involvement with the care of the baby with special needs; Employ reflective practice and implement evidence based care for babies and their families; Facilitate transition of the baby and family from hospital to home; Apply evidence-based knowledge to midwifery practice with the sick baby; Document the ongoing relationship with woman and her family that the midwifery student follows through in a way that reflects their own involvement and actions and the rationale for these, as well as the families actions and attitudes and responses to midwifery care; and Follow through a sick baby.

Class Contact: One hundred and twenty (120) hours for one semester of supervised clinical practice in a maternity setting.

Required Reading: The newborn child, Johnston, P, Flood, S, Spinks, K 2003, 9th edn, Churchill Livingstone, Sydney. Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone, Edinburgh. The clinical placement, Levett-Jones, T & Bourgeois, S 2007, Churchill Livingstone, Sydney. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J 2009, 4th edn, Social Science Press, Sydney, NSW.

Assessment: Practicum, Clinical Performance Appraisal, Pass/Fail. Journal, 3 Reflective journals, Pass/Fail. Report, Report of a follow-through of a sick neonate 1000 words, Pass/Fail. Practice assessment is based on the Australian Nursing & Midwifery Council (ANMC) (2006) National Competency Standards for the Midwife.

HMB3219 MIDWIFERY PRACTICE 7: CONSOLIDATION

Locations: St Albans.

Prerequisites: HMB2209 - DIVERSITY IN MIDWIFERY PRACTICE

HMB2210 - WOMEN'S HEALTH

HMB2211 - MIDWIFERY PRACTICE 4

HMB3112 - QUALITY USE OF MEDICINES FOR MIDWIFERY 2

HMB3113 - COMPLEX PREGNANCY AND BIRTH 2

HMB3114 - MIDWIFERY PRACTICE 5

HMB3115 - WORKING AS A PROFESSIONAL 2

Description: This practice unit enables students to practise woman-centred midwifery care under supervision and in preparation for transition to practice as a graduate midwife at the beginning level. Students will be expected to apply theoretical principles, evidence-based knowledge and midwifery practice skills learned in related units and previous clinical practicum, with an increasing level of complexity and independence leading to competence as a graduate midwife.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate the application of knowledge acquired through related theoretical and skills based units of study; Apply knowledge of health assessment procedures to the individualised care requirements of the childbearing woman and her newborn; Demonstrate safe clinical practice in accordance with the ANMC (2006) National Competency Standards for the Midwife, and consistent with level, knowledge and performance of a graduate midwife at beginning level; Implement individualised midwifery care for the childbearing woman acknowledging physical/mental condition, communication needs and socio-cultural background; Demonstrate appropriate interpersonal skills with the woman during childbearing, her family, and healthcare personnel; Apply legal and ethical principles to the midwifery care requirements of the childbearing woman; Participate in reflective practice process through documentation, discussion, self-evaluation of both on-campus and clinical learning experiences and the relationship between them; Apply evidence-based knowledge to midwifery practice; Critically apply relevant theoretical concepts from related areas of study in the analysis of midwifery situations; and Incorporate current research findings into midwifery practice.

Class Contact: One hundred and ninety (190) hours for one semester of supervised practice in a maternity setting.

Required Reading: Myles textbook for midwives. Fraser, DM, Cooper, MA 2003, 14th Churchill Livingstone, Melbourne. CTG made easy, Guage, S, Henderson, C 2005, 3rd edn, Churchill Livingstone: Edinburgh. Skills for midwifery practice. Johnson, R, Taylor, W. 2006, 2nd Churchill Livingstone, Edinburgh. The newborn child. Johnston, P, Flood, K, Spinks, K 2003, 9th Churchill Livingstone, Sydney. The clinical placement, Levett-Jones, T & Bourgeois, S 2007, Churchill Livingstone, Sydney. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J 2009, 4th edn, Social Science Press, Sydney, NSW.

Assessment: Journal, 3 Reflective journals, Pass/Fail. Practicum, Clinical Performance Appraisal, Pass/Fail. Report, Continuity of Care - 1000 words, Pass/Fail. Practice assessment is based on the Australian Nursing & Midwifery Council (ANMC) (2006) National Competency Standards for the Midwife.

HNB1101 FRAMEWORKS FOR NURSING PRACTICE

Locations: St Albans.

Description: This unit comprises three parts. Part 1 (3 weeks) enables students to explore portrayals of nursing in the media and to consider these critically in relation to their personal perceptions of nursing. Part 2 (8 weeks) introduces them to broad frameworks which shape the scope and dimensions of nursing practice. These include population health/health promotion considered within the National Health Priorities; professional practice (ethics, law and regulatory frameworks); critical thinking and analysis (use of evidence in practice); frameworks for patient/client assessment of care; quality use of medicine and therapeutic relationships. Part 3 (1 week) introduces students to issues surrounding the development of a professional practice portfolio which they will develop further throughout their course of study. NOTE: This unit of study will be offered in on-line mode in semester 2 to students previously enrolled in the former HBRN Bachelor of Nursing (Pre- Registration) course.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- critically discuss portrayals of the nurse found in the media;
- discuss some of the ways in which National Health Priorities are being addressed through health promotion strategies;
- discuss ethical and legal boundaries of nursing practice;
- discuss the role of the registered nurse in terms of regulatory frameworks for practice;
- discuss duty of care as it relates to nurses practice;
- discuss the use of evidence in nursing practice;
- demonstrate an understanding of the purpose of assessment frameworks for nursing practice;
- outline the principles underpinning the quality use of medicines;
- demonstrate beginning skills in professional communication, including an understanding of professional boundaries and self-awareness;
- complete a diagnostic mathematics test;
- demonstrate beginning skills in information literacy and academic writing
- begin developing a personal professional practice portfolio.

Class Contact: Sixty hours (60 hours) of contact time per semester in mixed mode delivery: lectures; tutorials and computer laboratories.

Required Reading: Contexts of Nursing: An Introduction Daly, J., Speedy, S., & Jackson, D. (2010). (3rd ed.). Elsevier: Sydney Nursing Calculations Gatford, J.D. & Phillips, N. (2006). (7th ed.). Elsevier: Sydney Promoting Health - a primary health care approach Talbot, L. & Verrinder, G. (2010). (4th ed.). Elsevier: Chatswood

Assessment: Diagnostic mathematics test (30 minute test) All students are expected to achieve 100% in the diagnostic mathematics test. Any student not achieving 100% in this test will be referred for remedial work in mathematics skills.

Assignment, Written assessment (700 words), 20%. Assignment, Written assessment (800 words), 30%. Essay, Written assessment (1500 words), 50%. Students must achieve an aggregate score of 50% to pass this unit.

HNB1115 HEALTHCARE LAW AND ETHICS

Locations: St Albans.

Description: This module introduces the student to core legal and ethical principles required for beginning professional practice within the Australian Health Care system and covers the following topics: Introduction to Australian Law, Working within the Law, Legal Concepts, Professional Regulation, The regulation of drugs, Life and Death Issues, Professional practice and the ethical perspective. Module 2 This module introduces the student to: The interrelations between Commonwealth, state and private sector roles in health care, Health insurance and the funding of health services including: Healthcare funding, DRGs and Casemix, Pressures on the Pharmaceutical Benefits Schemes, The organisation of Health care services, Reforms of the Health Service.

Credit Points: 8

Learning Outcomes: Module 1 The student will be expected to: Discuss legislation and common law relevant to professional practice; Discuss health law as an essential aspect of professional practice; Discuss the regulation of nursing in Australia with particular reference to Victorian statutory; Distinguish between civil and criminal law and discuss how each may apply to professional practice; Explain what must be shown to prove negligence in health care contexts; Discuss the legal requirements to maintain patient/client confidentiality; Reflect upon own values, attitudes and beliefs about nursing and compare these with the value statements in the Code of Ethics for Nurses in Australia (ANCI, 1993); Appreciate the importance of an ethical code of practice as foundational to practice; Apply ethical frameworks to issues that arise in professional practice; Understand the concept of personhood; Examine the moral arguments for maintaining or breaching confidentiality in professional practice; Discuss meaning/s of the concept of advocacy as this is presented in professional practice; and Explore the differences and similarities of ethical and legal frameworks and implications of these frameworks on the nurses and midwives professional relationship with clients, their families and other health care providers. Module 2 The student will be expected to: Show an understanding of the role of State and Federal governments within the Australian Health Care context; Discuss the significance for nursing care of public and private sector funding mechanisms for acutely ill patients; Discuss growing pressures on the Pharmaceutical Benefits Scheme and their implications for patient care; and Discuss Medical pluralism and how this may impact on patient care.

Class Contact: Equivalent of 40 hours.

Required Reading: Essentials of law for health professionals. Forrester, K. & Griffiths, D. (2004). Sydney: Harcourt. Bioethics: A nursing perspective Johnstone, M.J. (2004). (4th ed.). Sydney: Harcourt. Ethics in Midwifery Jones, S.R. (2000). (2nd ed.). Sydney: Mosby.

Assessment: Learning folio - 60%, oral presentation - 40%

HNB1201 WORKING WITH FAMILIES

Locations: St Albans.

Description: This unit provides students with an understanding of some of the major health needs of families living within the Western region of Melbourne. It introduces students to family and community nursing with particular emphasis on health issues across the lifespan related to cultural diversity, geographical dislocation and socio-economic disadvantage. It also explores ethical issues related to access to health care.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: identify major health needs of families living in the Western region of Melbourne and compare these to Victorian, National and global health priorities; discuss theories of family and community nursing assemble a genogram of a family; apply professional, ethical, legal and cultural principles to communication with individual, family and community; identify key health issues for families in the Western region with particular emphasis on: maternal and child health, adolescent health, adult health, the health of older persons; identify the health impacts of socio-economic disadvantage, and cultural and geographic dislocation.

Class Contact: Lectures: 2-3 hours per week (total = 30 hours) Tutorials: 1-2 hours per week (total = 15 hours) Laboratory sessions: 1-2 hours per week (total = 15 hours) Total: 60 hours of class contact time Class contact hours per week may vary according to clinical placement allocation.

Required Reading: Kralik, D & van Loon, A 2011, Community nursing in Australia, 2nd edn, John Wiley & Sons Australia, Milton, Qld. Hoffnung, M, Hoffnung, RJ, Seifert, KL, Burton Smith, R, Hine, A, Ward, L & Quinn, A 2010, Lifespan development, 1st Australasian edn, John Wiley & Sons Australia, Milton, Qld.

Assessment: Students must achieve an aggregate score of 50% and pass the written examination to achieve a pass in the unit. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit.Assignment, Written assessment plan (500 words), 10%. Assignment, Written assessment (2000 words), 60%. Examination, Written examination (1 hour), 30%.

HNB1202 HEALTH PRIORITIES & NURSING 1

Locations: St Albans.

Prerequisites: HNB1101 - FRAMEWORKS FOR NURSING PRACTICE

Description: This unit introduces students to the National Health Priority, Injury Prevention and Control, and provides them with an opportunity to apply the knowledge learnt in their personal and professional lives. In the clinical laboratory, students learn the skills required to undertake a comprehensive health assessment, identify normal and abnormal findings and document these.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: discuss population approaches to injury prevention and control (i.e. policies, legislation and health promotion initiatives); identify key issues in injury prevention and control across the lifespan and in a variety of settings; demonstrate an awareness of skills to aid in developing and supporting self in relation to nursing practice; discuss a range of history taking and physical assessment tools and techniques used in Victorian health care settings; demonstrate beginning skills in history taking and physical assessment in the clinical laboratory; discuss consent, privacy, and confidentiality when dealing with patients/clients and their information; differentiate between the roles of the division 1 and division 2 registered nurse and patient services assistants/personal care attendants; discuss how clients cultural and family values can be met within the clinical environment; briefly explain health care funding, its relationship to the provision of care and actions nurses can take to utilise resources efficiently.

Class Contact: Lectures: 1-2 hours per week (total = 20 hours) Tutorials: 1-2 hours per week (total = 20 hours) Laboratory sessions: 1-2 hours per week (total = 20 hours) Total: 60 hours of class contact time Class contact hours per week may vary according to clinical placement allocation.

Required Reading: Australian Nursing and Midwifery Council. (2006). ANMC National competency standards for the registered nurse. Canberra: Author. (http://www.anmc.org.au/docs/Competency_standards_RN.pdf) Australian Nursing and Midwifery Council. (2008). Code of ethics for nurses in Australia [Brochure]. Canberra: Author. (Available at http://www.anmc.org.au) Australian Nursing and Midwifery Council. (2008). Code of professional conduct for nurses in Australia [Brochure]. Canberra: Author. (Available at http://www.anc.org.au) Health Professions Registration Act 2005 Act No. 97/2005 (incorporating amendments as at 2006) (Available at http://www.dms.dpc.vic.gov.au) Ivey, A.E. & Ivey, M.B. (2007). Intentional Interviewing and Counselling: Facilitating Client Development in a Multicultural Society. Belmont, CA: Thomson Brooks/Cole. Nurses Board of Victoria. (2006). Professional conduct information. Melbourne: Author. (Available at http://www.nbv.org.au) Nurses Board of Victoria. (2006). Professional boundaries. Guidelines for registered nurses in Victoria. Melbourne: Author. (Available at http://www.nbv.org.au) Tollefson, J. (2004). Clinical psychomotor skills. Assessment tools for nursing students (2nd ed.). Tuggerah, NSW: Social Science Press Weber, J & Kelley, J. (2007). Health Assessment in Nursing (3rd ed.). Philadelphia, USA: Lippincott Physical Examination & Health Assessment Jarvis, C (2008) 5th Ed Saunders Canada Physical Examination & Health Assessment: Student Laboratory Manual Jarvis, C (2008) 5th Ed Saunders Canada Kozier & Erb's Fundamentals of Nursing Berman A, Snyder SJ, Kozier B, Erb, G, Levett-Jones T. (2010) 1st Pearson Frenchs Forest

Assessment: Mathematics mastery test (30 minute exam) (hurdle) Week 6 All students are required to achieve 100% in the mathematics mastery test. Any student not passing this test will be required to undertake remedial work in mathematics skills and be retested. Successful completion of the mathematics mastery test is a requirement for progression into Health Priorities & Nursing 2 and Clinical Practicum 2.

Assignment, Written assessment (1000 words), 35%. Examination, Practical examination (20 minutes), 15%. Assignment, Written assessment (1500 words), 50%. Students must achieve an aggregate score of 50% to pass this unit. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit.

HNB1203 CLINICAL PRACTICUM 1

Locations: St Albans.

Prerequisites: HNB1101 - FRAMEWORKS FOR NURSING PRACTICE

CURRENT POLICE CHECK; CURRENT WORKING WITH CHILDREN'S CHECK; ELIGIBILITY & FITNESS FOR PRACTICE DECLARATION. All clinical practicum units of study have a special requirement for the provision of Mandatory Documentation see School of Nursing & Midwifery Clinical Practicum Rules.

Description: This unit provides students with the opportunity to apply the knowledge learnt in Health Priorities & Nursing 1 in beginning professional practice. Students will undertake comprehensive health assessments, identifying normal and abnormal findings and documenting these. Students will focus on injury prevention and safety issues while undertaking their clinical placement. Students will also observe the roles of other members of the health care team and consider how the values of the family and culture are met within the care facility.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify their current scope of practice and work within this; Demonstrate beginning skills in risk assessment; Identify key issues in injury prevention in the clinical setting; Discuss Occupational Health and Safety in relation to risk assessment and nursing practice and apply this in the clinical setting; Discuss infection control principles and demonstrate these in the clinical setting; Conduct a health assessment interview to obtain a health history and accurately record this using appropriate medical terminology; Demonstrate beginning skills in Mental Status Examination and taking a psychiatric history; Demonstrate beginning physical assessment skills in the clinical setting; Undertake functional health assessments appropriate to allocated patients and accurately record these identifying any abnormalities; Demonstrate respect for individuals values and beliefs; Assess the health status for an allocated patient then plan, implement care for and evaluate the care of this patient in consultation with the nursing team; Describe the role of the Nurse Unit Manager/Nurse in-charge in an institutional setting with stable clients; Consider the clients socio-cultural and family values within the clinical environment; Use the Situation, Task, Action and Result (STAR) format to begin entering clinical achievements into their personal professional practice portfolio.

Class Contact: 7 hours of medium fidelity simulation laboratories will be conducted during semester to complement the theory and laboratory hours in Health Priorities in Nursing 1 and 120 hours of clinical practice in clinical practicum.

Required Reading: Potter & Perry's fundamentals of nursing, Crisp, J & Taylor, C 2009, 3rd edn, Australia: Mosby,Sydney. Intentional interviewing and counselling: facilitating client development in a multicultural society, Ivey, A.E & Ivey, MB 2007, Thomson Brooks/Cole, Belmont, CA. Physical examination and health assessment, Jarvis C 2008, 5th edn, Saunders Elsevier, St Louis. Clinical psychomotor skills. Assessment tools for nursing students, Tollefson, J 2007, 3rd edn, Social Science Press, Tuggerah, NSW.

Assessment: Practicum Interim Clinical Appraisal - midway Practicum Final Clinical Appraisal - completion Students must achieve an aggregate score of 50% and pass the final clinical appraisal to pass this unit. Clinical unit of study enrolment, placement allocation and academic progress will be managed according to the School of Nursing & Midwifery Clinical Rules.

HNB2101 WORKING WITH EVIDENCE IN PRACTICE

Locations: St Albans.

Description: This unit aims to prepare students to be consumers of research using an evidence based practice approach. It introduces students to different research methodologies used in health care and assists them to develop critical appraisal skills.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: describe the origins and development of evidence based practice; identify the stages of evidence based nursing; frame a question in a structured and focused manner; search for evidence using bibliographic data bases; briefly describe qualitative and quantitative research methodologies; critically appraise two journal articles using an appropriate appraisal tool; identify barriers and facilitators to implementing evidence based practice.

Class Contact: Lectures: 2 hours per week (total = 24 hours) Tutorials: 2 hours per week (total = 24 hours) Laboratory sessions: (computer) 1 hour per week (12 hours) Total: 60 hours of class contact time Class contact hours per week may vary according to clinical placement allocation.

Required Reading: There is no prescribed text for reading in this unit.

Assessment: Students must achieve an aggregate score of 50% to pass this unit. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit.Assignment, Written assessment (1500 words), 50%. Assignment, Written assessment (1500 words), 50%.

HNB2102 HEALTH PRIORITIES & NURSING 2

Locations: St Albans.

Prerequisites: HNB1202 - HEALTH PRIORITIES & NURSING 1

HNB1203 - CLINICAL PRACTICUM 1

RBM1203 - BIOSCIENCE 2: HUMAN BODY STRUCTURE & FUNCTION

Description: This unit builds on previous nursing units of study and further develops the students knowledge of the National Health Priorities and complements Pathophysiology & Quality Use of Medicines. In particular students will study the nursing management of patients suffering from asthma, other respiratory disorders, cardiovascular disease and their related co-morbidities.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: discuss population approaches to identified national health priorities (i.e. policies, legislation, health ecology and health promotion initiatives); identify genetic and social determinants of health in relation to identified national health priorities; discuss holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities; discuss burden of disease and health costs associated with identified national health priorities; demonstrate knowledge of the nursing management of individuals across the lifespan experiencing asthma, respiratory and cardiovascular diseases and related disease processes in various contexts of care using a problem solving approach; demonstrate knowledge of infection control and Occupational Health and Safety issues in the institutional, community and global context in relation to one or more of the conditions identified in the national health priorities; discuss communication theory, non-verbal communication and active listening; demonstrate skills in the safe practice of medication management (including drug calculation, knowledge of medication used, medication orders) in the clinical laboratory.

Class Contact: Lectures: 1-2 hours per week (total = 20 hours) Laboratory sessions: 1-2 hours per week (total = 20 hours) Simulation: 10 hours across the semester. Total: 50 hours of class contact time Class contact hours per week may vary according to clinical placement allocation.

Required Reading: Required Reading Medical- Surgical Nursing Critical thinking in Client Care LeMone. P & Burke. K. (2011) Frenchs Forest, Pearson Australia Clinical psychomotor skills. Assessment tools for nursing students Tollefson, J. (2007). (3rd ed.) South Melbourne, VIC: Cengage Learning Australia. Fundamentals of Pharmacology Bullock, S., Manias, E. & Galbraith, A. (2011) (6th ed) Frenchs Forest, Pearson Australia Physical Examination & Health Assessment Jarvis, C. (2008). (5th ed.) St Louis, Missouri: Saunders Elsevier.

Assessment: Hurdle requirement for clinical placement Drug calculation mastery test (100% needed for pass) Students are not permitted to administer medications until they have passed this hurdle requirement. NB. Successful completion of the drug calculation mastery test is a requirement for progression into Clinical Practicum 3.

Assignment, Written assessment (1200 words), 35%. Examination, Written examination (2 hours), 65%. Students must achieve an aggregate score of 50% and pass the written examination to pass this Unit of Study. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who do not achieve a pass in the written examination but who achieve an aggregate of 50% or greater will have a UM (ungraded fail) grade awarded as their final result.

Students are required to attend 80% of the scheduled simulation sessions. Where there is less than 80% a student developed simulation activity will be required in lieu of attendance.

HNB2103 CLINICAL PRACTICUM 2

Locations: St Albans.

Prerequisites: HNB1202 - HEALTH PRIORITIES & NURSING 1

HNB1203 - CLINICAL PRACTICUM 1

RBM1203 - BIOSCIENCE 2: HUMAN BODY STRUCTURE & FUNCTION

CURRENT POLICE CHECK; CURRENT WORKING WITH CHILDREN'S CHECK; ELIGIBILITY & FITNESS FOR PRACTICE DECLARATION. All clinical practicum units of study have a special requirement for the provision of Mandatory Documentation see School of Nursing & Midwifery Clinical Practicum Rules.

Description: This unit builds on previous nursing units of study and further develops the students assessment and clinical decision making skills in the clinical environment. Students will apply their knowledge of pathophysiology, nursing interventions and the quality use of medicines to management of clients suffering from asthma, other respiratory diseases, cardiovascular disease and their related co-morbidities.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: identify their current scope of practice and work within this; demonstrate more advanced communication skills and interview techniques within the clinical setting; * demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the national health priorities; demonstrate knowledge of the nursing management of individuals across the lifespan experiencing asthma, respiratory and cardiovascular disease and related disease processes in various contexts of care using a problem solving approach; apply the principles of infection control and Occupational Health and Safety in an institutional setting and in relation to one or more of the conditions identified in the national health priorities; assess, plan and implement the care for and evaluate the care of an increasing patient load within the student s scope of practice and in consultation with the patient and the health care team; demonstrate skills in the safe practice of medication management (including drug calculation, knowledge of medication used, medication orders etc.); continue entering clinical achievements into their personal professional practice portfolio.

Class Contact: This is a 160 hour acute care clinical placement unit of study which aligns with the theory unit of study Health Priorities and Nursing .

Required Reading: Required reading Medical - Surgical Nursing Critical Thinking in Client Care LeMone, P & Burke, K 2011, Frenchs Forest, Pearson Australia Clinical Psychomotor Skills Assessment tools for nursing students Tollefson, J 2010 4th edn Cengage learning, Australia Fundamentals of Pharmacology Bullock, S, Manias, E & Galbraith, A 2011 6th edn Frenchs Forest, Pearson Australia

Assessment: PracticumInterim Clinical Appraisal - midwayPracticumFinal Clinical Appraisal - completionStudents must achieve an aggregate score of 50% and pass the final clincal appraisal to pass this unit.

Clinical unit of study enrolment, placement allocation and academic progress will be managed according to the School of Nursing & Midwifery Clinical Rules.

HNB2202 HEALTH PRIORITIES & NURSING 3

Locations: St Albans.

Prerequisites: HNB2102 - HEALTH PRIORITIES & NURSING 2

HNB2103 - CLINICAL PRACTICUM 2

APT1311 - PSYCHOLOGY ACROSS THE LIFESPAN

Description: This unit introduces students to the National Health Priority, Mental Health and Wellbeing and builds on the communications and assessment skills developed in previous units. It aims to develop students knowledge, skills and attitudes in the promotion of mental health. The unit provides the skills students require to meet the needs of people with altered mental health status in institutional and community settings. It also complements the information provided in Pathophysiology & Quality Use of Medicines 2.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Discuss mental health and illness throughout the lifespan including the social and genetic determinants of mental illness;
2. Briefly explain the structure, function and policy issues of Victoria s Psychiatric Services;
3. Describe the theoretical bases of mental health nursing;
4. Briefly explain the use of classification systems currently found within the hospital environment;
5. Demonstrate knowledge of the legislative and ethical foundations of mental health care and treatment, in particular the roles and responsibilities of the nurse under the Victorian Mental Health Act;
6. Discuss the use of a problem solving approach as a framework to guide practice in mental health settings;
7. Describe the clinical manifestations of common psychiatric disorders;
8. Demonstrate beginning health assessment knowledge and skills in psychosocial assessment and mental status examination;
9. Demonstrate the ability to plan, implement and evaluate mental health nursing care for individuals and families in simulated scenarios;
10. Discuss common therapeutic modalities, including psychopharmacology;
11. Demonstrate beginning psychotherapeutic communication skills in mental health nursing, including the use of Ivey's 5 stage interview in clinical skills laboratories;
12. Discuss the principles of mental health risk assessment and crisis intervention.

Class Contact: Lectures: 1-2 hours per week (total = 20 hours) Laboratory sessions: 1-2 hours per week (total = 20 hours) Simulation: 10 hours across the semester Total: 50 hours of class contact time .

Required Reading: Psychiatric mental health nursing, Elder, R Evans, K & Nizette, D 2004, Mosby, Sydney. Psychiatric nursing care plans, Fortinash, KM & Holoday Worret, PA 2007, Mosby, St Louis. Contemporary psychiatric-mental health nursing, Kneisl, CR Wilson, HS & Trigoboff, E 2004, Prentice Hall, New Jersey. Patient and person, Stein-Parbury, J 2005, Churchill Livingstone, London Psychotropic medication. Version 5, Therapeutic Guidelines 2003, Therapeutic Guidelines Limited, Melbourne.

Assessment: Assignment, Written assessment (1000 words), 35%. Examination, Written examination (2 hours), 65%. To gain an overall pass in this unit students must achieve an aggregate score of 50% and pass the written examination. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit.

HNB2203 CLINICAL PRACTICUM 3

Locations: St Albans.

Prerequisites: HNB2102 - HEALTH PRIORITIES & NURSING 2

HNB2103 - CLINICAL PRACTICUM 2

APT1311 - PSYCHOLOGY ACROSS THE LIFESPAN

CURRENT POLICE CHECK; CURRENT WORKING WITH CHILDREN'S CHECK; ELIGIBILITY & FITNESS FOR PRACTICE DECLARATION. All clinical practicum units of study have a special requirement for the provision of Mandatory Documentation see School of Nursing & Midwifery Clinical Practicum Rules.

Description: The aim of this unit is to provide students with the opportunity to apply the mental health knowledge and skills developed in RBM2205 Pathophysiology and Quality Use of Medicines 2 and HNB2202 Health Priorities and Nursing 3 in an institutional and/or community setting.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Identify their current scope of practice and work within this;
2. Utilize a problem solving approach as a framework to guide practice in mental health settings;
3. Demonstrate knowledge of the legislative and ethical foundations of mental health care and treatment, in particular the roles and responsibilities of the nurse under the Victorian Mental Health Act;
4. Describe the clinical manifestations of common psychiatric disorders;
5. Demonstrate beginning health assessment knowledge and skills in psychosocial assessment and mental status examination;
6. Demonstrate the ability to plan, implement and evaluate mental health nursing care for individuals and families in consultation with the nursing team;
7. Discuss common therapeutic modalities, including psychopharmacology;
8. Demonstrate skills in the safe practice of medication management (including drug calculation, knowledge of medication used, medication orders etc.);
10. Demonstrate beginning psychotherapeutic communication skills in mental health nursing, including the use of Ivey s 5 stage interview;
11. Demonstrate beginning assessment skills in mental health risk assessment and crisis intervention;
12. Demonstrate culturally appropriate assessment and intervention strategies;
13. Continue entering clinical achievements into their personal professional practice portfolio.

Class Contact: This is a clinical practicum unit comprising one hundred and sixty (160) hours in a mental health setting. This unit aligns with the theory Unit of Study HNB 2202 Health Priorities and Nursing 3.

Required Reading: Psychiatric mental health nursing, Elder, R, Evans, K & Nizette, D 2004, Mosby, Sydney. Psychiatric nursing care plans, Fortinash, KM & Holoday Worret, PA 2007, Mosby, St Louis. Intentional interviewing and counselling: facilitating client development in a multicultural society, Ivey, AE & Ivey, MB 2007, Thomson Brooks/Cole, Belmont, CA. Contemporary psychiatric-mental health nursing, Kneisl, CR, Wilson, HS & Trigoboff, E 2004, Prentice Hall, New Jersey. Patient and person, Stein-Parbury, J 2005, Churchill Livingstone, London Psychotropic medication, Version 5, Therapeutic Guidelines. 2003, Therapeutic Guidelines Limited, Melbourne.

Assessment: PracticumInterim Clinical Appraisal - midwayPracticumFinal Clinical Appraisal - completion To gain an overall pass in this unit students achieve an aggregate score of 50% and gain a pass in the final clinical appraisal.

Clinical unit of study enrolment, placement allocation and academic progress will be managed according to the School of Nursing & Midwifery Clinical Rules.

HNB2204 HEALTH PRIORITIES & NURSING 4

Locations: St Albans.

Prerequisites: HNB2102 - HEALTH PRIORITIES & NURSING 2

Description: This unit builds on previous nursing units of study and further develops the students knowledge of the National Health Priorities. In particular students will be introduced to the nursing management of patients suffering from diabetes mellitus, cancer, arthritis and musculoskeletal conditions and related co-morbidities.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. Apply knowledge specific to the identified national health priorities through the completion of Problem Based Learning scenario(s);
2. Understand the influence of genetics in relation to the identified national health priorities;
3. Demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing one or more of the conditions identified in the National Health Priorities using a Problem Based Learning approach;
4. Critically appraise the evidence base for the nursing management of individuals across the lifespan experiencing one or more of the conditions identified in the National Health Priorities;
5. Demonstrate further development of communication skills and interview techniques.

Class Contact: Lectures: 2-3 hours per week (total = 24 hours) Tutorials: 1-2 hour per week (total = 12 hours) Laboratory sessions: 2 hours per week (24 hours) Total: 60 hours of class contact time .

Required Reading: Medical-Surgical Nursing Critical thinking in Client Care LeMone. P& Burke. K. 2011. Frenchs Forest, Pearson Australia Clinical psychomotor skills. Assessment tools for nursing students, Tollefson, J 2004, 2nd edn, Social Science Press, Tuggerah, NSW Fundamentals of pharmacology, Bullock, S Manias, E & Galbraith, A 2007, 5th edn, Frenchs Forest: Pearson Education, Australia. Physical Examination & Health Assessment Jarvis, C 200

8. 5th edn, St Louis, Missouri: Saunders Elsevir.

Assessment: Assignment, Written assessment (1000 words), 30%. Assignment, Written assessment (1000 words), 30%. Examination, Written examination (1.5 hours), 40%. Students must achieve an aggregate score of 50% and pass the written examination to pass this subject. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit.

HNB3117 HEALTH PRIORITIES & NURSING 5

Locations: St Albans.

Prerequisites: HNB2202 - HEALTH PRIORITIES & NURSING 3

HNB2203 - CLINICAL PRACTICUM 3

Description: This unit builds on Health Priorities and Nursing 3 and assists students to develop further knowledge, skills and attitudes towards the promotion of mental health.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- demonstrate more advanced skills in caring for consumers who are receiving treatment and care for their mental illness;
- discuss the clinical manifestations of psychiatric disorders across the lifespan;
- demonstrate more advanced skills in mental status examination;
- demonstrate the ability to plan, implement and evaluate mental health care for individuals and families;
- discuss common therapeutic modalities, including psychopharmacology, group and family therapy and motivational interviewing;
- demonstrate culturally appropriate skills in assessment and intervention of individuals from various cultural groups including Aboriginal and Torres Strait Islanders;
- discuss contemporary research relevant to mental health and illness nursing;
- examine mental health prevention, early intervention, and promotion;
- examine specialist mental health services;
- demonstrate integration of communication skills and interview technique at a beginning practitioner level.

Class Contact: Lectures: 1-2 hours per week (total = 20 hours) Laboratory sessions: 1-2 hours per week (total = 20 hours) Simulation laboratories: 10 hours across the semester Total: 50 hours of class contact time Class contact hours per week may vary according to clinical placement allocation.

Required Reading: Elder, R., Evans, K., & Nizette, D. (2004). Psychiatric Mental Health Nursing. Sydney: Mosby. Fortinash, K.M., & Holoday Worret, P.A. (2007). Psychiatric Nursing Care Plans. St Louis: Mosby. Ivey, A.E. & Ivey, M.B. (2007). Intentional Interviewing and Counselling: Facilitating Client Development in a Multicultural Society. Belmont, CA: Thomson Brooks/Cole. Kneisl, C.R., Wilson, H.S. & Trigoboff, E. (2004).Contemporary Psychiatric-Mental Health Nursing. New Jersey: Prentice Hall. (MAJOR STUDENTS ONLY) Stein-Parbury, J. (2005). Patient and Person. London: Churchill Livingstone Therapeutic Guidelines. (2003). Psychotropic Medication. Version 5. Melbourne: Therapeutic Guidelines Limited.

Assessment: Assignment, Written assessment (1000 words), 35%. Examination, Written examination (2 hours) Exam period, 65%. Students must achieve an aggregate score of 50% and pass the written examination to pass this unit of study.

HNB3118 NURSING AND COMPLEX CARE

Locations: St Albans.

Prerequisites: HNB2202 - HEALTH PRIORITIES & NURSING 3

HNB2204 - HEALTH PRIORITIES & NURSING 4

HNB2203 - CLINICAL PRACTICUM 3

RBM2205 - PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 2

Description: This unit integrates and builds upon the knowledge and skills gained in previous units of study. Students gain a deeper knowledge of health conditions of the health needs of the local community and other conditions not previously studied. Students also gain a greater understanding of the social-cultural aspects of the person and how these impact on their health and the illness experience. The unit seeks to facilitate individual and family management skills through the application of higher-level knowledge and skills in clinical decision making. This unit aims to promote the ability of students to influence decisions affecting care outcomes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- consolidate knowledge and clinical decision making through the completion of problem based learning packages;
- discuss the legal and ethical issues surrounding refusal of treatment and end of life decisions;
- assess, plan, implement and evaluate the care of complex patients in case based scenarios;
- discuss interventions for complex patients;

- discuss and appreciate the requirements for the safe practice of complex medication regimes (including drug calculation, knowledge of medication used, medication orders etc.);
- have an appreciation for time management skills when caring for patients with complex needs;
- demonstrate a commitment to work as a member of a team collaboratively planning care for patients;
- discuss the needs for beginning delegation and supervision skills.

Class Contact: Lectures: 3 hours per week (total = 36 hours) Tutorials: 2 hours per week (total = 24 hours) Total: 60 hours of class contact time Class contact hours per week may vary according to clinical placement allocation.

Required Reading: RN Competency Standards August 2008 http://www.nursingmidwiferyboard.gov.au/Codes-and-Guidelines.aspx Code of Ethics for Nurses August 2008 http://www.nursingmidwiferyboard.gov.au/Codes-and-Guidelines.aspx Code of Professional Conduct for Nurses August 2008 http://www.nursingmidwiferyboard.gov.au/Codes-and-Guidelines.aspx Decision Making Framework Nursing Summary Guide 2010 http://www.nursingmidwiferyboard.gov.au/Codes-and-Guidelines.aspx Professional Boundaries for Nurses - March 2010 http://www.nursingmidwiferyboard.gov.au/Codes-and-Guidelines.aspx Brown, D., & Edwards, H. (Eds). (2010). Lewis s medical-surgical nursing. Assessment and management of clinical problems. Marrickville, NSW: Elsevier Australia. Bullock, S. Manias, E., & Galbraith, A. (2010). Fundamentals of pharmacology (5th ed.). Australia: Frenchs Forest: Pearson Education. Health Professions Registration Act 2005 Act No. 97/2005 (incorporating amendments as at 2006) (Available at http://www.dms.dpc.vic.gov.au) Weber, J & Kelley J. (2007) Health Assessment in Nursing (3rd ed.). Philadelphia: Lippincott Williams & Wilkins.

Assessment: Students are required to sit a mathematics mastery test as a diagnostic tool. Any student not achieving 100% mastery will be required to undertake remedial work in mathematics skills.

Assignment, Written assessment (1000 words) Week 6, 30%. Examination, Written examination (2 hours) Exam period, 70%. To gain an overall pass in this unit students must achieve an aggregate score of 50% and gain a pass in the written examination. Students will normally be granted a supplementary assessment if they achieve a grade of 45 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who do not achieve a pass in the written examination but who achieve an aggregate of 50% or greater will have a M (ungraded fail) grade awarded as their final result.

HNB3119 CLINICAL PRACTICUM 4

Locations: St Albans.

Prerequisites: HNB2202 - HEALTH PRIORITIES & NURSING 3

HNB2204 - HEALTH PRIORITIES & NURSING 4

HNB2203 - CLINICAL PRACTICUM 3

CURRENT POLICE CHECK; CURRENT WORKING WITH CHILDREN'S CHECK; ELIGIBILITY & FITNESS FOR PRACTICE DECLARATION. All clinical practicum units of study have a special requirement for the provision of Mandatory Documentation see School of Nursing & Midwifery Clinical Practicum Rules.

Description: This unit integrates and builds upon the knowledge and skills gained in previous units of study. Students apply the knowledge and skills gained in Nursing & Complex Care to the clinical setting specifically focussing on the health needs of the local community. Students also consider how the social-cultural aspects of clients in their care impact on their health and the illness experience. Students apply the higher-level knowledge and skills gained in Nursing & Complex Care in clinical decision making, enabling more independent decision making and skills to engage in collaborative practice in a range of contexts across the lifespan. This unit aims to promote the ability of students to influence decisions affecting care outcomes.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: identify their current scope of practice and work within this; discuss quality measures used to evaluate healthcare delivery performance; utilise communication strategies to enhance disciplinary and interdisciplinary teamwork; demonstrate problem solving, time management and decision-making strategies that support successful outcomes in patient care; demonstrate comprehensive risk management in patient care; demonstrate the ability to provide patient care in a changing health care environment; demonstrate effective presentation and report writing skills; demonstrate consolidation of knowledge and clinical decision making through discussion of patient care with preceptors/educators; demonstrate the ability to assess, plan and implement the care for and evaluate the care of complex patients; demonstrate the ability to safely undertake complex interventions; demonstrate skills in the safe practice of complex medication regimes (including drug calculation, knowledge of medication used, medication orders etc.); demonstrate time management skills; demonstrate the ability to work as a member of the multidisciplinary team collaboratively planning care for patients; demonstrate professional communication skills in interactions with patients, carers and health professionals continue entering clinical achievements into their personal professional practice portfolio.

Class Contact: This is a 160 hour acute care clinical placement subject which aligns with the theory subject Nursing and Complex Care.

Required Reading: Lewis s medical-surgical nursing. Assessment and management of clinical problems Brown, D & Edwards, H (Eds). 2008 2nd edn. Marrickville, NSW, Elsevier Australia Pharmacology and medicines management for Nurses Downie, G Mackenzie, J Williams, A 2008 4th edn. China Elsevier Clinical Psychomotor Skills: Assessment Tools for Nursing Students Tollefson, J 2010 4th edn. Cengage Learning Australia

Assessment: PracticumInterim Clinical Appraisal - midway PracticumFinal Clinical Appraisal - completion Students must achieve an aggregate score of 50% and pass the final clincal appraisal and to pass this unit.

Clinical unit of study enrolment, placement allocation and academic progress will be managed according to the School of Nursing & Midwifery Clinical Rules.

HNB3120 ISSUES IN PROFESSIONAL PRACTICE

Locations: St Albans.

Prerequisites: HNB2202 - HEALTH PRIORITIES & NURSING 3

HNB2204 - HEALTH PRIORITIES & NURSING 4

HNB2203 - CLINICAL PRACTICUM 3

RBM2205 - PATHOPHYSIOLOGY & QUALITY USE OF MEDICINES 2

Description: The aim of this unit is for students to further consider the concept of professional practice. Professional practice will be explored in the context of the healthcare system and with a practical insight into the processes of transition from student to beginning practitioner.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

1. determine best practice services in the health care industry;
2. describe quality measures used to evaluate healthcare delivery performance;
3. discern and utilise communication strategies to enhance disciplinary and interdisciplinary teamwork (including conflict resolution, and grievance procedures);
4. compare leadership styles and determine how teamwork can be fostered to achieve an effective work and care environment;
5. analyse critical pathways as a modality of patient care;
6. examine problem solving, time management and decision-making strategies that support successful outcomes in patient care;

7. explain comprehensive risk management in patient care;

8. clearly identify the role of the Division 1 nurse;

9. discuss employer expectations of the Division 1 nurse;

10. discuss the realities of providing patient care in a dynamic and challenging health care environment;

11. demonstrate effective presentation and report writing skills;

12. finalise their Personal-Professional practice portfolio including their reflective journal, record of in-service education, SDL, short courses, voluntary work, student reps, awards and appraisals;

13. appraise their own self-wellness and psychological resilience.

Class Contact: Lectures: 1-2 hours per week (total = 20 hours) Tutorials: 1-2 hours per week (total = 20 hours) Simulation: 10 hours across the semester Total: 50 hours of class contact time .

Required Reading: Transitions in nursing: preparing for professional practice Chang, E., & Daly, J. (Ed.) (2008) 2e Sydney: Churchill Livingstone, Elsevier Health Practitioner Regulation National Law Act 2009 Available from http://www.ahpra.gov.au/Legislation-and-Publications/Legislation.aspx

Assessment: To gain an overall pass in this unit students must achieve an aggregate score of 50% for the unit.Assignment, Written assessment (500 words), 15%. Assignment, Written assessment (2000 words), 70%. Other, Oral presentation on written assessment topic (10 minutes) Weeks 9-12, 15%.

HNB3151 NURSING AND HEALTH INFORMATICS

Locations: Off-shore.

Description: This unit of study is designed to encourage students to utilise nursing and health informatics to support all aspects of nursing practice, administration, education and research. It will further enhance students' knowledge and skills in gathering nursing and health informatics data to support decision making relating to patient care and to maintain the quality and efficiency of patient services.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Search for and find articles using appropriate databases; Demonstrate search strategies using Boolean operators and MESH terms; Evaluate the information found for its accuracy and quality; Understand how technology may be used to inform clients/patients on various issues; Understand how electronic health records and other clinical systems can enhance the care and outcomes of patient encounters; Describe the use of technology systems for risk assessment; Understand modern patient dependency systems and how they may be used; Demonstrate skills in electronic communication and information retrieval; Discuss developments in technology assessment and the impacts on nursing decision in patient care; and Gain a better understanding of the ethical and privacy issues these systems may produce.

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: Informatics and Nursng: Opportunities and Challenges Thede, L. Q. (2009) 3rd Ed. Philadelphia: Lippincott.

Assessment: Assignment, Formative assessment - annotated bibliography, 60%. Assignment, Summative assessment - written examination, 40%.

HNB3152 LAW, ETHICS AND ISSUES IN HEALTH CARE

Locations: Off-shore.

Description: This unit of study addresses the legal, ethical and professional dimensions of nursing practice in Singapore and its neighbouring countries. It aims to further develop an understanding of the interrelationship between nursing practice, ethical theories and principles by using examples or issues stemming from nursing practice within Singapore and its neighbouring countries.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Discuss legislation and common law relevant to professional practice; Discuss health law as an essential aspect of professional practice; Discuss the regulation of nursing in Singapore and neighbouring countries and their statutory; Distinguish between civil and criminal law and discuss how each may apply to professional practice; Explain what must be shown to prove negligence in health care contexts; Discuss the legal requirements to maintain patient/client confidentiality in Singapore; Reflect upon own values, attitudes and beliefs about nursing and compare these with the value statements in the Code of ethics for nurses in Singapore and neighbouring countries including Australia (ANMC, 2005); Appreciate the importance of an ethical code of practice as foundational to practice; Apply ethical frameworks to issues that arise in professional practice; Examine the moral arguments for maintaining or breaching confidentiality in professional practice; Discuss meaning/s of the concept of advocacy as this is presented in professional practice; Explore the differences and similarities of ethical and legal frameworks and implications of these frameworks on nurses professional relationship with clients, their families and other health care providers; Show an understanding of the role of Singaporean government and others within health care perspective; Discuss the significance for nursing care in Singapore public and private sectors funding mechanisms for acutely ill patients; Discuss Medical pluralism and how this may impact on patient care.

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: Essentials of law for health professionals Forrester, K. & Griffiths, D. (2005) 2nd Sydney: Harcourt. Bioethics: a nursing perspective Johnstone, M.J. (2004) 4th Sydney: Harcourt.

Assessment: Assignment, Formative assessment - presentation (30%) summary (10%), 40%. Assignment, Summative assessment - written, 60%.

HNB3153 SEEKING EVIDENCE IN PRACTICE

Locations: Off-shore.

Description: This unit aims to prepare students to be consumers of research using an evidence based practice approach. It introduces students to different research methodologies used in health care and assists them to develop critical appraisal skills.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Identify the importance of research in nursing; Develop a familiarity with research terminology Understand the two major approaches to research - quantitative and qualitative; Understand the process of research design; Apply the research process to a relevant nursing problem; Describe the origins and development of evidence based practice; Identify the stages of evidence based nursing; Frame a question in a structured and focused manner; Search for evidence using bibliographic data bases; Briefly describe qualitative and quantitative research methodologies; Critically appraise journal articles using an appropriate appraisal tool; Identify barriers and facilitators to implementing evidence based practice.

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: The evidence-based practice manual for nurses Craig, J. & Smyth, R. (2007) New York: Churchill Livingstone. Research in nursing and health care: evidence for practice Taylor, B., Kermode, S. & Roberts, K. (2006) Australia: CENGAGE Learning.

Assessment: Assignment, Formative assessment - written assignment (a research proposal), 50%. Assignment, Summative assessment - written examination, 50%.

HNB3154 HEALTH ASSESSMENT IN ACUTE CARE NURSING

Locations: Off-shore.

Description: This unit will enable students to implement health assessment skills in the care of individuals in acute care nursing. The focus of assessment will be for students to develop the ability to discriminate normal from abnormal assessment findings. In the discrimination of abnormal assessment findings a decision making process is employed and during this process the clinical significance of the abnormality is determined. A range of skills will be taught such as taking a health history and performing aspects of health assessment such as interviewing techniques, preparation for physical examination, physical examination techniques such as inspection, percussion, auscultation, systematic collection of health history data and data analysis. The unit will further develop students' knowledge and skills in pathophysiological, biophysical, psychological, cultural and pharmacological aspects and students will be encouraged to consider these when assessing and providing care for individuals experiencing altered health status.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Identify the relevance of health assessment in nursing practice; Develop beginning skills in using physical examination techniques and tools; Perform aspects of physical examination; Develop knowledge and skills in interviewing techniques; Analyse the significance of assessment data, identifying normal and abnormal findings Show an understanding of the role of the Division 1 Registered Nurse as coodinator of patient care; Discuss the patient/client groups who need complex or co-ordinated care; Understand the care of patients with complex health breakdown; Discuss how this may need to be modified for various cultural and indigenous groups; Articulate the type of care needed by this patient/client group; Develop care pathways for this patient/client group; Discuss the models of co-ordinated care that are used in Singapore and neighbouring countries; Understand multi-disciplinary communication and co-ordination skills; Describe the role and function of Hospital in the Home programs; Describe the role of care coodinators ; and Utilise a self-directed approach to learning and professional development.

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: Lewis's medical - surgical nursing: assessment and management of clinical problems Brown, D., & Edwards, H.(Eds) (2005) Marrickville: Elsevier. Taylor's clinical nursing skills: a nursing process approach Evans- Smith, P. (2005) Philadelphia: Lippincott. Practical nursing calculations Hext, V. & Mayner, L. (2003) Crows Nest: Allen & Unwin. Physical examination & health assessment Jarvis, C. (2008) 4th ed St Louis: Saunders. Student laboratory manual for physical examination & health assessment Jarvis,C. (2008) 4th ed St Louis: Saunders. Clinical psychomotor skills: assessment tools for nursing students Tollefson, J. (2004) 2nd ed Tuggerah: Social Science Press.

Assessment: Assignment, Formative assessment - written assignment, 50%. Assignment, Summative assessment - Written examination, 50%.

HNB3155 COMPLEX CARE IN NURSING

Locations: Off-shore.

Description: This unit integrates and builds upon the knowledge and skills gained in previous units of study. Students gain a deeper knowledge of health conditions of the health needs of the local community and other conditions not previously studied. Students also gain a greater understanding of the social-cultural aspects of the person and how these impact on their health and the illness experience. The unit seeks to facilitate individual and family management skills through the application of higher-level knowledge and skills in clinical decision making. This unit aims to promote the ability of students to influence decisions affecting care outcomes.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Demonstrate consolidation of knowledge and clinical decision making through the completion of problem based learning packages; Discuss the legal and ethical issues surrounding refusal of treatment and end of life decisions; Demonstrate the ability to assess, plan, implement and evaluate the care of complex patients in case based scenarios; Demonstrate the ability to safely undertake complex interventions in the laboratory; Demonstrate skills in the safe practice of complex medication regimes (including drug calculation, knowledge of medication used, medication orders etc.) in the laboratory; Demonstrate time management skills in the laboratory; Demonstrate the ability to work as a member of a team collaboratively planning care for patients within the laboratory; Demonstrate beginning delegation and supervision skills in the laboratory.

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: Lewis's medical-surgical nursing.Assessment and management of clinical problems Brown, D., & Edwards, H (Eds) (2005) Marrickville: Elsevier Australia. Fundamentals of pharmacology Bullock, S., Manias, E. & Gailbraith, A (2007) 5th Ed Australia: Pearson Education. Clinical psychomotor skills.Assessment tools for nursing students Tollefson, J. (2004) 2nd Ed NSW: Social Science Press. Health assessment in nursing Weber, J., & Kelley, J. (2007) 3rd Ed Philadelphia: Lippincott.

Assessment: Assignment, Formative Assessment - written (problem-based case study), 40%. Examination, Summative assessment, 60%.

HNB3156 KNOWLEDGE AND NURSING KNOWLEDGE

Locations: Off-shore.

Description: This unit is designed to encourage students to examine critically some approaches to knowledge and knowledge development that have influenced nursing ideas historically. The unit also aims to explore current approaches to the development of knowledge that are influential in health care provision.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Demonstrate an understanding of approaches to knowledge development that have influenced nursing practice historically; Critically evaluate the place of nursing theories in the history of ideas in nursing ; Demonstrate an understanding on the key influences upon knowledge development in contemporary health care

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: Contexts of nursing Daly, J., Speedy, S. & Jackson, D.(2006) 2nd Ed Australia: Elsevier.

Assessment: Assignment, Formative assessment - critique of article, 50%. Assignment, Summative assessment - written essay, 50%.

HNB3157 CLINICAL EDUCATION

Locations: Off-shore.

Description: This unit introduces students to principles of learning in the work-based environment. Students will have the opportunity to explore various clinical education models that will enable them to implement and evaluate a variety of teaching strategies in the clinical settings.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Understand the principles of teaching and learning in work-based environment; Understand the principles of competency assessment for clinical skills; Show an understanding of the various clinical education models relating to nursing practice; Analyse the impact of different models of education on clinical learning; Understand the role of clinical educator/supervisor; Apply an education model relevance to clinical teaching; Demonstrate an ability to evaluate the outcome of teaching/learning process; Demonstrate an ability to provide appropriate reinforcement in learning process; Understand the concept of preceptorship/mentorship program; Analyse the different assessment tools that are used to measure clinical competencies;

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: Cultural health assessment D'Avanzo, C.E.(2008) 4th Edn St Louis: Mosby Elsevier. Dimensions of adult learning: adult education and training in a global era Foley, G.(2004) Crows Nest: Allen & Unwin. Teaching evidence-based practice in nursing: a guide for academic and clinical settings Levin, R.F.& Feldman, H.R.(2006) New York : Springer Publishing Company. The principles and practice nurse education Quinn, F.M. (1995) London: Chapman & Hall. Clinical psychomotor skills: assessment tools for nursing students Tollefson, J.(2004) 2nd Edn NSW: Social Science Press.

Assessment: Assignment, Formative Assessment - written, 50%. Assignment, Summative Assessment - presentation (30%) summary of paper (20%), 50%.

HNB3158 FRONTLINE LEADERSHIP AND MANAGEMENT

Locations: Off-shore.

Description: This unit provides students with knowledge and skills in management and leadership. Students will have the opportunity to examine various management and leadership theories and discuss roles such as supervisors, frontline and executive level managers as well as the needs of organisation, team and individuals.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Show an understanding of the concept of frontline leadership and management; Analyse the various leadership and management styles in nursing practice; Apply an appropriate leadership and management skills to work practice; Demonstrate an ability to communicate and interact effectively; Develop a team spirit that functions synergistically; Develop an understanding of the organisational structures and roles concerned; Show an understanding of the difference between quality and risk management.

Class Contact: 40 hours - face to face. 20 hours - directed learning.

Required Reading: Emotional Alchemy Bennet-Goleman, T. (2001) New York: Random House. Performing and reforming leaders: gender, educational restructuring and organisational change Blackmore, J & Sachs, J. (2007) Albany: State University of New York Press. The authentic career, following the path of self-discovert to professional fulfiment Craddock, M. (2004) Novato: New World Library. Nursing leadership and management Kelly-Heidenthal, P. (2003) Canada: Thomson. Nursing management secrets: questions and answers reveal the secrets to successful nursing management Zimmermann, P.G. (2002) Philadelphia: Hanley & Belfus Inc.

Assessment: Assignment, Formative assessment - portfolio, 50%. Assignment, Summative assessment - written, 50%.

HNB3205 NURSING SPECIFIC POPULATIONS

Locations: St Albans.

Prerequisites: HNB3118 - NURSING AND COMPLEX CARE

Description: In this unit, students further develop their knowledge and understanding of unique health issues affecting specific individuals and patient populations cared for across diverse and contemporary practice contexts. The unit explores contemporary models of nursing practice, inter-professional care and primary health care designed to address the health care needs of specific populations. Examples of specific health issues addressed in this unit may include: communicable diseases, men s and women s health, child/adolescent health, disaster nursing, refugee health, sexual health and bariatrics. The contemporary and expanding role of nurses will be explored across diverse contexts such as practice nursing, community nursing, school nursing, case management and the nurse practitioner.

Credit Points: 12

Learning Outcomes: After satisfactorily completing this unit students should be able to: Discuss health care issues related to specific populations; Demonstrate the ability to assess, plan, implement and evaluate care of specific populations using case based scenarios; Demonstrate problem solving and critical thinking skills to adjust care and priorities in changing simulation situations; Discuss inter-professional communication skills and clinical decision making skills during in related clinical situations; Utilise research findings to support or improve current practice; Demonstrate mastery of complex drug calculations; Discuss the legal and ethical issues surrounding caring for specific populations; Discuss the challenges of providing appropriate care to specific populations within varied and contemporary practice contexts.

Class Contact: Lectures: 2 hours per week (total = 24 hours) Tutorials: 1 hour per week (total = 12 hours) Simulation: 1 hour per week (total = 12 hours) Total: 48 hours of class contact time Class contact hours per week may vary according to clinical placement allocation.

Required Reading: none

Assessment: Drug calculation mastery test (100% needed for pass). This is a hurdle requirement for clinical placement.

Assignment, Written assignment (1500 words), 40%. Assignment, Written assignment (2000 words), 60%. To gain an overall pass in this unit the student must acheive an aggregate score of 50% and achieve 100% in the drug calculations mastery test.

HNB3206 CLINICAL PRACTICUM 5

Locations: St Albans.

Prerequisites: HNB2203 - CLINICAL PRACTICUM 3

HNB3118 - NURSING AND COMPLEX CARE

HNB3119 - CLINICAL PRACTICUM 4

CURRENT POLICE CHECK; CURRENT WORKING WITH CHILDREN'S CHECK; ELIGIBILITY & FITNESS FOR PRACTICE DECLARATION. All clinical practicum units of study have a special requirement for the provision of Mandatory Documentation see School of Nursing & Midwifery Clinical Practicum Rules.

Description: Consolidation and clinical application of the knowledge and skills gained in previous nursing and bioscience subjects as indicated in the learning outcomes. Students will be supported and supervised in their clinical placements by preceptors and/or clinical teachers.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Identify their current scope of practice and work within this; Professionally identify and solve complex clinical problems; Demonstrate the ability to comprehensively assess, plan, implement and evaluate care for a patient load similar to that of a graduate nurse; Demonstrate the ability to adjust care and priorities in changing situations; Demonstrate professional communication skills in interactions with patients, significant others and health professionals; Demonstrate beginning delegation and supervision skills in the clinical environment; Use research findings to support or improve current practice. Students will also develop specific individualised learning objectives in accordance with identified learning needs relative to the allocated placement arena.

Class Contact: This is a 240 hour clinical placement subject - 160 hours will be dedicated to an acute care placement and 80 hours will be dedicated to a community health rotation. This unit of study aligns with the theory subjects Nursing Specific Populations and Nursing & Complex Care; and incorporates 15 hours of simulation laboratory work over the semester.

Required Reading: Required readings are relevant to all clinical placement areas used in the unit. Further readings relevant to particular clinical placement areas will be made available via the unit's e-learning system. Lewis's Medical Surgical nursing. Assessment and management of clinical problems Brown, D & Edwards, H 2007 2nd edn Elsevier, Australia Pharmacology and Medicines management for Nurses Downie, G Mackenzie, J Williams, A 2008 4th edn Elsevier, China Clinical Psychomotor Skills: Assessment Tools for Nursing Students Tollefson, J 2010 4th edn Cengage Learning, Australia

Assessment: PracticumInterim Clinical Appraisal - midway point of acute care component of placementPracticumFinal Clinical Appraisal - completion point of acute care component of placementHurdle assessment 1: For satisfactory completion of HNB3206 each student requires a total Bondy score of at least 30; with no single score below 3, in the Final Clinical Appraisal assessment.

Hurdle assessment 2: Reflective e-portfolio exercise in relation to the community health rotation.

Hurdle assessment 3: Completion of all simulation exercises

In order to pass this unit of study, students must complete all hurdle requirements and achieve an aggregate score of 50%. Students must pass the final clincal appraisal with a total Bondy score of at least 30; with no single score below 3.

Clinical unit of study enrolment, placement allocation and academic progress will be managed according to the School of Nursing & Midwifery Clinical Rules.

HNB3207 RURAL REMOTE MENTAL HEALTH NURSING PRACTICE

Locations: St Albans.

Prerequisites: HNB2202 - HEALTH PRIORITIES & NURSING 3

HNB3117 - HEALTH PRIORITIES & NURSING 5

Description: The aim of this unit is to develop students knowledge, skills and attitudes in the provision of treatment care and support in rural and remote settings to individuals and their families experiencing mental illness. This unit assists students to develop the communications and assessment skills required to work in these locations.

Credit Points: 12

Learning Outcomes: On successful completion of this unit, students are expected to be able to: discuss state-wide and national approaches to the delivery of mental health services; identify genetic and social determinants of mental health in relation to rural and remote populations; identify resources available within rural and remote settings for the treatment, care and support of individuals experiencing mental illness, their families and the wider community; demonstrate holistic (gender, cultural and spiritual) assessment of individuals across the lifespan experiencing symptoms of mental illness; demonstrate familiarity with telepsychiatry and videoconferencing techniques; discuss burden of disease related to mental illness in rural and remote communities; discuss the specific needs of individuals from culturally and linguistically diverse backgrounds, particularly Australian Indigenous persons; discuss the implications of working as a lone practitioner in rural and remote areas; demonstrate communication skills and interview techniques appropriate to rural and remote populations; demonstrate the application of assessment skills appropriate to rural and remote populations; continue to develop their personal professional practice portfolio.

Class Contact: Four one-day workshops throughout semester Total: 32 hours of class contact time .

Required Reading: Thompson, N. (Ed.). (2004). The Health of Indigenous Australians. Melbourne: Oxford University Press. Wilkinson, D., & Blue, I. (Eds.). (2002). The New Rural Health: Melbourne, Oxford University Press.

Assessment:

1. Written fieldwork proposal (750 words) (25%) Week 5
2. Written fieldwork report (2500 words) (75%) Week 12

To gain an overall pass in this unit students must achieve an aggregrate score of 50% and pass the written examination. Students will normally be granted a supplementary assessment if they achieve a grade of 40 to 49%. Students must achieve at least 50% in the supplementary assessment to be granted a P 50% as a final grade for the unit. Students who achieve a grade of 40 to 44% will be allocated L (not yet assessed) until after the supplementary exam period is over, when the grade will be converted to N (fail). Students who do not achieve a pass in the mandatory component of assessment but who achieve an aggregate of 50 % or greater will have a U (ungraded fail) grade as their final result.

HNB3208 DIRECTED STUDIES FOR NURSING

Locations: St Albans.

Description: This unit enables students to negotiate an individual learning contract relevant to the study of health care with the Unit coordinator. Topics equivalent to other third year 12 credit point subjects and relevant to the discipline area will be developed

Credit Points: 12

Learning Outcomes: Upon completion of this unit, students will be able to:

1. identify and describe the key elements of the negotiated study area associated with their selected area of study
2. locate and describe the relevant underpinning theory in relation to the negotiated study area
3. relate the appropriate assessments, and investigative techniques where applicable to the negotiated study area
4. reflect upon the negotiated area of study as outlined in the learning contract and identify the elements of new or enriched learning encountered.

Class Contact: To be advised.

Required Reading: The content of this unit of study will vary according to the specific needs of the students undertaking it. The required reading will depend upon the content area of the studies undertaken. Students are expected to access a range of readings (ie the literature) from peer reviewed and professional sources.

Assessment: Assignment, individual learning contract, 100%. Assignment tasks will be negotiated with individual students or defined groups of students with similar learning contracts.

The assessment task (or tasks) will be equivalent to other HBBN,3rd year 12 credit point units of study offered by the School of Nursing and Midwifery for elective units.

HNB3237 RESEARCH PRACTICE

Locations: St Albans.

Description: Significance of research in midwifery: Links between midwifery education, theory and practice; Approaches to research process: qualitative and quantitative designs including mixed and triangulation methods; Classification and characteristics of exploratory, descriptive and explanatory studies; Steps in research process: identification of problem statement, literature review, theoretical framework, sampling, data collection and analysis using descriptive and inferential statistics; Ethics and research; Disseminating and applying midwifery research; Evaluating research reports; Appraising a systematic review of the literature; Utilise basic statistics for appraisal of systematic reviews, including statistical significance, chance, probability, confidence intervals, odds ratios, numbers needed to treat and pitfalls in analysis; and Appraising the professional application of a systematic review and meta analysis to an aspect of professional practice.

Credit Points: 8

Learning Outcomes: At the completion of this subject, the students should be able to: Understand the research process in relation to midwifery practice; Critically examine the relationship between midwifery research and improvement in health care outcomes; Develop an understanding of research designs and methodologies; Critically evaluate a piece of midwifery research; Understand the ethical implications of research; Develop a beginning knowledge in research proposal relevant to clinical practice; Be able to access and appraise research papers and systematic review; Develop the ability to appraise a systematic review of the literature on an aspect of clinical practice; and Understand how to utilise research to inform clinical practice.

Class Contact: Equivalent of 56 hours.

Required Reading: Nursing and Midwifery Research: Methods and appraisal for evidence based practice Schneider, Z., Whitehead, D., & Elliott, D. (2007). (3ed) Mosby, Sydney Introduction to research for midwives. Rees, C. (2003) 2nd edition. Edinburgh; Books for Midwives.

Assessment: Assignment [2000 words]: 50%Examination: 50%

HNB7309 APPLIED MEDICATION MANAGEMENT

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

HNM7202 - MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

HNM7203 - MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS

HNM7204 - MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

Description: General principles of pharmacology; Individual responses to medications; Principles and guidelines for storage, checking, administration and documentation of medications; Legal and ethical principles of drug administration; Quality use of medications including safety and efficacy issues; Medication use across the lifespan and polypharmacy; Sociocultural factors influencing drug therapy; Adverse drug reactions and interactions; The role of midwives in education and medication therapeutic intervention; and Exemplars of commonly-used drug groups.

Credit Points: 8

Learning Outcomes: On successful completion of this unit students will be expected to: Develop an understanding of the general principles of pharmacology as they relate to midwifery practice; Have acquired a knowledge of legislation and ethical considerations pertaining to the drug administration responsibilities of midwifery; Explain the principles of pharmacological interventions in the care of being with woman; Discuss safety and efficacy issues of medications pertaining to childbearing women Apply evidence-based knowledge to midwifery practice; and, Discuss the relationship of conventional drug therapy to non-pharmacological and complementary therapies in the care of individuals.

Class Contact: Equivalent of 56 hours.

Required Reading: Pharmacology and medicines management for nurses. Downie, G., Mackenzie, J., Williams, A. & Hind, C. (2008). (4th ed.). Sydney: Elsevier. Pharmacology for midwives: the evidence base for safe practice. Jordan, S. (2002). Basingstocke, U.K: Palgrave. Havard's nursing guide to drugs. Tiziani, A. (2006). (7th ed.). Sydney: Elsevier.

Assessment: Examination, 1.5 hour examination., 40%. Essay, Written critique on Quality use of medicines (2500 words)., 60%. Drug Calculation Test is a hurdle requirement of the unit. This is graded as Satisfactory/Unsatisfactory.

HNH4110 HONOURS THESIS PREPARATION

Locations: St Albans.

Prerequisites: HNH4210 - EXAMINING PRACTICE

Description: This unit provides an overview of the variety of research methods utilised in healthcare research, which students can use to answer a focused research question related to the topic of enquiry investigated in the unit 'Examining Practice'. Under the guidance of an approved supervisor, students will develop a research proposal for the purpose of conducting research as part of the thesis. Knowledge and skills developed will include: Data collection techniques including observational strategies, individual and group interviewing techniques, document analysis, surveys, questionnaires; Data management including use, storage and database development; Basic descriptive data analysis for parametric and non-parametric data; and Development of a research proposal including research design, methods of observation, ethical considerations, and data analysis techniques to address a specific research question. The research proposal that is developed in this unit will form the basis of the methods chapter for the thesis.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students should be able to: 1) Discuss a range of methodologies and methods used in healthcare research; 2) Discuss the various methods for collecting data; 3) Develop a research project relevant to an area of professional health practice that culminates in the thesis; 4) Perform basic descriptive data analysis using either a quantitative or a qualitative software package.

Class Contact: 60 hours or equivalent for one semester comprising lectures, tutorials, seminars and flexible learning delivery modes.

Required Reading: National statement on ethical conduct in human research (NHMRC) (2007). When does quality assurance in health care require independent ethical review (NHMRC). Victoria University Human Research Ethics Committee: Application for approval of project involving human participants in Victoria University. Research in nursing and health care: evidence for practice Taylor, B., Kermode, S., & Roberts, K. (2006). (3rd ed.). Thomson

Assessment: Presentation, Seminar Presentation, 40%. Other, Research Proposal 2500 words, 60%.

HNH4112 MINOR THESIS B (PART TIME)

Locations: St Albans.

Prerequisites: HNH4110 - HONOURS THESIS PREPARATION

HNH4210 - EXAMINING PRACTICE

Description: The minor thesis provides students with an opportunity to undertake independent enquiry into an area of personal interest that is applicable to the profession of nursing/midwifery. The thesis will be 10,000 to 12,000 words maximum that addresses an appropriate research question. The thesis will report on independently conducted research which demonstrates a student s ability to clearly define a problem, to undertake a detailed literature search and review the relevant theoretical and practical literature on the topic area, and perform research that adheres to ethical principles. Good data selection, collection and accurate data analysis utilising appropriate statistical tests should also be demonstrated. The thesis should involve a high standard of written communication skills. The selected thesis topic should allow the candidate to select an appropriate methodology and to apply it to a problem or situation. The methodology applied may include qualitative, quantitative, or a systematic review of the literature. It is intended that the topic chosen for investigation will be in consultation with an allocated and experienced academic supervisor who will oversee the research.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students should be able to: 1) Conduct an independent investigation guided by a well designed research proposal in an ethical manner; 2) Analyse, interpret and synthesize research findings to address the research question appropriately; 3) Produce a minor thesis.

Class Contact: Contact will be through supervisory meetings.

Required Reading: Research in nursing and health care: evidence for practice. Taylor, B., Kermode, S., & Roberts, K. (2006). (3rd ed.). South Melbourne: Thomson.

Assessment: Thesis, Minor Thesis consisting of 10,000 to 12,000 words maximum, 100%. Examination of this minor thesis will be made in accordance with School criteria including consistency with the set word limit and referenced using APA style.

HNH4201 MINOR THESIS (PART TIME)

Locations: St Albans.

Prerequisites: HNH4101 - INQUIRY INTO NURSING KNOWLEDGE

HNR0001 -

HNH4103 Advanced Qualitative Methods OR HNH4102 Advanced Quantitative Methods

Description: The minor thesis is intended to provide students with an opportunity to undertake independent enquiry into an area of personal interest and applicable to the profession of nursing. The thesis will be a research paper of not less than 10,000 words and not more than 20,000 words. It will report on independently conducted research which demonstrates a student s ability to clearly define a problem, to undertake a detailed literature search and review the relevant theoretical and practical literature on the topic area. Good data selection, collection and analysis skills should also be demonstrated. The thesis should involve a high standard of written communication skills. The topic, which is chosen, should allow the candidate to develop a methodology and to apply it to an appropriate problem or situation. It is intended that the topic chosen for investigation will be in consultation with an appropriate supervisor who will oversee the conduction of the research. Course regulations guiding the conduct and supervision of the research will be developed in the Course Rules and Regulations and will reflect the regulations to be developed by the Faculty Graduate Studies Research Committee.

Credit Points: 24

Learning Outcomes: The student will develop the necessary skills to successfully select, design, conduct and analyse and write up a minor research thesis.

Class Contact: Students will meet with a supervisor on a regular basis.

Required Reading: To be advised by lecturer.

Assessment: A thesis of a minimum of 15,000 words and maximum of 20,000 words.

HNH4210 EXAMINING PRACTICE

Locations: St Albans.

Description: Examining Practice equips students with the skills and knowledge required to complete a rigorous research study. Students will develop a theoretical framework of inquiry through critique of the literature and reflective practice. Students will develop the ability to identify, critique and document the evidence base relevant to a chosen research area, and identify researchable issues and questions. Knowledge and skills developed will include: Theoretical frameworks - the nature of nursing knowledge and reflective practice; principles, practice and tools for personal engagement in researching practice; Evidence-based practice, practice based professional development and quality assurance processes; Critical and theoretical analysis of a context or aspect of practice by systematic review, critique of relevant literature and synthesis of information in a literature review on a chosen topic; The relevant ethical principles related to healthcare research. The literature review that is developed in this unit will form the basis of the literature review chapter for the thesis.

Credit Points: 24

Learning Outcomes: After satisfactorily completing this unit students will be able to: Discuss the research process in relation to nursing/midwifery practice including the principles of evidence-based practice and quality assurance processes; Critically evaluate key aspects of the relationship between research and improvement in health care outcomes; Perform reflective practice in relation to a chosen area of research; Systematically critique the scientific literature and synthesize the literature in a selected area to develop a literature review; Appraise a range of methodologies and methods used in healthcare research; Justify the relevant ethical principles related to healthcare research.

Class Contact: 60 hours or equivalent for one semester comprising lectures, tutorials, seminars and flexible learning delivery modes.

Required Reading: Evidence for Nursing Practice. Courtney, M. (2005) Elsevier, Australia. Research in nursing and health care: Evidence for practice Taylor, B., Kermode, S., & Roberts, K. (2006). (3rd ed.). Thomson.

Assessment: Presentation, Seminar presentation, 40%. Literature Review, 2500 words, 60%. Students must achieve an aggregate score of 50% to pass this unit of study.

HNH4211 MINOR THESIS A (PART TIME)

Locations: St Albans.

Prerequisites: HNH4110 - HONOURS THESIS PREPARATION

HNH4210 - EXAMINING PRACTICE

Description: The minor thesis provides students with an opportunity to undertake independent enquiry into an area of personal interest that is applicable to the profession of nursing/midwifery. The thesis will be 10,000 to 12,000 words maximum that addresses an appropriate research question. The thesis will report on independently conducted research which demonstrates a students ability to clearly define a problem, to undertake a detailed literature search and review the relevant theoretical and practical literature on the topic area, and perform research that adheres to ethical principles. Good data selection, collection and accurate data analysis utilising appropriate statistical tests should also be demonstrated. The thesis should involve a high standard of written communication skills. The selected thesis topic should allow the candidate to select an appropriate methodology and to apply it to a problem or situation. The methodology applied may include qualitative, quantitative, or a systematic review of the literature. It is intended that the topic chosen for investigation will be in consultation with an allocated and experienced academic supervisor who will oversee the research.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students should be able to: 1) Conduct an independent investigation guided by a well designed research proposal in an ethical manner; 2) Analyse, interpret and synthesize research findings to address the research question appropriately; 3) Produce a minor thesis.

Class Contact: Contact will be through supervisory meetings.

Required Reading: Research in Nursing and Health Care: Evidence for Practice. Taylor, B., Kermode, S., & Roberts, K. (2006). (3rd ed.). South Melbourne: Thomson.

Assessment: Thesis, Minor Thesis consisting of 10,000 to 12,000 words maximum., 100%. Examination of this minor thesis will be made in accordance with School criteria including consistency with the set word limit and referenced using APA style.

HNH4213 MINOR THESIS C (FULL TIME)

Locations: St Albans.

Prerequisites: HNH4110 - HONOURS THESIS PREPARATION

HNH4210 - EXAMINING PRACTICE

Description: The minor thesis provides students with an opportunity to undertake independent enquiry into an area of personal interest that is applicable to the profession of nursing/midwifery. The thesis will be 10,000 to 12,000 words maximum that addresses an appropriate research question. The thesis will report on independently conducted research which demonstrates a student s ability to clearly define a problem, to undertake a detailed literature search and review the relevant theoretical and practical literature on the topic area, and perform research that adheres to ethical principles. Good data selection, collection and accurate data analysis utilising appropriate statistical tests should also be demonstrated. The thesis should involve a high standard of written communication skills. The selected thesis topic should allow the candidate to select an appropriate methodology and to apply it to a problem or situation. The methodology applied may include qualitative, quantitative, or a systematic review of the literature. It is intended that the topic chosen for investigation will be in consultation with an allocated and experienced academic supervisor who will oversee the research.

Credit Points: 48

Learning Outcomes: On successful completion of this unit, students should be able to: 1) Conduct an independent investigation guided by a well designed research proposal in an ethical manner; 2) Analyse, interpret and synthesize research findings to address the research question appropriately; 3) Produce a minor thesis.

Class Contact: Contact will be through supervisory meetings.

Required Reading: Research in nursing and health care: evidence for practice. Taylor, B., Kermode, S., & Roberts, K. (2006). (3rd ed.). South Melbourne: Thomson.

Assessment: Thesis, Minor Thesis consisting of 10,000 to 12,000 words maximum., 100%. Examination of this minor thesis will be made in accordance with School criteria including consistency with the set word limit and referenced using APA style.

HNM6800 RESEARCH THESIS (FULL-TIME)

Locations: St Albans.

Description: This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the investigation described in detail; results and conclusions from the study elaborated;

and an extended discussion presented. Students may be required to undertake some lecture courses, as specified at the time of commencement.

Credit Points: 48

Learning Outcomes: To be advised.

Class Contact: Independent research in addition to regular meetings with the students supervisors.

Required Reading: To be advised by supervisor.

Assessment: The thesis will normally be assessed by at least two expert examiners from an appropriate area of expertise.

HNM6801 RESEARCH THESIS (PART-TIME)

Locations: St Albans.

Description: This subject, the aim of which is to enable students to competently research an area of study utilising knowledge and skills gained in previous studies, consists of a project carried out by students on an individual basis. The project is expected to be an investigation of an approved topic, followed by the submission of a suitably formatted thesis in which the topic is introduced and formulated; the investigation described in detail; results and conclusions from the study elaborated; and an extended discussion presented. Students may be required to undertake some lecture courses, as specified at the time of commencement.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Independent research in addition to regular meetings with the students supervisors.

Required Reading: To be advised by supervisor.

Assessment: The thesis will normally be assessed by at least two expert examiners from an appropriate area of expertise.

HNM7113 FOUNDATIONS IN MIDWIFERY PRACTICE

Locations: St Albans.

Description: Module 1 The unit will include the following content: Functional Health Patterns, emphasis on health perception and management, clinical reasoning process, occupational health and safety, Procedural hand washing and asepsis, the complete midwifery health history and general survey, general health assessment, assessment of family health, assessment of mental health status, cultural assessment. Module 2 Defining the role of the midwife in contemporary practice, exploring the desirable attributes of a midwife, exploring the philosophical basis underpinning the role of the midwife in contemporary midwifery practice: being with woman, woman centeredness, working in partnership, establishing relationships with childbearing women. Explore the art of midwifery, relationship, communication, boundaries of care, midwife as primary carer, midwife's role in collaborative practice, establishing a partnership, philosophy of care.

Credit Points: 12

Learning Outcomes: Module 1 On successful completion of this module, students are expected to be able to: Demonstrate beginning health assessment skills; Practice assessment for mental health; Utilise interpersonal and professional communication skills required for interviewing for health assessment; Incorporate the principles of occupational health and safety to the practice of midwifery health assessment; Practice the principles and process of infection control in the conduct of health assessment; Document health assessment data clearly and accurately in a midwifery context; Adapt the health assessment process to being with woman in the community environment; Apply clinical reasoning process skills to the practice of midwifery health assessment in the health care and community environment; Integrate the relevant ethical and legal issues associated with the conduct of health assessment of woman and child; Apply evidence-based knowledge to midwifery practice; and, Incorporate relevant theoretical concepts from associated subjects in the planning, implementation and evaluation of the practice of midwifery health assessment. Module 2 On successful completion of this module, student are expected to be able to: Describe the role of the midwife in contemporary midwifery practice; Discuss the philosophical basis underpinning the role of the midwife in contemporary midwifery practice; Analyse the boundaries of care in midwifery; Describe the with woman philosophy of midwifery; Provide midwifery care with woman during a hospital stay; and Document accurately with woman care as required by the clinical agency under supervision and appropriate to this level of the course. Clinical practice. The student will be expected to complete 80 hours clinical midwifery practice under supervision in a maternity care setting. Supervised practice will include: Application of principles of communication skills; Reflection in and of action; Journal writing, and, In partnership with woman and under supervision assess with woman and her baby.

Class Contact: 140 hours - 60 hours theory, 80 hours block clinical placement.

Required Reading: Bate's visual guide to physical examination, Bates, B 2005, 4th edn, Lippincott, Williams & Wilkins, Philadelphia. Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone, Edinburgh. Clinical psychomotor skills: Assessment tools for nursing students, Tollefson, J 2009. 4th edn, Social Science Press, Sydney, NSW. Health assessment in nursing, Weber, J, Kelley, J 2010, 4th edn, Lippincott, Williams & Wilkins, Sydney.

Assessment: Examination, 1.5 hour examination., 40%. Practicum, Evaluation of health assessment skills., 40%. Assignment, Annotated Bibilography on selected topics., 20%. Demonstration of safe and competent practice according to the Australian Nursing & Midwifery competencies for this stage of the course (80 hours clinical placement).

HNM7114 CONTINUITY OF CARE 1

Locations: St Albans.

Description: Students will be introduced to the Continuity of Care program in which they make contact with pregnant women in clinical venues or in the community. Students will be assisted to develop a professional midwifery practice relationship with emphasis on basic interviewing and history taking; reflective practice; journal writing; application of principles of communication; assessment of the woman and her baby; working with a woman giving birth; working with the woman to feed her baby; working with the woman to care for herself and her baby before and after birth; and documentation of midwifery actions and women's attitudes and responses. Students will explore the position of contemporary midwifery practice with emphasis on: historical context; evolution of the profession of midwifery; midwifery identity: the uneasy tensions between midwifery and nursing and midwifery and medicine; role of the midwife; and models of care.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate qualities of women-centred midwifery practice using theoretical understandings gained in the subject the Childbearing Journey 1; Describe working with woman in childbearing using the theoretical understandings gained in the midwifery and anatomy and physiology subjects; Demonstrate developing midwifery practice skills necessary to provide woman-centred midwifery practice; Recognise the importance of being with woman in her social context in the provision of maternity services; Demonstrate beginning skills in health assessment with woman and the baby at various stages of pregnancy; Demonstrate the ability to undertake beginning level health documentation in midwifery; Accurately assess, collect and record data for health profiles/histories of being with woman during childbearing; Make contact with a minimum of ten women (in the clinical venue) expecting to give birth later in the year for the purpose of following through their birthing experience from early pregnancy to the first weeks after birth; Analyse historical and contemporary issues in the development of the midwifery profession; Apply evidence-based knowledge to midwifery practice; Discuss the scope of midwifery practice in Australia and internationally; and Discuss models of maternity care and service provision in Australia.

Class Contact: 74 hours - 24 hours theory, 50 follow-through journey clinical hours.

Required Reading: National competency standards for the midwife. Australian Nursing & Midwifery Council (2005). ANMC: Canberra. Code of ethics for midwives.

Australian Nursing & Midwifery Council (2006). ANMC: Canberra. The midwifery partnership: a model for practice. Guilliland K & Pairman L (1995). Wellington: Victoria University of Wellington. Code of professional conduct for midwives in Australia. Australian Nursing & Midwifery Council (2008). ANMC: Canberra.

Assessment: Practicum, Partnership log focusing on follow-through of women (5 women and 50 supervised clincial hours., Pass/Fail. Report, Reflective journals x 3 and Continuity of Care Report (1000 words)., Pass/Fail.

HNM7115 MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

Locations: St Albans.

Description: This subject will include: pre-conception, sexuality, fertility/infertility, pre-conception health, environmental issues. The foetus and the woman during pregnancy: embryology, foetal growth & development, physiological and psychosocial alteration & adaptation during pregnancy, maintenance of health, principles of optimal nutrition for the woman and her baby, pregnancy assessment. Labour and birth: physiological and psychosocial alteration and adaptation during labour and birth, facilitating a normal process of birth, supporting a woman during labour, continuity of care, assessment, reception of the newborn. Skill development and application of principles in basic midwifery care: Assessment, history taking, interviewing techniques, data collection and recording (using women-held records); Introduction to clinical paths: health assessment and physical examination skills - pregnancy assessment including abdominal examination - labour assessment including vaginal examination. Introduction to primary health counseling: guidelines for undertaking primary health counseling; facilitating informed decision making; accessing relevant information; engaging in health promotion activities; communication; counseling; partnership with woman. Assessment in labour: assessment of the woman, culture & family, pain assessment, foetal assessment, progress of the birth process. Midwifery care in partnership during birthing: comfort; orientation to environment; partnership, dignity and respect; support and position; mobilization.

Credit Points: 8

Learning Outcomes: Students will be expected to: Identify element of partnership building and woman-centered care in being with woman; Explore self as midwife and how this relates to being with woman; Discuss the concepts of trust, empowerment and choice within the woman-midwife partnership to gain an understanding of being with woman and childbearing as a normal life event; Describe in detail the anatomy and physiology of the human reproductive system, including pre-conception, pregnancy, foetal development, birth, lactation and the baby; Demonstrate an understanding of the physiology of pregnancy, labour and birth, and its relationship to providing effective midwifery care; Demonstrate principles and practices of midwifery care with woman during pregnancy and labour and birth including assessment of maternal and foetal well-being; Develop beginning midwifery practice skills for the promotion of individual health, growth and development within a woman-centred focus of learning in midwifery practice; Perform fundamental clinical midwifery skills in a simulated laboratory and clinical environment; Demonstrate skills for the assessment of health and development with childbearing woman of various ages and social situations; Accurately assess, collect and record data for health profiles/histories of being with woman during childbearing; Describe the principles of primary health counselling applied to being with woman during childbearing; Apply evidence-based knowledge to midwifery practice; and, Utilise evidence based practices to support their learning by: Search for and find midwifery and health related articles using appropriate databases; Demonstrate search strategies using Boolean operators and MESH terms; and Evaluate the information found for its accuracy and quality.

Class Contact: 70 hours - 60 hours theory, - 10 hours self directed.

Required Reading: A Guide to effective care in pregnancy and childbirth Enkin M, Keirse M, Neilson J, Duley L, Hodnett E & Hofmeyr J. (2000). Oxford: University Press Myles Textbook for Midwives Fraser DM & Cooper MA. (Eds.). (2003). (14th ed.). Churchill Livingstone Mayes' Midwifery: A textbook for midwives Henderson, C & McDonald, S (2004) (13th ed.). Edinburgh: Bailliere Tindall Skills for midwifery practice Johnson R. & Taylor W. (2003). Edinburgh: Churchill Livingstone Midwives' Dictionary Tiran D. (2003 (10th ed.). Bailliere Tindall.

Assessment: 3-hour examination - 60%, Essay [1500 words] - 40%.

HNM7201 MIDWIFERY STUDIES 2: THE CHILDBEARING JOURNEY

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

Description: Pain and its management: Pain, Pain theory, Working with pain, Recognition of pain as a normal component of labour, Sources of pain, The process of loss and grief, Pain assessment, Expression of pain. Factors influencing the pain process: Philosophical, Psychosocial influences, Physiological, Environmental, Spiritual & culture. Pain management options/strategies: After Birth The Woman And Baby, Adaptation to extrauterine life, Lactation. Breastfeeding practices and support: Attachment & bonding, Development of the family unit, Discharge planning, Assessment of mother & baby. Midwifery care requirements during labour, birth and the postpartum period: Showers bathing, perineal care, mouth & hand washing, Oxygenation, Cardiopulmonary Resuscitation, Neonatal resuscitation. Examination of the newborn. Drug calculations and the principles of administration of therapeutic substances. Oxygen administration, Skin integrity and wound care, Peri-operative midwifery care, 'No Lift' policy, Use of technology in the clinical setting, Fluid balance, Urinalysis.

Credit Points: 8

Learning Outcomes: To be advised.

Class Contact: 70 hours - 60 hours theory, 10 hours self-directed study.

Required Reading: A guide to effective care in pregnancy and childbirth. Enkin M, Keirse M, Neilson J, Duley L, Hodnett E & Hofmeyr J. (2000). Students are encouraged to utilised the www copy of this text via the following website: www.maternitywise.org. Oxford: Oxford University Press. Myles Textbook for Midwives. Fraser DM & Cooper MA. (Eds.). (2003). 14th edition. Edinburgh: Churchill Livingstone. Mayes' Midwifery: A textbook for midwives. Henderson C & MacDonald S. (Eds.) (2004). 13th edition. Edinburgh: Bailliere Tindall. Skills for midwifery practice. Johnson R. & Taylor W. (2003). 2nd edition. Edinburgh: Churchill Livingstone. Successful breastfeeding. Royal college of midwives (2002). 3rd edition. London: Churchill Livingstone.

Assessment: Three hour examination - 60%, Essay [1500 words] - 40%.

HNM7202 MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

Description: Students will be required to work in a maternity practice setting providing midwifery care for women and families under the supervision of a clinical teacher/preceptor. Supervised midwifery practice will include: interviewing and history taking techniques; reflection in and on action; journal writing; and application of principles of communication. In partnership with the woman and under supervision: Assessment of the woman and her baby; working with a woman giving birth; working with a woman to give nourishment to her baby; working with a woman to care for herself and her baby before and after birth; and documentation of midwifery actions and women's attitudes and responses.

Credit Points: 24

Learning Outcomes: To be advised.

Class Contact: Block clinical placement of 208 hours.

Required Reading: Skills for midwifery practice. Johnson, R. & Taylor, W. (2005). 2nd edition. Edinburgh: Churchill Livingstone. Myles textbook for midwives Fraser DM & Cooper MA (2003). 14th edition. Melbourne: Churchill Livingstone. Mayes' Midwifery: A textbook for midwives. Henderson C & MacDonald S. (Eds.). (2004). 13th edition. Edinburgh: Bailliere Tindall.

Assessment: Practice assessment based on ANMC competency standards: Satisfactory/Unsatisfactory. Three Reflective journals: Satisfactory/Unsatisfactory.

HNM7203 MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

HNM7201 - MIDWIFERY STUDIES 2: THE CHILDBEARING JOURNEY

HNM7202 - MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

Students require a current Police Check, current Working with Children's Check and Eligibility and Fitness for Practice Declaration to meet the special requirements for the provision of Mandatory Documentation when undertaking clinical practicum units of study. See School of Nursing & Midwifery Clinical Practicum Rules.

Description: Pregnancy Problems: Anaemia, Blood disorders including: Rhisoimmunisation, Infections, Foetal assessment, Early pregnancy bleeding and loss, Intrauterine growth restriction, Foetal death in utero, Antepartum haemorrhage, Variations in blood pressure, Diabetes, Surgical conditions, Induction of labour, Multiple pregnancy, Malposition. Care and Assessment during pregnancy, labour and birth and after birth, Assessment for malpresentation and malposition, Conduct vaginal examination, Artificial rupture of membranes, Episiotomy and perineal care, Epidural infusions and care, Venepuncture, Intravenous cannulation, Intravenous therapies, Syntocinon infusion in therapy, IV antibiotics, Blood sugar monitoring, Mental Health Issues, Psychopathology of pregnancy and childbirth, Motherhood and mental illness, Assessment and management, Midwifery role, Referral and collaboration.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Utilise knowledge from anatomy and physiology applicable to being with woman experiencing complicated pregnancies; Examine specific medical and obstetric conditions that affect childbearing; Evaluate the implications of obstetric interventions with woman related to midwifery practice; Critically examine the use of technology in midwifery and obstetric practice; Perform midwifery practice skills in a simulated laboratory and clinical environment; Demonstrate midwifery practice skills in the management of maternity care emergencies; Interpret the role of the midwife a member of a collaborative health-care team; Apply evidence-based knowledge to midwifery practice; Explore community resources available with woman for support in the community; Demonstrate an understanding of assessment of being with woman and her mental health status and contexts of care using a family-centred approach; and Identify woman-centred midwifery care strategies for being with woman to facilitate choice and partnership when complications in childbearing occur.

Class Contact: 70 hours - 60 hours theory, 10 hours self-directed study.

Required Reading: Myles textbook for midwives, Fraser, DM, Cooper, MA, (eds) 2009, 15th edn, Churchill Livingstone, Edinburgh. Skills for midwifery practice, Johnson, R, Taylor, W 2006, 2nd edn, Churchill Livingstone, Edinburgh. CTG made easy, Gauge, S, Henderson, C 2005, 3rd edn, Churchill Livingstone, Edinburgh. Managing complications in pregnancy and childbirth. A guide for midwives and doctors, WHO, 2003, WHO, Geneva.

Assessment: Three hour examination: 60%, Essay (1500 words), 40%.

HNM7204 MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

HNM7201 - MIDWIFERY STUDIES 2: THE CHILDBEARING JOURNEY

HNM7202 - MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

Description: In partnership with the woman and under supervision: Assessment of the woman and her baby; Working with a woman to give birth; Working with a woman to give nourishment to her baby; Working with a woman to care for herself and her baby before and after birth; and Documentation of midwifery actions and women's attitudes and responses.

Credit Points: 24

Learning Outcomes: The student will be expected to: Demonstrate woman-centred midwifery care strategies for being with woman to facilitate choice ansd partnership when complications in childbearing occur; Apply appropriate knowledge in the care with woman experiencing childbearing complexities; Develop plans of care with woman experiencing childbearing complexities; Demonstrate understanding of specific conditions that affect pregnancy, labour and birth and the first weeks after birth; Evaluate the implications of obstetric interventions in maternity care; Critique the use of technology in maternity care; Demonstrate skills in the use of technology in midwifery and obstetric practice; Demonstrate the ability to manage maternity care emergencies; Demonstrate the ability to practice within a multidisciplinary team; Demonstrate skills in principles of primary level counselling applied to childbearing; Facilitate with woman access to appropriate community resources; and Apply evidence-based knowledge to midwifery practice.

Class Contact: Block clinical placement of 208 hours.

Required Reading: Portfolio assessment: A guide for nurses and midwives. Copper, T & Emden, C 2001 WA, Praxis Education Skills for Midwifery Practice Johnson, R & Taylor, W 2000 Edinburgh, Churchill Livingstone Myles textbook for midwives Fraser, D M & Copper M A 2003, 14th edition Melbourne, Churchill Livingstone Mayes Midwifery: A textbook for midwives Henderson C & MacDonald, S 2004, 13th Eds Edinburgh, Bailliere Tindall Clinical Psychomotor skills: Assessmnet Tools for Nursing Students Tollefson, J 2004, 2nd Edition Sydney: Socail Science Press

Assessment: Practice assessment based on ACMI Competency Standards: Satisfactory/Unsatisfactory3 Reflective Journals: Satisfactory/Unsatisfactory

HNM7205 MIDWIVES WRKG WITH WOMEN FROM DIV BCKGRD

Locations: St Albans.

Description: Framing the Subject Knowing self; Feminist and Humanistic principles in working with diversity; Sociopolitical factors impacting on with woman health and childbearing in Australia; With woman experiences of health care; The relationship between gender and health; and Individualised midwifery care practices. Cultural Diversity Cultural safety/sensitivity; Aboriginality; With woman from diverse cultural and ethnic backgrounds; Spiritual differences & cultural practices; and Genital mutilation. Social Diversity Social justice, equity and access, social class; Poverty and maternity; Homelessness; Physical and sexual abuse, rape, sexual assault; Partner abuse; and Chemical dependency.

Credit Points: 8

Learning Outcomes: On completion of this unit, students will be able to: Develop an understanding of their own values and beliefs, and the challenge presented when working with woman who are different from their selves; Discuss the impact that social inequities have on being with woman during her childbearing experiences; Demonstrate an understanding of social justice issues impacting on with woman health in Australia; Demonstrate practice that reflects cultural safety and sensitivity with woman; Discuss specific issues impacting on the health of being with Aboriginal woman and her baby; Discuss the politics of with woman health with reference to contemporary issues; Apply evidence-based knowledge to midwifery practice; and, Examine with woman experiences as a recipient of health and maternity care, paying particular attention to socio-economic and cultural difference.

Class Contact: 56 hours: - 48 hours theory- 8 hours self-directed study.

Required Reading: From here to maternity: A report to the VACCHO members and the Victorian Department of Human Services about the maternity services for Aboriginal women of Victoria. Campbell S. (2000). Melbourne Women's health: a primary health care approach. Rogers-Clarke, C. & Smith, A. (1998). Sydney: Maclennan & Petty. Culture, religion and childbearing in a multiracial society. Schott J & Henley A. (1996). Oxford: Butterworth Heinnemann

Assessment: On-line participation in discussion groups: 10%Essay [2000 words]: 60%Oral presentation: 30%

HNM7208 CONTINUITY OF CARE TWO

Locations: St Albans.

Prerequisites: Students require a current Police Check, current Working with Children's Check, and Eligibility and Fitness for Practice Declaration to meet the special requirements for the provision of Mandatory Documentation when undertaking clinical practicum units of study. See School of Nursing & Midwifery Clinical Practicum Rules.

Description: Students will continue the Continuity of Care program in which they make contact with pregnant women in clinical venues or in the community. Students will be assisted to develop a professional midwifery practice relationship with emphasis on: Interviewing and history taking; Reflection in and of action; Journal writing; Application of principles of communication; Assessment of the woman and her baby; Working with the woman to give birth; Working with the woman to feed her baby; Working with the woman to care for herself and her baby before and after birth; and Documentation of midwifery actions and women s attitudes and responses. Students will explore the position of contemporary midwifery practice with emphasis on: Expanded practice, primary and collaborative practice, multidisciplinary teams; Contemporary issues and trends in midwives working with women; and Politics in present-day midwifery practice.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate qualities of woman-centred midwifery practice using theoretical understandings gained in the subject the Childbearing Journey; Describe working with woman in childbearing using the theoretical understandings gained in the midwifery and anatomy and physiology subjects; Demonstrate developing skills necessary to provide woman-centred midwifery practice; Recognise the importance of with woman and her social context in the provision of maternity services; Demonstrate midwifery practice skills in health assessment of being with woman and her baby at various stages of pregnancy; Demonstrate the ability to undertake higher level health documentation in midwifery; Accurately assess, collect and record data for health profiles/histories of being with woman during childbearing; Make contact with a minimum of ten women (in the clinical venue) expecting to give birth later in the year for the purpose of following through their birthing experience from early pregnancy to the first weeks after birth; Apply evidence-based knowledge to midwifery practice; Examine the politics of maternity services; Explore contemporary issues and trends which influence midwifery practice and the role of the midwife; and Discuss the professional standards and requirements informing midwifery practice.

Class Contact: 86 hours: - 16 hours theory and 70 supervised clinical hours.

Required Reading: National competency standards for the midwife. Australian Nursing & Midwifery Council ANMC: Canberra. Code of ethics for midwives. Australian Nursing & Midwifery Council. ANMC: Canberra. Portfolio assessment: A guide for nurses and midwives. Cooper T & Emden C. (2001). Quinn Rocks WA: Praxis Education. The midwifery partnership: A model for practice. Guilliland K & Pairman L. (1995). Wellington: Victoria University of Wellington. Code of professional conduct for midwives in Australia. Australian Nursing & Midwifery Council. ANMC: Canberra.

Assessment: Practicum, Partnership log - 5 women and 50 hours for 2009, 7 women and 70 supervised clinical hours from 2010 onwards)., Pass/Fail. Report, This assessment includes Continuity of Care report (1000 words) and reflective journals x 3., Pass/Fail.

HNM7226 MIDWIFERY STUDIES 4 WOMEN'S HEALTH

Locations: St Albans.

Description: Skill development in woman s health assessment will be built in a simulated learning environment. The role of the midwife in primary health care will be discussed promoting health and wellness throughout the reproductive lifespan. Content will be explored within three modules representing common health problems experienced by women: Women s Health Across The Lifespan, First Impressions Puberty Controlling fertility/contraception Sexually transmitted diseases and infections (non HIV) Menstrual disorders Eating disorders and body image

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the essential components to be considered when performing a comprehensive women s health assessment; Discuss the principles of primary health care in the promotion of health and wellness with diverse groups of women experiencing treatment for a range of women s health problems; Demonstrate knowledge of the common health problems women may experience throughout various life stages; Display an understanding of the physical and psychological aspects associated with selected women s health problems. Identify the range of responses a woman may experience when confronted with a body altering health problem; Explore strategies to promote women s participation in informed decision making and taking responsibility for self care; and Demonstrate an understanding of the need for reflective practice and the implementation of evidence informed care in private practice.

Class Contact: 60 hours theory.

Required Reading: Women's health in general practice. Mazza, D. (2011). (2nd ed.). Sydney: Churchill Livingstone.

Assessment: Examination, 3 hour, 60%. Assignment, Written Assignment (1500 words), 40%.

HNM7227 MIDWIFERY PRACTICE 4

Locations: St Albans.

Prerequisites: HNM7113 - FOUNDATIONS IN MIDWIFERY PRACTICE

HNM7201 - MIDWIFERY STUDIES 2: THE CHILDBEARING JOURNEY

HNM7204 - MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

Students require a current Police Check, current Working with Children's Check, and Eligibility and Fitness for Practice Declaration to meet the special requirements for the provision of Mandatory Documentation when undertaking clinical practicum units of study. See School of Nursing & Midwifery Clinical Practicum Rules.

Description: Within a framework of working with woman in partnership, the role of the midwife providing primary and collaborative care with woman throughout the reproductive lifespan will be explored under the following subheadings: Undertaking a comprehensive with woman health assessment; Guidelines for practice and skill development; Primary care midwife promoting with woman wellness; Strategies for promoting; breast awareness and mammography screening (mammocheck program); regular cervical screening; healthy diet, regular weight-bearing exercise, pelvic floor exercises; Midwife providing woman- centered collaborative care in the acute care setting; Physical and psychological pre and post operative considerations; Caring with woman experiencing diagnostic & therapeutic procedures for reproductive and urinary conditions reflecting the specific care requirements; Caring with woman experiencing diagnostic & therapeutic procedures for breast related conditions reflecting the specific care requirements; Caring with woman experiencing treatment for cancers of the reproductive or breast related conditions; and Consequences of chemotherapy to be taken into consideration when planning care with woman.

Credit Points: 16

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Describe the role of the midwife working in partnership as the provider of primary and collaborative care with woman throughout the reproductive health lifespan; Demonstrate skill in undertaking a with woman health assessment in an acute healthcare settings; Demonstrate midwifery practice skill in promoting wellness, healthy lifestyle messages and routine screening programs with woman in their care; Apply knowledge of with woman physical and psychological health in with woman experiencing reproductive and breast health concerns; Demonstrate understanding of specific reproductive health concerns with woman including cancer and urinary conditions; Develop a plan of woman-centred care with woman experiencing diagnostic and/or therapeutic procedures in an acute care setting; Demonstrate midwifery practice skill in the delivery of woman-centred care with woman experiencing diagnostic and/or therapeutic procedures in an acute care setting; Apply knowledge of discharge planning in partnership with woman experiencing short in-patient and day procedures related to reproductive and breast health concerns; Apply knowledge of specific reproductive and breast health concerns in evaluating woman-centred care outcomes; Employ reflective practice and implement evidence-informed care; Apply evidence-based knowledge to midwifery practice; Explore community resources available to support with woman with specific reproductive or breast health concerns; Demonstrate the ability to practice within a multidisciplinary team; and Document the ongoing relationship with woman they are following through in a way that reflects their own involvement and actions and the rationale for these, as well as with woman actions and attitudes and responses to midwifery actions.

Class Contact: Block clinical placement of 120 hours.

Required Reading: Gynaecological nursing: A practical guide. Gangar, E.A. (2001). Edinburgh: Churchill Livingstone. Clinical Psychomotor skills: Assessment Tools for Nursing Students. Tollefson, J. (2004). (2nd ed.). Sydney: Social Science Press.

Assessment: Practicum, Clinical Assessment Tool & clinical learning objectives: Satisfactory/Unsatisfactory, Pass/Fail. Journal, Reflective Journals x 3: Satisfactory/ Unsatisfactory., Pass/Fail.

HNM7310 MIDWIFERY STUDIES 5 CHILDBEARING COMPLICATIONS

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

HNM7203 - MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS

HNM7202 - MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

HNM7204 - MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

Description: Unexpected Problems During Labour & Birth Preterm labour Inco-ordinate uterine action Intervention cascade Cord presentation and prolapse Foetal distress Primary postpartum haemorrhage Shoulder dystocia Maternal shock and collapse Collaborative and referral role of the midwife Maternal health problems in first weeks after birth Breastfeeding problems Pyrexia Secondary postpartum haemorrhage Haematomas Post-caesarean section: extra care Medical technology and procedures Ultrasound Cardiotocography Epidural analgesia Forceps & ventouse Caesarean birth and care Assist in obstetrical intervention Central venous pressure (CVP) monitoring Magnesium sulphate infusion Intravenous infusion pumps Dynamap and blood pressure monitoring Advanced CTG skills Perineal suturing Being with woman and resuscitation when sick.

Credit Points: 8

Learning Outcomes: On completion of this unit, students will be expected to: Utilise knowledge from anatomy and physiology applicable to being with woman experiencing a complex labour and birth and/or postpartum period; Examine specific medical and obstetric conditions that affect labour and birth and the postpartum period; Examine perinatal mental health issues and the implications for mothers, families and caregivers; Evaluate the implications of obstetric interventions for being with woman and midwifery practice; Critically examine the use of technology in midwifery and obstetric practice; Perform midwifery practice skills in a simulated laboratory and clinical environment; Demonstrate skills in the management of maternity care emergencies; Apply evidence-based knowledge to midwifery practice; Interpret the role of the midwife a member of a collaborative health-care team; and Explore community resources available to provide support with woman in the community.

Class Contact: 70 hours: - 60 hours theory- 10 hours self-directed study.

Required Reading: ACMI. (2004). National Midwifery Guidelines for Consultation and Referral. Canberra. Available at http://www.acmi.org.au Enkin M, Keirse M, Neilson J, Duley L, Hodnett E & Hofmeyr J. (2000). A guide to effective care in pregnancy and childbirth. Oxford: Oxford University Press. Students are encouraged to utilised the www copy of this text via the following website: www.maternitywise.orgFraser DM & Cooper MA (2003). Myles textbook for midwives (14th ed.). Melbourne: Churchill LivingstoneOrHenderson C & MacDonald S. (Eds.). (2004). Mayes' Midwifery: A textbook for midwives. (13th ed.). Edinburgh: Bailliere TindallJohnson, R. & Taylor, W. (2000). Skills for midwifery practice. Edinburgh: Churchill LivingstoneJohnston P, Flood K & Spinks K. (2003). The newborn child. (9th ed.). Sydney: Churchill LivingstoneMenihan CA & Zottoli. (2001). Electronic foetal monitoring: Concepts and applications. Philadelphia: LippincottRoyal College of Midwives. (2002). Successful breastfeeding. (3rd ed.). London: Churchill LivingstoneTollefson, J. (2004). Clinical Psychomotor skills: Assessment Tools for Nursing Students. 2nd ed. Sydney: Social Science PressWHO. (2003) Managing complications in pregnancy and childbirth. A guide for midwives and doctors. Geneva: WHOYerby M. (Ed.). (2000). Pain in childbearing: Key issues in management. Edinburgh: Bailliere Tindall

Assessment: 3 hour examination: 60%Essay [1500 words]: 40%

HNM7311 MIDWIFERY PRACTICE 5 CHILDBEARING COMPLICATIONS

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

HNM7203 - MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS

HNM7202 - MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

HNM7204 - MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

Students require a current Police Check, current Working with Children's Check and Eligibility and Fitness for Practice Declaration to meet the special requirements for the provision of Mandatory Documentation when undertaking clinical practicum units of study. See School of Nursing and Midwifery Clinical Practicum Rules.

Description: Utilising experience from the first and second maternity placement midwifery students will be expected to extend their practice repertoire in providing midwifery care with woman and families under the supervision of a clinical teacher/ preceptor. In partnership with woman and under supervision: Assessment of with woman and her baby; Working with woman giving birth; Working with woman to give nourishment to her baby; Working with woman to care for herself and her baby before and after birth; and Documentation of midwifery actions and with woman attitudes and responses. Emphasis on: Reflection on self and the experiences that influence the development of the concept of self; and Application of skills and techniques for the development of effective interpersonal relationships in midwifery.

Credit Points: 24

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Develop a sense of becoming a midwife with emerging confidence and competence; Engender a passion for being a midwife and sharing the vision of the midwifery profession; Develop a consciousness of their attitudes, beliefs and values with woman and childbearing within a diverse cultural context; Construct an awareness of the journey of being with woman through childbearing; Employ strategies to work with woman in making the transition to parenthood which is viewed as an experience of growth and change; Integrate the knowledge and midwifery practice skills acquired from preceding subjects which inform the current stage of practice as a midwife; Apply evidence-based knowledge to midwifery practice; Critically reflect on self and practice as a midwife; and Implement evidence-informed care when working with woman.

Class Contact: Block clinical placement of 208 hours.

Required Reading: Portfolio assessment: A guide for nurses and midwives. Cooper T & Emden C. 2001 Quinn Rocks WA: Praxis Education Skills for midwifery practice Johnson R & Taylor W 2005 2nd Edingburgh: Churchill Livingstone Myles textbook for midwives Fraser DM & Cooper MA 2003 14th Melbourne: Churchill Livingstone Mayes' midwifery: A textbook for midwives Henderson C & MacDonald S (eds) 2004 13th Edinburgh: Bailliere Tindall Clinical psychomotor skills: Assessment tools for nursing students Tollefson J 2004 2nd Sydney: Social Science press

Assessment: Practice assessment based on ANMC competency standards: Satisfactory/Unsatisfactory 3 Reflective journals: Satisfactory/Unsatisfactory

HNM7312 CONTINUITY OF CARE THREE

Locations: St Albans.

Prerequisites: Students require a current Police Check, current Working with Children's Check, and Eligibility and Fitness for Practice Declaration to meet the special requirements for the provision of Mandatory Documentation when undertaking clinical practicum units of study. See School of Nursing & Midwifery Clinical Practicum Rules.

Description: Students will continue the Continuity of care program in which they form partnerships with woman during pregency in clinical venues. Students will be assisted to develop a professional midwifery practice relationship with emphasis on: Interviewing and history taking; Reflection in and on action; Journal writing; Application of principles of communication; Assessment of with woman and her baby; Working with woman to give birth; Working with woman to feed her baby; Working with woman to care for herself and her baby before and after birth; and Documentation of midwifery actions and with woman attitudes and responses. Students will explore the position of contemporary midwifery practice with emphasis on: State and Federal constraints; Issues of professional boundaries; and Choice, continuity and control.

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to: Demonstrate qualities of woman-centred midwifery practice using theoretical understandings gained in the subject the Childbearing Journey; Describe working with woman in childbearing using the theoretical understandings gained in the midwifery and anatomy and physiology subjects; Demonstrate midwifery practice skills necessary to provide woman-centred midwifery practice; Recognise the importance of with woman and her social context in the provision of maternity services; Demonstrate midwifery practice skills in health assessment of being with woman and her baby at various stages of pregnancy; Demonstrate the ability to undertake higher level health documentation; Accurately assess, collect and record data for health profiles/histories of being with woman during childbearing; Make contact with a minimum of ten women (in the clinical venue) expecting to give birth later in the year for the purpose of following through their birthing experience from early pregnancy to the first weeks after birth; Apply evidence-based knowledge to midwifery practice; Explore the link between theory, policy and practice issues in midwifery; and Discuss access and equity issues pertaining to special population.

Class Contact: 126 hours: - 16 hours theory- 110 follow through journey clinical hours.

Required Reading: Portfolio assessment: A guide for nurses and midwives Cooper T & Emden C 2001 Quinn Rocks WA: Praxis Education The midwifery partnership: a model for practice Guilliland K & Pairman L 1996 Wellington: Victoria University of Wellington The new midwifery: Science and sensitivity in practice Page L (ed) 2005 2nd Edinburgh: Churchill Livingstone

Assessment: For 2009 students are required to complete 3 Reflective journals and the theoretical hours of this unit as changes in the Nurses Board of Victoria clinical requirements mean that they have completed their total follow-through women (n = 20) in the units HNM7114 Continuity of Care 1 and HNM7208 Continuity of Care 2. In 2011 this will comprise 8 women and 80 supervised clinical hours. For 2010 students will need to recruit 5 women and complete 50 supervised clinical hours with submission of their Partnership Log. Reflective journals x 3 and a Continuity of Care report (1000 words) will also be submitted: Satisfactory/Unsatisfactory grading.Practicum, For 2009, no further clinical hours required. For 2010, follow-through 5 women and complete 50 supervised clinical hours., Pass/Fail. Report, For 2010, Continuity of care report [1000 words]: Satisfactory/Unsatisfactory., Pass/Fail. Journal, Reflective journals x 3., Pass/Fail.

HNM7313 MIDWIFERY STUD 6-BABIES NEED EXTRA CARE

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

HNM7203 - MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS

HNM7310 - MIDWIFERY STUDIES 5 CHILDBEARING COMPLICATIONS

HNM7202 - MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

HNM7204 - MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

HNM7311 - MIDWIFERY PRACTICE 5 CHILDBEARING COMPLICATIONS

Students require a current Police Check, current Working with Children's Check, and Eligibility and Fitness for Practice Declaration to meet the special requirements for the provision of Mandatory Documentation when undertaking clinical practicum units of study. See School of Nursing & Midwifery Clinical Practicum Rules.

Description: Environment Growth & Development Level Two Nursery Equipment Personnel Influence upon the wellbeing of the baby Impact upon the family Role of the midwife in the team Circumstances That May Require Babies To Be Admitted To A Level Two Nursery Pre-Term Post-Term Congenital Anomalies Metabolic Disturbances Small For Gestational Age Chemical Dependency Birth Asphyxia Jaundice Anaemia Birth trauma Care of the Baby Gestational Assessment Facilitation Of Growth & Development Oxygenation Elimination Nutrition Immunity Temperature Care Of The Family Support & counselling Involvement in care and decision making Education Transition to parenthood Ethico-legal Issues Informed consent Rights of the baby Economic challenges Maintenance of life support Neonatal Emergency Transport Service History of the service Role of the service Referral, stabilization and retrieval

Credit Points: 8

Learning Outcomes: On successful completion of this unit, students are expected to be able to:

- Describe the development of a baby during the second half of pregnancy;
- Demonstrate understanding of the circumstances that may necessitate admission of a baby to a level two nursery;
- Evaluate the level two nursery environment and its impact upon the baby and family;
- Understand the role of the midwife within the context of the level two nursery multidisciplinary team;
- Utilise the clinical decision making process to demonstrate knowledge and understanding of the care required by the baby and the family;
- Apply evidence-based knowledge to midwifery practice; Demonstrate an appreciation of the familys need for privacy, dignity and respect, as well as their right to be informed and to make decision regarding care of their baby;
- Demonstrate an understanding of reflective practice in the implementation evidence informed care for the baby and family; and
- Debate the ethico-legal issues, which arise in the care of babies with special needs.

Class Contact: 60 hours theory.

Required Reading: The newborn child. Johnston, P., Flood, K. & Spinks, K. (2003). (9th ed.). Sydney: Churchill Livingstone.

Assessment: Test, Set topic., 20%. Examination, 2 hour examination., 50%. Essay, 1000 words., 30%.

HNM7314 MIDWIFERY PRACTICE 6-BABIES NEED EXTRA CARE

Locations: St Albans.

Prerequisites: HNM7115 Midwifery Studies 1: The Childbearing Journey, HNM 7203 & HNM 7310 Midwifery Studies 3 & 5: Childbearing Complications, HNM 7202 Midwifery Practice 2: The Childbearing Journey, HNM 7204 & HNM 7311 Midwifery Practice 3 & 5: Childbearing Complications

Description: Neonatal Nursery Environment Cots Oxygen saturation equipment Assisted ventilation equipment Monitors Stress management strategies Care of the Baby Gestational, physical & psychosocial assessment Facilitation of growth & development Touch/stimulation/position Rest Comfort/pain control Kangaroo care Resuscitation Oxygenation/Oxygen therapy/CPAP/Surfactant therapy Oxygen saturation/Blood gases Nutrition & elimination Breast feeding, expand on previous knowledge/Breast milk substitutes Gastric feeds IV therapy/Fluid balance &

electrolytes Specimen collections Phototherapy Immunity Universal precautions/ Hygiene Neutral thermal environment

Credit Points: 16

Learning Outcomes: On completion of this unit, students will be expected to:

- Demonstrate understanding of the circumstances that necessitate admission of a baby to a Level Two Nursery;
- Evaluate the environment of the nursery and implement strategies to promote the wellbeing of the baby and family;
- Develop competency within the context of the multidisciplinary Health Care team;
- Utilise a clinical decision making process to apply the necessary knowledge and understanding required to meet the needs of the baby and family in the nursery;
- Apply strategies for maintaining the families need for privacy, dignity and respect, as well as their right to be informed and to make decision regarding care of their baby;
- Facilitate family involvement with the care of the baby with special needs;
- Employ reflective practice and implement evidence based care for babies and their families;
- Facilitate transition of the baby and family from hospital to home;
- Apply evidence-based knowledge to midwifery practice with the sick baby;
- Document the ongoing relationship with woman and her family that the midwifery student follows through in a way that reflects their own involvement and actions and the rationale for these, as well as the families actions and attitudes and responses to midwifery care; and Follow through of a sick baby.

Class Contact: Block clinical placement of 120 hours.

Required Reading: The newborn child. Johnston P, Flood K & Spinks K. (2003). 9th edition. Sydney: Churchill Livingstone

Assessment: Practice assessment based on ANMC competencies: Satisfactory/ UnsatisfactoryClinical learning objectives and assessment: Satisfactory/Unsatisfactory 3 Reflective journals: Satisfactory/UnsatisfactoryDrug Calculation Test: Satisfactory/ Unsatisfactory

HNM7315 MIDWIFERY PRACTICE 7 CONSOLIDATION

Locations: St Albans.

Prerequisites: HNM7115 - MIDWIFERY STUDIES 1: THE CHILDBEARING JOURNEY

HNM7203 - MIDWIFERY STUDIES 3: CHILDBEARING COMPLICATIONS

HNM7310 - MIDWIFERY STUDIES 5 CHILDBEARING COMPLICATIONS

HNM7202 - MIDWIFERY PRACTICE 2: THE CHILDBEARING JOURNEY

HNM7204 - MIDWIFERY PRACTICE 3: CHILDBEARING COMPLICATIONS

HNM7311 - MIDWIFERY PRACTICE 5 CHILDBEARING COMPLICATIONS

Students require a current Police Check, current Working with Children's check, and Eligibility and Fitness for Practice Declaration to meet the special requirements for the provision of Mandatory Documentation when undertaking clinical practicum units of study. See School of Nursing & Midwifery Clinical Practicum Rules.

Description: Utilising experience from the previous maternity placement midwifery students will be expected to develop an increasingly independent role in providing midwifery care with woman and her family under the supervision of a clinical teacher/ preceptor. In partnership with woman and under supervision:

- Assessment of with woman and her baby;
- Working with woman giving birth;
- Working with woman to give nourishment to her baby;
- Working with woman to care for herself and her baby before and after birth; and
- Documentation of midwifery actions and with woman attitudes and responses.

Credit Points: 24

Learning Outcomes: On completion of this units, students will be expected to: Demonstrate the application of knowledge acquired through related theoretical and skills based subjects; Adapt knowledge of health assessment procedures to the individualised care requirements of with woman who is childbearing and newborns; Demonstrate safe clinical practice in accordance with ANMC competency standards, and consistent with level, knowledge and performance of a graduate midwife at beginning level; Implement individualised midwifery care for childbearing with woman acknowledging physical/mental condition, communication needs and socio-cultural background; Demonstrate appropriate interpersonal skills with woman during childbearing and her family, and healthcare personnel; Apply legal and ethical principles to the midwifery care requirements of childbearing with woman; Participate in reflective practice process through documentation, discussion, self-evaluation of both on-campus and clinical learning experiences and the relationship between them; Apply evidence-based knowledge to midwifery practice; Critically apply relevant theoretical concepts from related areas of study in the analysis of midwifery situations; and Incorporate current research findings into midwifery practice.

Class Contact: Block clinical placement of 208 hours.

Required Reading: National Midwifery Guidelines for Consultation and Referral. ACM (2004). Available at http://www.acmi.org.au ACM: Canberra. A guide to effective care in pregnancy and childbirth. Enkin M, Keirse M, Neilson J, Duley L, Hodnett E & Hofmeyr J. (2000). Oxford: Oxford University Press. Skills for midwifery practice. Johnson, R. & Taylor, W. (2005). 2nd edition. Edinburgh: Churchill Livingstone. The newborn child. Johnston P, Flood K & Spinks K. (2003). 9th edition. Sydney: Churchill Livingstone. Successful breastfeeding. Royal college of midwives (2003). 3rd edition. London: Churchill Livingstone. Electronic foetal monitoring: Concepts and applications. Menihan CA & Zottoli (2001). Philadelphia: Lippincott.

Assessment: Practice assessment based on ANMC Competency Standards: Satisfactory Unsatisfactory3 Reflective journals: Satisfactory/Unsatisfactory