



Swansea University
Prifysgol Abertawe

Swansea University
Singleton Park
Swansea
SA2 8PP

Telephone +44 (0)1792 205678
www.swansea.ac.uk

EMPLOYABILITY AND HIGH-LEVEL SKILLS

EQUIPPING STUDENTS FOR SUCCESS

EMPLOYABILITY AND HIGH-LEVEL SKILLS



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The embedded culture of working with business and industry has resulted in Swansea University being at the forefront of support for the development of the Knowledge Economy.

EMPLOYABILITY AND HIGH-LEVEL SKILLS

“We want to see all universities treating student employability as a core part of their mission. So we believe it is reasonable to expect universities to take responsibility for how their students are prepared for the world of work”.

Source: Higher Education at work - High Skills: High Value. Department for Innovation, Universities and Skills.



A FOREWORD FROM THE VICE-CHANCELLOR

Swansea University has a proud history of working closely with business, industry, and commerce. This dates back to the foundation of the University in 1920 and the University continues to be influenced by the strong industrial legacy of the region.

What is now referred to as “employability” is therefore intrinsic to the Swansea ethos. This brochure uses examples from across the University to explain what this means in practice.

We share with all research-led universities a commitment to developing students’ generic analytical skills and engendering flexibility of thinking and a love of scholarship, which shall empower them to face the varied and uncertain challenges of the future. But Swansea goes further, with a notable emphasis on the teaching of professional and high-level skills.

The brochure shows how this teaching is progressive and forward-looking, informed by research underway in the University and by interactions with professional bodies and employers.

But we are not complacent and have developed an innovative and ambitious strategy to ensure that Swansea graduates will be able to thrive in an increasingly competitive world. This strategy focuses on the soft and hard skills required by a successful Knowledge Economy and is summarised at the end of this brochure.

Professor Richard B Davies
Vice-Chancellor



THE IMPORTANCE OF HIGHER LEVEL SKILLS TO THE KNOWLEDGE-BASED ECONOMY

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The UK and Welsh Assembly Governments have identified the vital importance of higher level skills to the Knowledge Economy, and are encouraging higher education to maximise responsiveness to employer demand and engagement in the development of new courses.

Since its inception, Swansea University has had close links with industry. Historically these links were with the copper, steel, mining and petrochemical industries, however the embedded culture of close working with business and industry has resulted in Swansea being at the forefront of support for the development of the Knowledge Economy.

THIS SUPPORT IS SET AGAINST THE BACKDROP OF THE CONCLUSIONS OF SEVERAL REPORTS THAT ENCOMPASS SKILLS PROVISION:

December 2006: the Leitch Review of Skills, *Prosperity for all in the global economy – world class skills*, showed that there is an urgent need for the UK to raise achievements at all levels of skills if it is to compete in the changing global economy.

May 2007: In their London Communiqué, *Towards the European Higher Education Area*, the Ministers responsible for Higher Education in the countries participating in the Bologna Process urged “institutions to further develop partnerships and cooperation with employers in the ongoing process of curriculum innovation based on learning outcomes.”

October 2007: the Sainsbury Review of Science and Innovation, *The Race to the Top*, is clear in its view that a successful economy must depend on skills development in the workforce. It states ‘The challenge for the UK... is to continue to upgrade our knowledge and skills and move into new high-value-added goods and services and new high-value-added industries’.

April 2008: The UK Innovation Survey shows that the most innovative businesses are those employing the most graduates. A single percentage point increase in the share of the workforce that has a degree could increase productivity by 0.5%.

July 2008: in *Skills That Work for Wales: A skills and employment strategy and action plan*, the Welsh Assembly Government sets out a reform agenda for education and training at all levels, with the aim of achieving full employment in Wales and helping to sustain economic growth.

The strategy addresses high-level skills explicitly, noting that:

“higher education is vital to the One Wales vision of a strong and enterprising economy with high-quality jobs”.

“Entrepreneurship refers to an individual’s ability to turn ideas into action and is therefore a key competence for all, helping young people to be more creative and self-confident in whatever they undertake”.

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHS

The Confederation of British Industry (CBI) has warned that, unless the decline in the study of science, technology, engineering and mathematics (STEM) subjects is halted, Britain will struggle to compete in the global market.

“The UK cannot compete with the developing world on low-skilled jobs, so to thrive in the global market we must excel in the higher-skilled roles that demand expertise and innovation. Employers tell us that the demand for STEM graduates is likely to grow significantly over the next few years.”

(Confederation of British Industry)

- STEM graduates offer skills and knowledge that are highly valued in the labour market.
- The CBI has suggested that consideration be given to providing financial incentives to undergraduates to study STEM subjects, and thereby help deliver the 2.4 million STEM-qualified staff needed by 2014.
- Science and engineering companies are already struggling to fill posts: it is estimated that 80 per cent of engineering or industrial companies, and 67 per cent of energy, water or utility companies had a shortfall in overall graduate recruitment in 2007.

ENTREPRENEURIAL SKILLS

September 2008: The *Developing Entrepreneurial Graduates* report, prepared jointly by the National Endowment for Science, Technology and the Arts, the National Council for Entrepreneurship, and the Council for Industry and Higher Education, stated that to achieve a more competitive economy in which enterprise, entrepreneurship and innovation are the drivers of growth requires graduates with entrepreneurial and innovative mindsets, behaviours and skills. The need for a combination of innovative, creative, collaborative and risk-taking skills applies to a wide range of disciplines.

“...entrepreneurship is not for business alone. Addressing the major social challenges of our century requires public bodies and social ventures to recruit graduates with skills to transform such challenges into opportunities for change.”

March 2008: This theme was also developed in the European Commission’s report, *Entrepreneurship in Higher Education*, especially in non-business studies, which states that

“Entrepreneurship refers to an individual’s ability to turn ideas into action and is therefore a key competence for all, helping young people to be more creative and self-confident in whatever they undertake”.

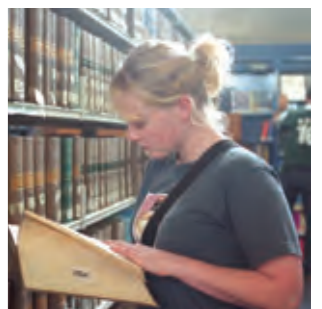


RESEARCH AND KNOWLEDGE TRANSFER

In business, the development of new products, processes and services is essential for creating competitive advantage. In the economy generally, there is evidence to demonstrate a link between innovation and business growth.

The Sainsbury Review argued that the best way for the UK to make the most of globalisation is to support the restructuring of British companies so they can compete in markets for high-value goods and services.

The Higher Education sector in Wales has a vital role in establishing the foundations for an innovative Knowledge Economy. HE institutions carry out cutting-edge research, are sources of new business ventures, provide a strong supply of highly-skilled people, and attract investors.



THE AEROSPACE INDUSTRY

- The UK is the world's number two market leader in the aerospace and defence industries.
- The sector makes a significant contribution to the UK economy through manufacturing and research into new technologies.
- Aerospace is one of Wales's principal technological, employment and export assets, employing more than 20,000 people and generating an output of around £2.5 billion a year.
- Six of the world's top ten aerospace and defence firms operate in Wales, complementing the region's 180 other companies in the aerospace and aviation maintenance, repair and overhaul sectors.
- Manufacturing is concentrated in North Wales, with South Wales focussing on research design and technology.
- Although 50% of companies in the sector are small to medium sized enterprises (SMEs), two-thirds of the region's aerospace workers are employed in larger companies with over 500 staff, such as Airbus UK at Broughton.



FEEDBACK FROM EMPLOYERS

- Global manufacturing companies such as Rolls-Royce, BAE Systems, United Technologies, Boeing, and EADS, have rigorous graduate employment programs in place, as well as ongoing professional development programmes.
- Employers emphasise that a university degree is almost essential for entering the aerospace industry – particularly for science or engineering roles. Increasingly, employers expect prospective employees to have gained work experience through company placements.
- Opportunities for qualified engineers are considerable, although competition for aerospace positions remains fierce.
- Key challenges include lower-cost competition abroad, the adaptation towards new technology (such as composite manufacturing materials), and an engineering skills shortage.

EMPLOYER NEEDS

- Extensive ongoing research with employers in the sector shows that high-level skills are a key requirement. Over 30% of employees in the sector are educated to degree standard or equivalent, and more than 11% are involved in research and development.
- Formal engineering qualifications need to be combined with transferable skills such as project management, presentations, report writing, and working and contributing to a team.
- Increasingly, engineering skills shortages are forcing companies to look offshore for workers, and there is genuine demand for "home grown" highly skilled engineers.

AEROSPACE ENGINEERING – AN INDUSTRY-FOCUSED DEGREE SCHEME

This is an example of higher level skills provision developed directly from employer demand, and is the only professionally accredited Aerospace Engineering degree scheme in Wales.

It brings together internationally acknowledged expertise in Civil, Mechanical, Materials and Communications Engineering, each discipline of which has its own links with aerospace companies.

The programme provides the aerospace industry with a stream of talent in the design, analysis, and testing of aerospace vehicles – including satellites, space stations and launch vehicles, as well as propeller-driven and jet-powered airplanes, helicopters, and gliders.

This degree scheme is designed to develop high-level decision-makers, with skills that are in demand by the Aerospace industry. Graduates of the scheme have the ability to present, understand, evaluate and interpret qualitative and quantitative data, to develop arguments, and to make judgements based on concepts relevant to the application of engineering to the aerospace industry.

INDUSTRY-RELEVANT EXPERIENCE

The Aerospace Engineering degree scheme includes practical laboratory work that provides specific industry-relevant experience.

Facilities include:

- an in-house wind tunnel for aerospace dynamics;
- a jet engine test stand;
- one of the most advanced programmable flight simulators available (and the only one of its kind in any UK university), with a 3D vision helmet, helicopter simulation, and flight navigation database.

These facilities enable industry relevant project work to be carried out by students. Where possible, students undergo placements within companies to experience real life work environments. It is this combination of learning and experience which creates the "well rounded" graduates for which Swansea is known.

PROFESSIONAL ACCREDITATION

Accreditation through industry assessment demonstrates the rigour and high quality of the programme, and ensures that course content meets industry standards. It substantiates the development of the course as technology evolves, and is a key factor in maintaining university/industry alignment.

This particular degree scheme has been accredited by professional bodies, including:

- the Royal Aeronautical Society (RAeS);
- the Institution of Mechanical Engineers (IMechE);
- the Institute of Materials (IoM).

CONTINUING LINKS WITH INDUSTRY

The School of Engineering enjoys extensive links with aerospace industry partners including Rolls-Royce - Aeroengines and Airbus UK – Airframes. This is complemented with extensive links with smaller companies, often operating within aerospace supply chains.

The School is a key member of a Rolls-Royce University Technology Centre (UTC), which was established to research front-line materials requirements for gas turbine engines. It is this innovation and partnership with universities that provides the flow of skills and new technologies essential to maintaining global leadership in the face of stiff competition from competitor companies and nations.

SKILLS FOR THE PRINTING AND COATING INDUSTRY

THE WELSH CENTRE FOR PRINTING AND COATING (WCPC)

Printing and coating is one of the largest industry sectors. WCPC, founded and based at Swansea University, is a Welsh Centre of Excellence and has access to significant industrial printing facilities. It works closely with companies in various supply chains, including ink, substrate and machinery suppliers.

Practical applications focus on graphics printing and industrial printing. Example project areas include printing and mould decoration for plastic displays, industrial sensors and membrane switches. This work is done with companies that lead their fields. A number of industry sponsored studentships are awarded by world-leading companies working closely with the Centre. The award of these studentships by industry is testimony to the quality of support provided via skills provision and technology transfer to the sector.

FEEDBACK FROM INDUSTRY AND THE SECTOR SKILLS COUNCIL

- The printing and coating industry is one of the largest industry sectors in the world
 - In the UK, the industry accounts for £15.2 billion in sales and employs 167,000 people
 - The industry has moved away from low technology, labour intensive practices towards the introduction of new high tech processes
 - A fundamental restructuring of the skills base and mechanisms for continuous professional development is required in order to increase productivity and competitiveness
 - There is also a significant need for skills development including commercial negotiation skills at technical and managerial levels.
 - In Wales, the sector is dominated by SMEs, which constrains learning opportunities.
- ProSkills, the employer-led Sector Skills Council for the printing industry, has raised concern for the industry's future.
- Inadequate investment in training is creating a shortage of employees with the high-level skills needed to operate modern processes.
 - High levels of overcapacity and increasing pressure from overseas competition also present significant challenges for the industry.
- There is a need to review training provision, and to identify productivity improvements to ensure the industry's future health. The industry faces a number of significant issues:
- skill shortages as a result of insufficient focus on people and their training despite significant investment in new high technology.
 - lack of a professional body, or accreditation process to oversee the industry
 - low profile and poor image
 - lack of vision about its future
 - poorly defined career path and opportunities deter new entrants to the sector

"It is vital that businesses are actively involved in the design and delivery of qualifications. Early contact with students will help businesses pick out the brightest talents, and be directly involved in developing a pool of well-informed, pro-active, motivated potential employees."

Helen King – Proskills

THE WELSH CENTRE FOR PRINTING AND COATING

Acknowledged as one of the world's top five research centres for printing and coating, the WCPC is driving up skills levels and sustainability in the Welsh printing and coating sector via its collaborative industrial cluster.

- Close working with industry ensures graduates are kept up-to-date with industry trends.
- Learning approaches in the Centre are industry-led, benefitting from practical work, examples and courses designed to encompass current practice and demands.
- Collaboration with industry improves graduate employment prospects.
- Practical degree programmes ensure that graduates are equipped with the full range of skills required to make a major contribution to organisations from day one.
- A multi-faceted approach to addressing employer/industry issues has been established.

The Centre sponsors a number of industry studentships, awarded by world-leading companies. These studentships ensure the transfer of new technology from the University to industry and are a key element of cluster support.

THE EUROPEAN PRINT ACADEMY (EPA)

Swansea University's EPA was established to address industry needs, including:

- professionalising and raising the profile of the printing and coating industry;
- establishing a UK benchmark standard for personal professional accreditation;
- introducing Continuing Professional Development (CPD) skill and career pathways at four levels, including Awareness, Practitioner, Advanced, and Expert, from induction to highly skilled engineers and managers;
- undertaking innovative research in collaboration with industry to address real industry issues;
- providing a comprehensive programme of technology awareness information and advice seminars and workshops;
- providing consultancy services to individuals, companies and industry, including work-based assessment, technical and mentoring support.

These new learning systems increase skills and knowledge uptake, as well as improving efficiency and productivity in the workplace.

The EPA is revolutionising skill development through a comprehensive package of employer-responsive, flexible, tailored skills development opportunities.

- Training is delivered through part-time study, and condensed intensive study schemes.
- A variety of distance learning solutions, including video streaming and online lecturing, tutoring and assessments, is also available.

Strong links exist between Swansea University's Printing & Coating Division and Proskills, the UNITE Trade Union, and the British Print Industry Federation trade association

The EPA has created a new learning culture responsive to business needs including:

- CPD;
- industry upskilling;
- enhanced career paths for SME employees;
- training, information, advice and support centre;
- industry standardisation and accreditation;
- professionalism and sector image enhancement;
- driving productivity through collaboration and knowledge transfer.

EXCHANGE PROJECTS AND PLACEMENT OPPORTUNITIES

Swansea has an international lead in Europe in the development of the printing and coating industry, with established links with many partner universities and organisations in several countries, including France, Italy, Germany and Spain.

These links provide opportunities for student placements and offer a diverse portfolio of projects. New video streaming learning methods have opened up markets, including Russia, Continental Europe, S Africa, and the Americas. In turn, this internationalisation presents new trading opportunities for Welsh Industry.



SKILLS FOR THE LAW PROFESSION

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SCHOOL OF LAW

The School of Law recognises that although academic achievement provides evidence of future potential for Law graduates, it does not in itself guarantee that the graduate will be able to add value to their employers from day one. Over several years the Law School has embarked on a comprehensive and ongoing analysis of the professional skills required by both law-based and non-law-based employers. This has resulted in:

- significant changes and enhancements to the skills provision for students;
- mechanisms for the student to gain real world experience;
- increased student/employer contact;
- employers influencing student teaching and skills acquisition;
- strong beneficial links with governmental and non-governmental bodies.

HOW THE UNIVERSITY HAS RESPONDED

The Law School subscribes to continuous improvement. For example, recognising that litigation and advocacy are skills that can and should be taught helps to differentiate Swansea law graduates in a competitive market.

COMPREHENSIVE SKILLS MODULE

A comprehensive skills module has been designed to deliver a package of practical skills, including:

- staged mock interviews with clients to construct a legal position;
- CV workshops;
- negotiation skills;
- professional letter composition and drafting;
- drafting briefs and documents;
- commercial awareness;
- market/economic awareness;
- teaching advocacy and litigation skills through practical workshop and court simulations introduces minimum standards of advocacy.

FEEDBACK FROM EMPLOYERS

Feedback from practitioners on the Advisory Board and a 'Law Away Day Questionnaire' informs course design, skills base and syllabus content, and makes suggestions for future delivery.

EMPLOYERS HAVE NOTED THAT:

- in the past, graduates have presented with strong academic abilities and understanding of theoretic principles, but were weaker in the practical application of these skills;

- it is important that graduates can rapidly apply these skills in a real work environment;
- law graduates must be able to demonstrate Professional Identity and Behaviour;
- competition for jobs is high and possession of work ready skills is a key differentiator for new graduates;
- practice-based skills and experience of the work environment are also key requirements for employers.

Meeting with practitioners enables students to witness best practice examples. This skill development is very much regarded as paving the way for accreditation of this area of training.

PROFESSIONAL ACCREDITATION

The School of Law provides undergraduate and postgraduate programmes that lead to professional recognition by:

- the Solicitors Regulation Authority;
- the Law Society;
- the Welsh Law Society.

Recognition by professional bodies underpins the students' core vocational skills base and optimises their ability to engage with related Continuing Professional Development (CPD) as legislation and practice evolve.

PRO BONO LAW CLINIC

The Pro Bono Law Clinic is Wales' only free legal advice clinic for students provided by students.

Volunteer law students assist students who would be unable to access professional legal advice due to their limited funds. The Clinic supports students in dispute or experiencing difficulties in a range of areas, including employment, housing, debt, relationships, consumer issues, and immigration.

Consequently, the clinic offers students unparalleled real work practical experience, and invaluable opportunities for networking and study support. The Clinic is supervised by legal practitioners from local firms, including:

- Smith Llewelyn;
- Morgan Cole;
- Beor Wilson & Lloyd;
- John Collins & Partners.

LEGAL PRACTICE COURSE

The LPC provides a practical, nationally accredited one-year course to equip students with the skills and confidence for a successful career in law in England and Wales. Graduates:

- gain knowledge of substantive law and legal transactional procedures;
- develop fully transferable skills and the ability to undertake legal research;
- are able to deal with the demands that are likely to be made of them as trainee solicitors and beyond;
- have a firm grounding for their future professional practise as a solicitor.

COURT SIMULATIONS – THE MOOT COURT

The Moot Court provides a mock-up simulation where students gain practical experience of arguing cases in a real courtroom environment, helping to convert legal theory into practice whilst developing the practical ability to present and argue a case persuasively.

CPD CENTRE FOR THE LEGAL PROFESSION

As an accredited Law Society training provider, the School provides Continuing Professional Development (CPD) for all Solicitors and Barristers. Areas of CPD include updates on criminal law/litigation; family law; personal injury and clinical negligence; and consumer credit.

SHIPPING LAW

Shipping Law training for BIMCO (the world's largest organisation representing ship owners), BP, and a consortium of City Law firms is provided by Swansea's Institute of International Shipping and Trade Law. A range of services, such as educational courses, tailored master classes, and summer schools, is provided to ship owners at many locations around the world.

IP WALES

IP Wales is an award-winning project, which has raised the profile of intellectual property amongst knowledge-based SMEs.

IP Wales:

- upskills students and grows businesses;
- provides unique support for technological innovation;
- enables SMEs to gain awareness of their IP assets;
- helps SMEs to acquire and develop commercial assets, and to commercialise them by integrating an IP strategy within the business plan;
- confers these skills to students and SME directors.

EMPLOYER ENGAGEMENT

All academic/teaching staff are practitioners of law, with many continuing their active links with the profession through ongoing contacts with legal companies and organisations. Academic staff are up-to-date with current practice and market demands, and are able to elicit accurate feedback on the factors affecting graduate recruitment and skill requirements.

- the Legal Practice Course (LPC), Graduate Diploma in Law (GDL), and LL.M in Legal Practice and Advanced Drafting courses are professionally accredited;
- the School is supported by Practitioner Advisory Panels representing Civil and Criminal Litigation, Company and Commercial, Family, and Property law specialists across small, medium and large practices;
- the Law School works closely with the Technium Network of small company incubators, adding value to technology-driven SMEs by assisting with their legal requirements.



Swansea alumni are now working in translation companies across the world. Many of the University's graduates have set up their own successful language services businesses.

THE DEMAND FOR TRANSLATION

Demand for translation services world-wide is growing rapidly as translation gains recognition as a vital tool for commerce and democracy.

- People all over the world increasingly expect to buy goods and use services localised into their own language;
- Companies and institutions, from banks to the European Union with its 23 official languages, produce vast amounts of documentation, often web-based, that need to be translated accurately and cost-effectively;
- In Wales, the Welsh Language Act requires public authorities and services to implement bilingualism policies, and many high-street businesses are following suit;

MODERN TRANSLATION DEGREES TO MEET INDUSTRY DEMAND

A range of translation degrees is offered by the School of Arts.

- Staff have a variety of specialisations ranging from modernist literature to legal language, and from interpreting to machine translation;
- A clearly structured programme of dedicated modules gives a sound proficiency in foreign languages and specific translation skills, as well as options to develop a range of additional competences.

Core skills developed by the degree schemes include:

- diversity;
- critical awareness;
- international outlook;
- personal skills development.

EMPLOYER NEEDS

Increasingly sophisticated Computer-Assisted Translation (CAT) tools are now used universally by international organisations such as the EU and UN, and by public bodies in the UK including the National Assembly for Wales. Translation companies, including freelance translators, also use CAT tools.

Translators also need to demonstrate familiarity with other technologies, such as:

- terminology management systems;
- translation memories;
- project management software;
- specific tools to assist with software localization;
- fully automatic machine translation.

These industry standard technologies, and the skills needed to use them, are key components of the Swansea degree programmes, as is the new European Translation Quality Standard EN-15038, which guides their professional use.



Core skills gained in this environment include the ability to work under the constraints of cost, productivity and tight deadlines.

The students undertake real-world multilingual translation commissions in Welsh, Polish, Catalan, Dutch and Chinese, as well as the more common European languages, making appropriate use of computerised tools to boost productivity and quality.

The Translations Skills Lab is a result of long-standing collaboration between Modern Languages at Swansea and the Department of Translating and Interpreting of the Maastricht School of International Communication, Zuyd University (Netherlands).

LINKS WITH OTHER WORLD-LEADING TRANSLATION SCHOOLS

- ETI Geneva
- Granada
- FASK Germersheim (Mainz)
- SSLMiT Forlì (Bologna)

CONTINUING PROFESSIONAL DEVELOPMENT

In response to demand from business for Continuing Professional Development in this area, key components of the MA have been tailored in the form of a 60-credit Postgraduate Certificate in Language Technology, designed to be studied over one or two years on a day-release basis.

It is also possible to take a single module (e.g. featuring Déjà Vu, the translation tool adopted by the National Assembly for Wales).

INDUSTRY INVOLVEMENT – WOLFESTONE TRANSLATION LTD

Wolfestone Translation is a language services company based in Swansea, with offices in Germany, Poland and France. The company works closely with Swansea academics and students to assure the professional focus and standards of translator training.

A number of job shadowing placements in Wolfestone's offices are available to students and, during vacations, the company offers work placements to the most able students. The company also sponsors two annual Wolfestone Prizes for the best work by Master's students of Translation.

WORKING WITH THE LANGUAGE PROFESSIONS

The Swansea programmes give a thorough grounding in the complex skills involved in translation work. Direct training input is received from:

- the Chartered Institute of Linguists;
- the Institute of Translation and Interpreting;
- public bodies;
- translation companies and freelancers.

World-leading language technology software manufacturers who sponsor the programmes and offer work placements include:

- Alchemy;
- Atril;
- SDL Trados;
- Star;
- Sysran.

Graduates have also secured placements at international companies, including SAP and Eurologos (Brussels), and in public institutions such as the National Assembly for Wales and the European Commission.

Graduates develop planning and cooperative abilities alongside linguistic and intercultural skills by working on multilingual group projects. Graduates also gain experience of a simulated translation agency in the innovative Translation Skills Lab module.

TRANSLATION SKILLS LAB

The Translation Skills Lab is run in close cooperation with translation experts Wolfestone Translation Ltd, providing a vital link between academia and the world of employment.

Students pursuing the MA in Translation with Language Technology act as mentors to those studying at undergraduate level, and take on management roles in simulated translation companies.



THE AQUACULTURE INDUSTRY

- Aquaculture is a diverse and globally important activity, encompassing widespread subsistence food production.
- It includes the commercial production of prestigious fish and shellfish species for markets in developed regions such as Europe.
- Aquaculture has for decades been the fastest growing animal food-producing sector worldwide.
- It now accounts for more than one third of total fisheries production and employs more than 10 million people.
- Other forms of aquaculture, such as the production of microalgae as a sustainable source of biofuel, are now gaining prominence.
- Aquaculture in Wales is characterised by small businesses producing high quality fish and shellfish for the table or for fisheries re-stocking, as well as specialty products, including feed ingredients and fish fry for export.
- Species produced include mussels, sea bass, trout, tilapia and ragworm.

- The local industry comprises a mix of traditional producers using low-technology farming methods, together with innovative, technology-driven businesses that have been spearheading recent expansion of the sector.
- Welsh businesses are also very active in the sustainable development of aquaculture internationally, thanks to their sought-after processes and products.
- Aquaculture offers a sustainable means of increasing the domestic production and consumption of high quality fish and shellfish.

AQUACULTURE IN WALES

The University has been closely involved in developing the aquaculture section of the Wales Fisheries Strategy (2008) and its associated Implementation Plan.

The AqWa programme and the multi-institutional Welsh Institute for Sustainable Environments (WISE) provide a knowledge support base for the sector, with funding secured from the EU Objective 1 programme.



EMPLOYER NEEDS

- Technical expertise in the areas of:
 - water quality management and effluent control;
 - biosecurity and hygiene management;
 - health management;
 - feeds and feeding;
 - systems maintenance.
- Skills in handling and processing data and preparation of technical reports.
- Knowledge about environmentally sustainable aquaculture practices.
- Knowledge about the complex regulatory framework within which aquaculture businesses operate.
- Administrative skills.

MEETING THE DEMANDS OF THE AQUACULTURE INDUSTRY

The Welsh Assembly Government (WAG) has invested substantially in developing the Aquaculture sector through European fisheries funds.

Swansea University has been at the forefront of meeting aquaculture skills needs in Wales since instigating the Aquaculture in Wales (AqWa) programme in 2003.

The programme was developed with guidance from industry experts to undertake aquaculture research and technological development, advocacy, education and training in support of the Welsh aquaculture industry.

University staff have engaged closely with WAG and industry stakeholders since AqWa's inception, by representing Welsh producers nationally on aquaculture skills development and by establishing a Welsh Aquaculture Producers' Association. AqWa has grouped Welsh producers into a cluster in order to represent a critical mass of economic activity and focus WAG and European support.

CENTRE FOR SUSTAINABLE AQUACULTURE RESEARCH

A state-of-the art Centre for Sustainable Aquaculture Research (CSAR) was established on the University's Singleton campus in 2005, with joint funding from Swansea University, WAG and the European Union.

- Postgraduate students studying for their MSc in Aquaculture and the Environment benefit from practical training in CSAR and have the opportunity to conduct independent research projects in the Centre.
- CSAR also offers aquaculture work experience to undergraduate and postgraduate students, helping them to secure employment on graduation.
- Students are provided with broad training in aquaculture principles and practices, and are encouraged to apply their new skills to particular areas of interest, such as livestock husbandry, systems management, or information management.
- CSAR trainees have been successful in obtaining aquaculture-related jobs in the private and public sectors, as well as continuing to postgraduate research studies.
- International trainees have returned home with the concepts and skills necessary to develop sustainable practices in countries where aquaculture is highly important as a source for basic nutrition and income generation.

TAILORED TRAINING COURSES

CSAR also provides tailored training courses for personnel from industry and public institutions. Recent examples include training in marine hatchery techniques (UK FE College, Egyptian government), disease diagnostics techniques (UK SME) and postgraduate work experience under the British Council IAESTE programme.

FOCUSED SKILLS FOR THE WORLD OF BUSINESS

Degree schemes in Swansea's School of Business and Economics include a full range of professionally accredited undergraduate, postgraduate and professional courses. In-depth industry and employer feedback informs the School's academic and skills provision, ensuring the adoption of current best practice.

High tech e-learning approaches enable flexibility in teaching and learning methods. Industry input is incorporated across all study schemes, with the School actively promoting links between technology businesses and management practice, and research expertise in Wales.

The School also offers marketing consultancy support, including a free management report scheme for a businesses. Economic trend mapping and guidance is provided by the Welsh Economy Labour Market Research Centre (WELMERC), which provides reports to policy makers on trends in economic data relevant to the Welsh business community.

EMPLOYER NEEDS

- Business markets in the UK have seen a move towards high technology and service provision, which has impacted significantly on workforce skill and flexibility requirements.
- Employers – particularly SMEs – need graduates with the necessary skills and attributes that enable them to add value to their organisations from day one. The former UK skills envoy, Lord Digby Jones, has said that "the development of economically valuable skills is the most important issue facing British businesses today".
- Research shows that there is a skills gap in terms of the number of MBA-qualified senior managers in Wales. A recent survey of the top 500 public and private companies in Wales carried out by Swansea University showed that fewer than 10% of senior managers in Wales hold an MBA qualification.
- However, most managing directors in Welsh companies view an MBA as a strong advantage and 15% of Welsh companies surveyed had an active policy towards encouraging senior managers to undertake study towards an MBA.
- Common feedback from a range of Sector Skills Agencies has been that SMEs would benefit from training in Leadership development.



Programme flexibility enables students to combine an additional study year abroad. International opportunities improve students' employability prospects and equip them with essential knowledge and skills relevant to the contemporary business world. Links exist with the USA, Canada, Finland, Sweden, Netherlands, and Hungary.

RESPONDING TO MARKET NEED

The School has established strong external links with industry through a high profile external advisory board, including representatives from the Welsh Assembly Government, Welsh Development Agency, the OECD, sole traders and private sector organisations such as ABN-AMRO and British Airways World Cargo (BAWC).

Courses are aligned to employers' needs through adoption of strategies that:

- maximise the exposure of employer groups to influence degree course content,
- instil entrepreneurship and innovation into graduates planning for SME employment, as well as team working and communication skills.
- link companies to the University by using graduates as ambassadors in order to maximise knowledge transfer opportunities.

Linking academic learning to industry needs embedded skills development across the curricula. Close working with advisory and accreditation boards ensures robust course design in line with market demand, maintenance of learning standards, course credibility and industry compliance.

PROFESSIONAL ACCREDITATION

The School has been accredited by professional bodies, including:

- the Institute of Actuaries;
- the CIMA – the Chartered Institute of Management Accountants;
- the ACCA – the Association of Chartered Certified Accountants;
- the CIM – the Chartered Institute of Marketing;
- the CIPD – the Chartered Institute of Personnel and Development;
- the AMBA – the Association of MBAs.

ACCREDITED PROGRAMMES TO ADDRESS THE MBA SKILLS-GAP

The School offers Association of MBAs (AMBA)-accredited, full-time and part-time (Executive) MBA programmes that develop and deliver management and leadership capacity within Wales and beyond:

- Graduates develop a critical understanding of the concepts underpinning generic management skills;
- Programme content includes teambuilding, leadership, personnel assessment and development, commercial and financial decision making, effective communication, motivation, power relationships and influence, and time management;
- Learning opportunities are reinforced through task-based activities, assignments, and seminars;
- Students are encouraged to engage in extra-curricula entrepreneurial activities, national programmes and competitions.

LEAD – AN INNOVATIVE PROGRAMME FOR DEVELOPING LEADERSHIP IN SMES

LEAD is a ten-month programme supported by WAG and the European Union. It has been specifically designed for owner-managers of small to medium sized businesses. The programme concentrates on two areas of the business: the business itself and the personal development of the owner-manager, providing a framework to increase profitability, diversify and grow the business.

This innovative programme integrates active teaching with practice, regularly encouraging participants to relate what they are learning to their own situations, and supporting them through coaching and action, and learning to resolve issues in their own businesses. Additionally, it builds on the personal experiences and knowledge of participants, enabling them to learn from one another.



DEVELOPING THE SKILLS TO ADDRESS AGEING ISSUES

Population ageing will dominate the twenty-first century, with changes in the population structure touching all aspects of life: family composition; living arrangements; social support; economic activity; employment rates; social security; consumption of goods; and leisure activity. Increased longevity provides a significant new challenge for society.

“The reshaping of the age pyramid will reach into all corners of society. It offers fresh opportunities for businesses large and small. New markets for products and services will open up in the UK as the number of people who are 60 and over rises by more than a half to 19m in 2030”

(Foresight Ageing Population Panel 2000)

- Providing profitable solutions to challenges in later life – with products and services to suit a range of older peoples’ preferred lifestyles - will place Welsh companies at the forefront of ageing solutions in the UK.
- Sectors particularly affected will be:
 - health;
 - housing;
 - welfare issues;
 - transport;
 - learning;
 - volunteerism;
 - leisure;
 - consumerism;
 - tourism;
 - electronic health care development.

EMPLOYER NEEDS

- Ageing is becoming a theme which cuts across business, industry, the public sector, and the economy in general. There is a requirement to develop skills ahead of need.
- Workforce awareness of the changing demands of an ageing population is essential for public, private and non governmental organisations.
- Demographic change will impact on employment practice and provide the potential for economic growth and new company starts.
- Graduates with skills and knowledge relating to this customer and client demographic will therefore be in high demand in both the public and private sectors.

The University is responding to this with several initiatives.

AGEING: A WELSH PERSPECTIVE

- Wales has a higher percentage of older people than other parts of UK.
- Developing appropriate policy responses to the needs of the ageing population is a major governmental challenge.
- More professional development investment in social care services has been a key WAG priority as evidenced in the Strategy for Older People: Fulfilled Lives; Supportive Communities.
- Professional development of students will enhance Wales’ national innovation, bringing to market new ways to provide benefits of value to the older population, whilst increasing business profits from these investments.



THE CENTRE FOR INNOVATIVE AGEING (CIA)

The Centre for Innovative Ageing is engaging with policy makers and employers in finding innovative solutions to ageing issues. Its underlying philosophy is a positive holistic view of ageing with older people at its core.

The CIA's strategy is to:

- train a multidisciplinary future workforce to engage with appropriate sectors of this rapidly growing and often affluent market;
- research issues specific to ageing, and innovate products and processes, which provide solutions to the challenges of ageing and grasp new market opportunities;
- assist existing and new suppliers in building a strong Welsh representation in these rapidly developing markets.

The Centre for Innovative Ageing is helping to promote awareness in Welsh industry and business of the new circumstances created by demographic changes in terms of extensive new markets for products and services for the ageing population.

POSTGRADUATE COURSES

Postgraduate teaching brings together advances in new technologies and findings from ageing research, ensuring practitioners, policymakers and commercial enterprises are well-informed with knowledge that will help to transform policy, practice and industry.

The university is working closely with industrial, business and public sector partners in the development of curricula which ensures that programmes are attuned to the needs of employers.

Benefits of this training include:

- identification of the most cost-effective treatments and methods of delivery of health and social care services, against a backdrop of rapidly advancing technology;
- awareness and understanding of service and delivery, and organisational issues where budgets can be in the billions, and potential savings huge;
- strengthening the competitiveness of commerce and industry by retaining aged, but highly skilled and experienced staff who would otherwise be lost to the economy;



- generation of innovative commercial ideas for the ageing population that can be translated to the marketplace and encourage enterprise and entrepreneurship.

TAILORED PROFESSIONAL DEVELOPMENT TRAINING PROGRAMMES

have been developed in conjunction with public and private sector employers to help managers increase their effectiveness by gaining greater knowledge of older people as a client group. Training staff within businesses will ensure that Welsh companies are properly prepared to grasp these new market opportunities, and will not be overtaken by international competitors.

SPECIALIST TRAINING MODULES

Bespoke modules attuned to the specific needs of business and the public sector (e.g. in rehabilitation, biomedical engineering, interventions) include training designed to appeal to a range of allied professions not traditionally associated with ageing.

MARKET EVIDENCE FOR POLICY MAKERS

Researchers provide health and social care policy makers and employers with a robust evidence-base to inform care delivery and policy-making.

THE OLDER PEOPLE AND AGEING RESEARCH AND DEVELOPMENT NETWORK (OPAN)

OPAN is a multidisciplinary, multi-sectoral collaborative project that includes academics from Swansea, Bangor, and Cardiff Universities together with practitioners and policy makers with a breadth of experience across the field of health, social care, medicine and nursing. OPAN links research to practice and policy-making through shared initiatives such as workshops, seminars, conferences and the website. This maximises collaboration between the employers, stakeholders and academics involved in the evolving ageing demographic.

ICT now impacts on our day-to-day life and Computer Science at Swansea University is at the heart of the technological innovation that is redefining the way we live, learn, and work.

With computer technology constantly evolving there are increasing demands on education, business, and industry to ensure the future workforce is equipped with the skills essential to survive and thrive in the Digital Age.

In June 2009 the government outlined its vision for the digital future of the UK in the *Digital Britain Report*, published by the Department for Culture, Media and Sport and the Department for Business, Innovation and Skills:

The 'Intellect' review of the technology industry shows clearly that IT is a cornerstone of the economy:

- One in twenty of the UK workforce is an IT professional;
- The competitiveness of the UK is underpinned by a strong technology sector;
- The Digital Industry contributes 10% of UK GDP.

Ambition: To make the UK a world leader in research, innovation, technology and creativity, by inspiring the next generation and creating the environment for digital talent to thrive

Digital Britain Report



ENGAGEMENT WITH EMPLOYERS

ITWales Placement Scheme

The placement scheme aims to help companies enhance their IT resources, processes or products and allows them to assess the benefits of employing a highly skilled graduate workforce. Students are placed in companies to help them with specific ICT problems, and given a taster of the challenges awaiting them when they enter the employment market. They are encouraged to consider careers and opportunities with companies in Wales.

Over the last 15 years, ITWales has placed more than 700 skilled IT students with businesses across Wales. These businesses have not only benefited from the specialist skills the students have, but also from an injection of vital fresh ideas and expertise. Latest statistics show that 62% of students placed gained full time employment with their host company (ITWales 2008).

R&D Projects

The Department of Computer Science offers schemes at postgraduate Master's level to help companies develop their IT products and processes.

- MSc students with relevant technical skills are matched to appropriate company projects.
- An academic supervisor oversees each project, together with a periodic review with the company.
- Typical Master's projects develop a student's (or employee's) skills in a practical context with the opportunity to explore a particular topic in depth. This often requires the design and implementation of a complete system, and experience of the complete life cycle of a software project.
- Industrial projects include specification, prototyping, evaluation and production, leading to implementation and demonstration of ideas.
- In each case, the host company gets a solution to a real problem, achieved with cutting-edge techniques. Projects are chosen to form a valuable part of a company's strategic development, and the company can undertake work that would otherwise be unrealistic or impractical to conduct with internal company resources.

FEEDBACK FROM BUSINESS AND INDUSTRY

- Effective use of ICT is essential to gain competitive edge.
- Technological advances are a key driver of change in business and industry.
- Digital technologies, online transactions, and convergence of technologies impact on all enterprises and require up-skilling of the workforce.
- Digital technology cuts across all sectors of the economy. It is now so pervasive that it has evolved from being "nice to have" to being absolutely essential.
- In the report *Working Futures 2004-2014*, more than 160,000 extra IT skilled staff will be required by 2014 in addition to the 190,000 IT professionals currently working in IT who will retire or otherwise leave the industry over the next seven years.
- Confederation of British Industry research indicates that 59% of companies have already had trouble recruiting skilled staff.

RESEARCH AT SWANSEA

Today, the Department's main research interests include:

- Theory: Algebraic and Logical Design Methods;
- Graphics: Visual and Interactive Computing;
- HCI: Future Interaction Technology.

Swansea computer scientists enjoy working with a huge range of collaborators from all over the world and play their part in leading the development of the subject.

The Department of Computer Science is a partner in The Wales Institute of Visual Computing (WIVC), a £5m project funded by the Welsh Assembly Government. Through the development of an internationally leading research base in visual computing, the WIVC will place Wales in a position to exploit this fast moving area, opening up new industrial and business opportunities to the benefit of the Welsh economy.

The WIVC will build on the existing expertise in a range of visual computing areas at Swansea University, Bangor University, Aberystwyth University and Cardiff University.

For over 40 years Computer Science at Swansea has strived to:

- deliver outstanding research in Computer Science and its applications;
- provide an excellent education in Computer Science for undergraduate and postgraduate students, with a range of BSc, MEng, MSc, and MRes degree schemes;
- recognise and respond to the changing needs of society.

ITWALES: ADVANCING TECHNOLOGY IN WALES

First launched in 1993 to stimulate demand for high-level technology skills amongst the business community of Wales, ITWales is the Department of Computer Science's programme for industrial and educational interaction and technology transfer. The ethos of the programme for industry is to develop activities designed to broker collaborations between the University and local, national, and international businesses. ITWales offers a portfolio of services designed to nurture, support and benefit businesses in Wales through improved collaboration and interaction between industry and Higher Education.



SKILLS FOR TOMORROW'S DOCTORS

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FEEDBACK FROM EMPLOYERS

The duties of a doctor registered with the General Medical Council are wide ranging, and require a formidable skill set. Patients must be able to trust doctors with their lives and well-being.

To justify that trust, doctors have a duty to maintain a good standard of practice and care, and to show respect for human life. In particular, a doctor must:

- make the care of a patient his/her first concern;
- treat every patient politely and considerately;
- respect patients' dignity and privacy;
- listen to patients and respect their views;
- give patients information in a way they can understand;
- respect the rights of patients to be fully involved in decisions about their care;
- keep his/her professional knowledge and skills up to date;
- recognise the limits of his/her professional competence;
- be honest and trustworthy;
- respect and protect confidential information;
- make sure that his/her personal beliefs do not prejudice a patients' care;
- act quickly to protect patients from risk if he/she has good reason to believe that someone may not be fit to practise;
- avoid abusing his/her position as a doctor;
- work with colleagues in the ways that best serve patients' interests.

SKILLING GRADUATES TO MEET EMPLOYER NEEDS

The Graduate Entry Medicine Programme has been designed carefully to offer an innovative approach to the training of tomorrow's doctors. It fully meets the needs of the medical profession, offering a fully integrated programme.

- All teaching and learning is designed to produce knowledgeable, skilled and professional doctors.
- Students' learning is defined by learning outcomes and delivered primarily as lectures, supported by practical sessions and tutorials.
- The teaching rotates through intervals spent at Swansea University campus and the surrounding NHS sites, in particular through the Abertawe Bro Morgannwg University Health Board.
- Students spend six weeks on a final shadowing period attached to the doctors that they will replace on commencing work as provisionally registered F1 doctors.

Assessments are arranged in four educational domains: Intellectual Skills; Practical Skills; Transferable Skills; and Professional Development. Learning in close proximity to patients and employers is a very effective method for students to acquire essential transferable skills.

CONTINUING PROFESSIONAL DEVELOPMENT

The Swansea Protected Learning Time Scheme (PLTS) is an innovative programme that offers a modular approach to learning, and is available to all members of the circa 40 GP practices in Swansea. There is a central focus on whole-practice working, tackling a range of tasks, such as:

- preparation for the new contract,;
- working with quality indicators;
- implementing National Service Framework requirements for Coronary Heart Disease, Elderly Care or Mental Health.



Some separate skills-building and training are also integrated into the scheme, such as interpersonal skills training or looking at the Data Quality Audit system.

GENERAL MEDICAL COUNCIL GOOD PRACTICE

Courses at the School that feed into medical practice careers also conform to the General Medical Council's (GMC) Tomorrow's Doctors and Good Medical Practice criteria. Key requirements include:

- suitable attitudes and behaviour, appropriate to future responsibilities to patients, colleagues and society in general;
- a core curriculum rich in the essential knowledge, skills and attitudes and supported by a series of student-selected components that allow students to study, in depth, areas of particular interest to them and which motivate students and help them develop the skills for self-directed learning;
- clinicians, basic scientists and medical educationalists working together to integrate their contributions and achieve a common purpose within the core curriculum;
- supervised learning opportunities to help students explore knowledge and evaluate, and integrate evidence critically with the health and safety of the public in mind at all times;
- clinical education must reflect the changing patterns of healthcare and provide experience in a variety of clinical settings;
- teaching and learning systems must take account of modern educational theory and research, and make use of modern technologies where effective;
- schemes of assessment must take account of best practice, support the curriculum, making sure that the intended curricular outcomes are assessed and reward performance appropriately;
- selection, teaching and assessment must be free from unfair discrimination.

LINKS WITH THE HEALTH CARE INDUSTRY

The School of Medicine works in collaboration with the health care industry in all aspects of its work. There are close links with the Abertawe Bro Morgannwg University Health Board, as well as other Trusts in the region, the UK and globally. Projects such as the Swansea-Gambia Link enhance these.

There are also research and innovation-focused collaborations with companies, including multinational corporations such as GlaxoSmithKline, Alliance Boots, and IBM.

The School and its Institute of Life Science have adopted an 'open innovation' approach that encourages the sharing of ideas and knowledge for a wide range of benefits both to the School and to the companies that it deals with.

A CENTRE OF EXCELLENCE

The School of Medicine is a centre of excellence in world-class research and medical education. The School's principal activities are:

- A four-year Graduate Entry Degree Programme in Medicine
- Higher degree programmes including PhD, MD, MCh and Masters degrees
- BioMedical and health research with a strong interdisciplinary ethos
- Strong links with companies operating in the BioMedical sector.

Born out of the success of the School of Medicine, the Institute of Life Science is an innovative centre where disciplines from fields including medicine, engineering, computing, physics and bioscience meet. Where these disciplines intersect, leading discoveries and opportunities are being made and commercialised. With the latest development of the project having recently been approved, the value of the Institute of Life Science now stands at £82 million.





SKILLS FOR HEALTH CARE PROFESSIONALS

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A significant number of staff in the School of Health Science are health practitioners, some of whom continue to work in practice on a part-time basis.

This facilitates significant employer feedback and awareness of workplace needs, which has led to new courses and improved course content.

PROFESSIONAL ACCREDITATION

Nurse training, skills levels and occupational standards are rigorously controlled through a series of high profile professional bodies: the Health Trusts, the Sector Skills Council – Skills for Health, and the Welsh Care Council.

THE NEEDS OF THE NHS AND THE PRIVATE HEALTH CARE INDUSTRY

The NHS continues to be the largest employer of nurses in the UK, with a growing market for nurses developing in the independent, private and voluntary sectors.

Significant change follows the NHS modernisation agenda and the reduction in junior doctors' working hours. Nurses are now taking on more responsibility for:

- running clinics;
- making preliminary diagnoses;
- prescribing treatment for minor illnesses;
- performing minor surgical procedures and anaesthesia.

New specialist areas of nursing have introduced significantly higher levels of responsibility. Healthcare provision is evolving quickly and the School monitors developments in the sector to ensure that its skills provision is continuously updated.

FEEDBACK FROM THE SECTOR

- Nurses need to be skilled in operating high technology equipment and facilities in all aspects of healthcare.
- Professional liability awareness is an important element of a nurse's role, and is particularly relevant for specialist higher level nursing roles with increased responsibilities. Acquiring advocacy and mediation skills is a key requirement of the role.
- Confidentiality, fair practice and justice are fundamental components of nurses' skill development, enabling them to make balanced decisions using critical judgement.
- There is a need for continuous improvement whilst working to the highest work standards, and adhering to industry practice such as that required in infection control.

A full review of the skills mix required for the nursing role has therefore been necessary. In addition, legal, societal and healthcare development has had significant impact on nursing training approaches and course curricula.

RESPONDING TO EMPLOYER NEEDS

- Swansea students benefit from a specialised learning centre with facilities designed to operate as a real life hospital/community setting.
- Students are introduced to high technology equipment and facilities in all aspects of healthcare.
- Professional liability training is a key part of all nursing courses.
- Graduates gain enhanced awareness of moral issues, such as personal dignity and respect for the individual.
- Graduates are made aware of the need for continuous improvement.

RESPONDING TO CHANGING REQUIREMENTS

The School of Health Science has developed an innovative and progressive approach to healthcare demands. Its programmes are focused and tailored to meet modern day practitioner skills.

- By offering two graduate intakes each year, the School is able to capture both the school leaver and mature student markets.
- Healthcare bodies, practitioners and Government take a proactive role in the design and development of courses via School Advisory Boards, Steering Groups and Practitioner Forums.
- Core competencies and learning outcomes are aligned with mandated professional standards.
- Placement opportunities for students are available in a wide variety of sophisticated and non-sophisticated clinical settings in rural and city environments.

eWARD: A HIGH TECHNOLOGY APPROACH TO SKILLS DEVELOPMENT

The School has developed an innovative, high-technology approach to skills development and

learning. eWARD is an award-winning package that allows students to prepare for employment and practice by facilitating virtual nursing in a 'safe' simulated environment. The system is helping to enhance nurses' skills and the quality of care throughout Wales.

- eWARD's virtual environment helps students to learn about the care of patients with particular conditions and to develop their skills in problem solving.
- Care plans can be designed without the risk and harmful consequences of a misdiagnosis, avoiding pain and dignity issues.
- Scenarios encompass stroke rehabilitation, community mental health, care of a road traffic casualty, a "virtual" pregnancy, and child protection.

eWARD's virtual pregnancy programme for midwifery students won a BT Higher Education Award in association with the Times Higher Education Supplement and, in January 2008, won the Royal College of Midwives Award for Excellence in Midwifery Education, sponsored by Johnson's Baby.



TELEMEDICINE AND E-LEARNING

The School's Health Informatics Team has developed a system that enables the provision of video clinics as an alternative to hospital visits, significantly enhancing the learning experience.

It offers training using state-of-the-art technology and virtual diagnostic tools, using videoconferencing and information sharing technologies running over the NHS IPVPN broadband telecommunication network.

Swansea's nursing students develop clinical and practice knowledge alongside IT proficiency through a range of multimedia tutorials and interactive learning, including podcasts, film clips, associated digital stories, external links and blogs (which enable reflective practice).

CONTINUOUS PROFESSIONAL DEVELOPMENT

CPD is an important, expanding and constantly changing market for Health Science. The School assists practitioners to keep their skills up-to-date and to meet health professional assessment and registration requirements.

With full, flexible part-time, and modular options available, courses fit easily into the busy schedules and personal needs of health practitioners.

Training the Trainers, developed through a partnership between Swansea University's School of Health Science and School of Medicine, develops the teaching skills of those educating others in clinical settings.

The nurse practitioner is a new professional tier that bridges the skills level between junior doctors and nurses. These highly skilled practitioners deliver primary and acute care services, addressing the needs of patients as well as the manpower and skills mix issues arising from the Government's NHS modernisation agenda.

Swansea's fully accredited course, the first of its kind in Wales, enables registered nurses to gain the skills necessary to fill these highly responsible positions through part time study.



HIGH LEVEL ENGINEERING SKILLS – THE ENGINEERING DOCTORATE (ENGD) SCHEME

SKILLING STUDENTS TO MEET ORGANISATIONAL NEED IN THE STEEL INDUSTRY

The EngD scheme is aimed at the highest calibre engineering and science graduates. It provides opportunities to develop personal and professional skills relevant for a career in industry.

Developed and taught in conjunction with Corus, the EngD offers unrivalled opportunities to enhance skill development in a practical industrial environment through placements, specialist courses, organised tours of industrial sites throughout the UK and in Europe, and research projects being conducted at a range of industrial and university locations.

The scheme offers exemplary high level skills development via two key components:

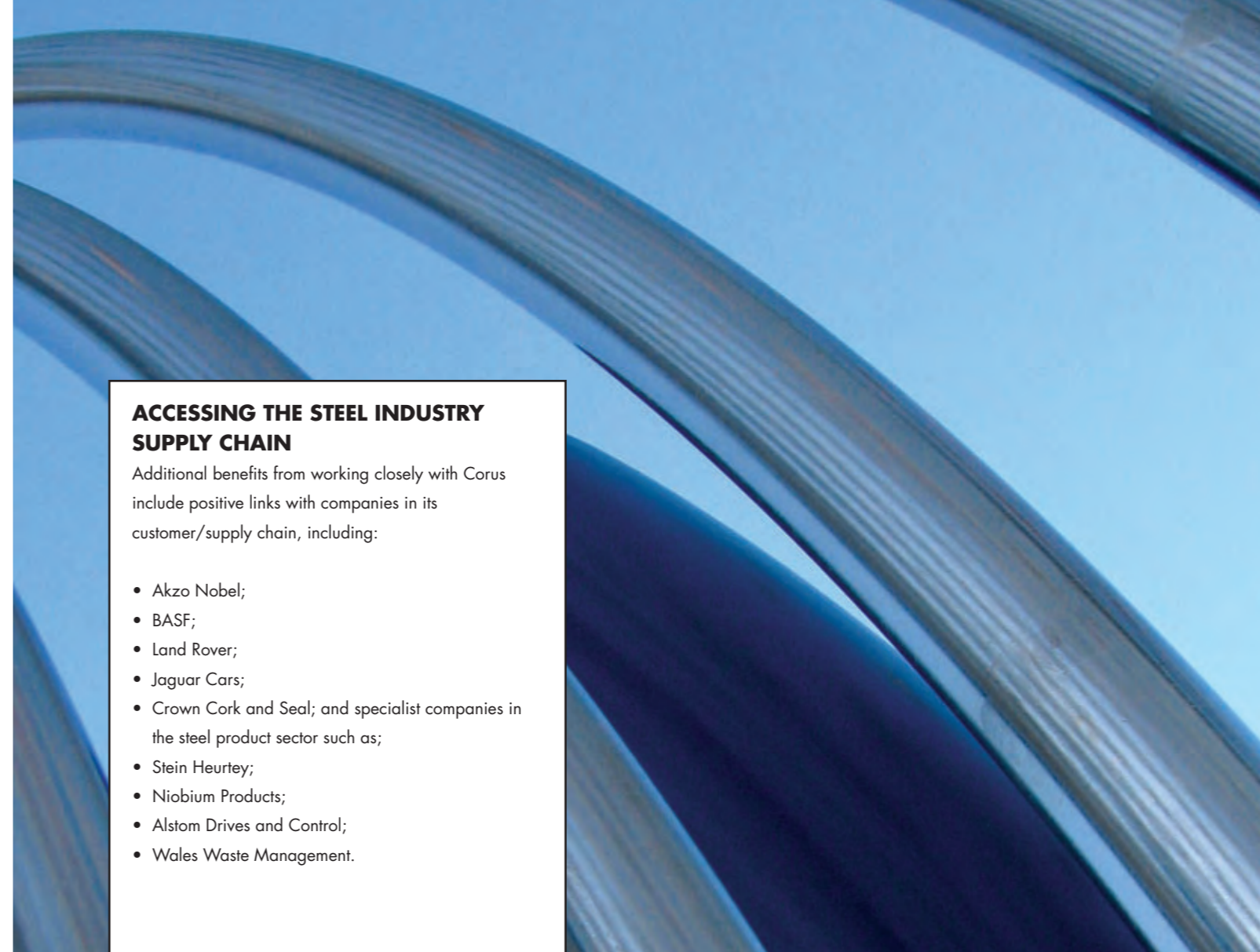
- a taught course covering technical subjects as well as the development of personal, professional, business and managerial skills;
- practical industry experience through an industry-based research project, guided by academic and industrial supervisors.

This approach ensures that all graduates acquire technical knowledge of the steel industry, business and management skills, and an ability to communicate effectively. Co-sponsoring of the scheme by Corus Wales adds significant value to the student experience and final qualification.

FEEDBACK FROM INDUSTRY

- Global market changes have caused significant decline and, in a number of situations, the death of heavy industry in the UK.
- Even so, the UK still has a thriving and economically crucial engineering sector.
- The sector is experiencing serious difficulties in recruiting engineering graduates, a situation which is five times greater than in other industry sectors.
- The consequent skill shortage has hindered economic development within the sector.
- 29% of companies are unable to expand because they lack skilled people.
- New technology and advancement in engineering practices has seen demand shift towards employees with high skills levels;
- 26% of engineering companies now go abroad for the skilled people they need.





ACCESSING THE STEEL INDUSTRY SUPPLY CHAIN

Additional benefits from working closely with Corus include positive links with companies in its customer/supply chain, including:

- Akzo Nobel;
- BASF;
- Land Rover;
- Jaguar Cars;
- Crown Cork and Seal; and specialist companies in the steel product sector such as;
- Stein Heurtey;
- Niobium Products;
- Alstom Drives and Control;
- Wales Waste Management.

PROFESSIONAL ENGAGEMENT AND ACCREDITATION

Accreditation of the EngD by professional bodies, such as the Institute of Mechanical Engineers, affirms the quality of the teaching and integrity of the course.

- A steering committee of academics and professional engineers from industry oversees course content to ensure relevance and consistency with current workplace demands.
- Each student has both an academic and industrial supervisor.

HOW THE ENGD PROGRAMME IS EVOLVING

The elite Engineering Doctorate equips ambitious science and engineering graduates with the knowledge, skills and experience needed for career success in modern industry.

The University's Welsh EngD Centre has pioneered close partnerships with UK manufacturing industry

and government agencies to deliver high quality research, trained manpower, infrastructure support and technology transfer. The result is regional and national wealth creation.

- The success of the programme is due to industrial commitment and support for the scheme.
- The applied nature of the EngD project attracts talented engineers to undertake advanced study.
- The scheme produces postgraduate engineers with a different set of aptitudes and skills.
- EngD graduates are more industry-aware and focused than those who pursue a more traditional approach to PhD research.
- EngD graduates demonstrate the technical capabilities, professional skills and personal attributes essential to future career success at technical, managerial and executive level.
- A significant proportion of EngD graduates enter industrial fast-track management development schemes.

A WORLD-CLASS ENGINEERING ENVIRONMENT

The School of Engineering at Swansea has an enviable record for the quality of its research. In the 2008 Research Assessment Exercise, 73% of academic staff in the School were classed as producing research of world-leading or internationally excellent quality. Civil Engineering at Swansea was ranked second in the UK for research quality, General Engineering joint fifth, and Materials Engineering joint eighth.

These research strengths transfer naturally to the teaching environment and the development in students of focussed, up-to-date skills needed in the engineering world.

STOP PRESS

Funding has now been secured under the EPSRC / Rolls-Royce Strategic Partnership in Structural Metallic Systems For Advanced Gas Turbine Applications for an additional Doctoral Training Centre linked to the Rolls-Royce University Technology Centre at Swansea. Further details will be published shortly.



Engineering was one of the founding disciplines at the University when it was established in 1920, and has always worked in close collaboration with industrial partners with the dual aims of:

- maximising the economic impact of talent flow to industry through targeted skills provision;
- solving key industrial problems via collaborative research projects.

The EngD programme is the latest embodiment of this ethos.



EMPLOYER STUDY PARTNERSHIPS

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OVERVIEW

The purpose of the Employer Study Partnerships project is to develop links with employers through tailor-made research projects that support the development of an employee. The project is co-ordinated by the University, with academic input from Schools across campus. The aim of the initiative is to develop projects, based on work which employees are currently undertaking as part of their role, thereby maximising relevance to the employer and employee, while minimising any additional burden. These projects will form the basis of an MPhil (Master's level) degree which will be assessed through development of a thesis (report). This will be undertaken part-time over two years.

PROJECTS

The focus of the initiative is to develop projects that integrate employment with studying while meeting the needs of the employee. Projects can be developed in all manner of fields ranging from engineering, through social and physical sciences, to public policy and business. The focus of the initiative is to develop projects and study which integrates work and activity that fits with the needs of the employee. An appropriate School and academic will be found once a project idea has been identified.

SUPPORT

The employees will have access to all the support normally available to students through the Schools and central University Academic Registry, together with a range of other assistance. This will include a dedicated 'e-Portal', with tailored resources and an online community where students can seek assistance and collaborate. A dedicated 'hot-desk' area with reading materials and other facilities will also be available for students to use while on campus.

FUNDING

Up to 15 scholarships will be available to support EU students, covering the cost of fees (~£3,240 over two years). A laptop will also be provided to scholars to enable them to access the online support portal.



ENTREPRENEURSHIP, LEADERSHIP TEAM WORKING AND COMMUNICATION SKILLS

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BACKGROUND

The University has an extensive track record of providing its undergraduate and postgraduate student population with access to enterprise skills development programmes.

Since 2001, approximately 2,000 students have participated in formal and informal workshops or modules aimed at enhancing enterprise and entrepreneurship skills.

The skills developed as part of these programmes (such as business planning, communication, time management and team working) significantly enhance the employability of Swansea graduates and assist in increasing the long-term competitiveness of the organisations they work for.

The University is also committed to delivering management training that is relevant for the contemporary workplace. The School of Business and Economics offers a diversified range of postgraduate management courses to the managers of the future. Part-time study programmes allow managers already in the workplace to access on-going continuing professional development (CPD) of the highest standard.



**DYNAMO ENTREPRENEURSHIP
TRAINING:**

The School of Business and Economics provides undergraduate and postgraduate students with opportunities to learn and put into practice enterprise skills through the provision of:

- seminars and workshops: inspirational guest speakers from the private sector or entrepreneurs provide participants with a master class on running and growing their own business;
- accredited modules: fully integrated entrepreneurship and employability modules at undergraduate level within subject areas such as Engineering, Childhood Studies, Modern Languages and Management Studies;
- Summer School: a week-long, intensive programme that helps participants to develop enterprise skills such as business planning, finance, and business law;
- access to 'Students in Free Enterprise' (SIFE): a not-for-profit organisation active in over 1,500 universities in 47 countries. SIFE nurtures entrepreneurial skills and helps to develop careers in a way makes a meaningful contribution to local and global communities, improving the lives of others through the development of sustainable projects that create economic opportunity;
- the SIFE programme focuses on market economics, success skills, entrepreneurship, financial literacy, environmental sustainability, and business ethics;
- access to business start-up funding: early stage funding is available to help graduates to establish their own business, and the University assists with the preparation of a comprehensive and commercially focused business plan.

**DISCOVERY – STUDENT
VOLUNTEERING SWANSEA**

Discovery is a registered charity that has been established for over 40 years. The organisation currently has hundreds of volunteers participating in voluntary projects across the City of Swansea. Discovery's broad aims are:

- to enrich the lives of people in Swansea in order that they may fulfil their potential as empowered individuals and as members of groups and communities;
- to offer new experiences and opportunities through a broad range of student-led activities in the community, leading to increased mutual understanding and equality;
- to actively help students to be aware of their personal development and the impact on themselves and the lives of others through their involvement in community based activities.

Students who participate in Discovery projects gain valuable interpersonal, leadership, social and enterprise skills.


STUDENTS' UNION SOCIETIES

The Students' Union (SU) prepares its members for the world of work by encouraging them to practise, in a safe and managed environment, many of the enterprise and generic skills that employers demand from graduates.

The SU invites special interest groups to further their passion for specific hobbies or pastimes by formalising their activities through the Student Society initiative.

Societies are student-run and student-based, and represent all areas of interest from within the diverse student body. Societies range from politically and environmentally active groups to those concerned with cultural and artistic development or educational and religious support. Each society is expected to manage its everyday activities with a professional approach to training, funding, event management, and publicity:

- The societies play an important role in university life as they broaden students' personal development.
- The activities that the societies harness allow over 3,000 students to gain skills and experience in areas that would otherwise not be available.
- They enrich the educational experience and equip graduates for the world of employment.
- Involvement with societies provides students with numerous developmental activities and allows students to gain experience of managing people, finance and resources.

EMPLOYABILITY SKILLS AWARD

From October 2009, the University's Careers and Employability Service and Academic Registry will be piloting three optional modules designed to better prepare students for the job market.

The modules, entitled *Enhancing your Employability, Creativity and Enterprise in the Workplace, and Personal Career Planning*, will encourage and support students' reflection and development of key transferrable skills and attitudes, through academic and extra curricular activities.

The pilot is expected to recruit 12 students to each module from a wide cross-section of undergraduate and taught master's students. Each module is worth 10 credits (students can choose to take up to 10 additional credits per academic year). Students will therefore only be enrolled on one of the three modules.

The additional credits cannot be used as credit towards students' degrees, nor can they influence their degree marks. It is anticipated however, that participation in the modules will develop students' employability.



PROFESSIONAL PRACTICE FOR SUSTAINABLE DEVELOPMENT

The 2006 Welsh Assembly Government strategy document, *Starting to Live Differently*, states that the Assembly will promote

"...an economy, with high-level skills and education, that responds to sustainable development opportunities, minimises demands on the environment and maximises the distribution of the benefits".

- Professional Practice for Sustainable Development (PP4SD) is a flexible, practical training package designed by a team of specialists at Swansea University specifically for small and medium-sized enterprises (SMEs) and professional educators.
- The PP4SD team was established with funding from the Welsh Assembly Government's Knowledge Exploitation Fund and the European Social Fund to develop the PP4SD training approach.
- Over a period of 18 months, the team has worked in partnership with Lantra, the Sector Skills Council for the land-based and environmental sector, to support more than 100 SMEs, further and higher education professionals and industry bodies.

TRAINING MATERIALS

- The University's PP4SD training package assists SMEs to develop their understanding of sustainable development and their capacity to devise sustainable solutions and practices as part of their everyday business activities.
- The package is available for groups or individual participants, and can be undertaken with a facilitator or as a self-help programme.
- The team can provide facilitators if requested, or companies or educators can use the materials to facilitate their own, tailored, programmes in the context of a business setting.
- Based on proven PP4SD continuous professional development (CPD) programmes, the Swansea package enables SME owners, managers and employees to develop their own understanding of the principles of sustainable development, to recognise where these relate to their own business, and to translate them into tangible business terms.

The comprehensive suite of materials is available on CD or can be downloaded via the Swansea University website. Workbooks for individual learning are also available in hard copy on request from pp4sdinfo@swansea.ac.uk.

The Swansea University PP4SD training materials are aimed primarily, though not exclusively, at four areas of commercial activity:

- agricultural manufacturing;
- aquaculture;
- environmental management;
- fisheries management.

The materials can also be applied readily to other industries. The materials can be targeted to any level and are copyright free.

BENEFITS TO BUSINESS

- Meeting increasing demands from customers for more sustainable and environmentally friendly practices and products.
- Increasing marketability, for example through establishing accredited environmental management systems.
- Improving business planning, long-term efficiency and cost-effectiveness.
- Becoming more energy-efficient.
- Obtaining information about a broader range of new products and services.
- Helping the local community.
- Providing practical support to the local and wider community, for example by adopting a more broadly integrated approach to waste management.
- Assisting with legislative compliance in areas such as employment, health and safety, animal welfare, water and the environment.
- Increasing community involvement and strengthening local links and loyalty.
- Increasing employee motivation and job satisfaction.

ENTREPRENEURSHIP SKILLS

All PP4SD materials have been developed and tested with employers and professional institutions. The programme takes account of the needs and values of employers, ensuring that it delivers a tailored and flexible approach to supporting businesses.

PP4SD therefore enables the acquisition of high-level, transferable skills that are applicable across the commercial sector. The programme stimulates innovation, entrepreneurship, and lateral and creative thinking, enhancing business practice in Wales and beyond.





Diploma Supplements were developed within the European Commission as a means of providing independent data to reinforce international transparency, and fair academic and professional recognition of qualifications across Europe.

Importantly, employers are able to gain online access to the student and course information contained in the Supplements to judge the potential skill sets of potential employees.

Diploma Supplements are provided as an addition to the academic transcript that each student receives at the end of their studies, and allow employers to assess the skills that students have developed in their studies at the University.

THE DIPLOMA SUPPLEMENT CONTAINS:

- qualification holders details – name, date of birth, etc;
- qualification details;
- level of the qualification;
- scheme contents and results gained – includes intellectual, practical, and key skills of scheme;
- function of the qualification;
- additional information;
- certification of the Supplement;
- information on the national higher education system.

Swansea was the first university in Wales to introduce the Diploma Supplement, recognising the value of the document as a flexible, non-prescriptive tool that is designed to save time, money and workload.

The Diploma Supplement is not a substitute for a curriculum vitae or intended to replace the original qualification transcript. It provides additional information for employers and education providers to compare qualifications in an international setting and enables them to assess whether a qualification is appropriate for their purposes, for instance for:

- access to an academic programme;
- exemption from part of a programme;
- the right to practise a profession.

Diplomas Supplements support the mutual recognition of qualifications, aiding the portability of qualifications and easing access to work and study abroad. They also help to foster employability internationally.

The Supplements provide a description of the nature, level, context, content and status of the studies that have been successfully completed. Skills development and acquisition, in terms of the intellectual, practical and key skills developed, are confirmed and explicitly stated.

Swansea has added further value to the Diploma Supplement through the development of an online search facility that enables employers, industry professionals, and training and education providers to gain access to the student and course information contained in the Supplements.

This facility supports employers with employee recruitment, and skill and development strategies.

GENERIC COGNITIVE SKILLS

Research-led universities in the UK are internationally renowned for degree programmes which are life and career-enhancing because of the cognitive dexterity of graduates, irrespective of field of study. Our new strategy builds upon this tradition. There will be an increase in technical and managerial skills that may be deployed immediately but the emphasis remains upon developing innovative and flexible thinking.

Courses will continue to be rigorous, challenging, and intellectually demanding, with input from world-class scholars and researchers. More than 50% will be professionally accredited.

EMPLOYABILITY

The new Strategy will increase the formal teaching provided in management, leadership, creativity and entrepreneurship. The aspiration is to have modules that enhance skills and employability across all undergraduate courses, either as an integral part of the programme or as free-standing electives.

This enhances the current 'LEAP' (Learning and Professional Development) policy which ensures the continuous improvement of all students' employability during their time in the University.

LEAP extends beyond formal courses to include, for example, sporting activities and job placements.

INTERNATIONAL EXPERIENCE

Our aspiration is for all home undergraduate students to have the opportunity to spend at least a semester studying overseas. Many students currently study in other European countries or North America through exchange arrangements. The University sees this as a valuable maturing experience and the intention is to make it an intrinsic part of the 'Swansea experience'. We know that employers already see study abroad as an important differentiator in recruiting graduates.

HIGH-LEVEL SKILLS

Schools located on the new Science and Innovation Campus will work closely with the partner companies to develop and deliver new programmes for motivated and able graduates.

These 'fast stream' courses will prepare students for rapid progression to leadership roles in industry as innovators, technologists, legal experts, or managers.

The University will continue to extend the broad portfolio of conventional academic and professional courses, including the flagship EngD and MBA programmes. New specialized courses will address the needs of high-technology clusters in the region.

SCIENCE AND ENGINEERING

Science and engineering graduates are key to the growth of the knowledge economy, yet the trends show a decline in numbers, particularly in engineering. Swansea's response is to plan significant research-led growth. Student numbers in engineering are already increasing and are planned to double over the next five years.



