

The UK's European university

University of
Kent



COMPUTING

Canterbury

/ Undergraduate
study

INSPIRATIONAL TEACHING AND ACADEMIC EXCELLENCE

The School of Computing is an internationally recognised Centre of Excellence for programming education and has won awards for its Java teaching. Within the School are authors of widely used text books, two National Teaching Fellows and two ACM award-winning scientists.

Excellent career prospects

The 2011 Guardian University Guide rates Kent's School of Computing as among the top 20 in the UK for job prospects. We focus on courses that provide skills relevant to employers with a good balance between theoretical studies and real-life applications. We also give our students the chance to gain work experience.

Valuable work experience

During your degree you can gain work experience with leading companies in the UK and overseas as part of a Year in Industry. This experience means that after graduation many of our students go on to work for world-class businesses. The School of Computing can also provide commercial experience working as a student consultant within our Kent IT Clinic.



Internationally respected teaching

Kent has developed two leading object-oriented teaching environments for the Java programming language – BlueJ and Greenfoot. BlueJ is aimed at university-level learners, has been used in over 1,000 institutions across the world, and has proved very popular with our own students. Greenfoot is aimed at school-level learners and has won an industry award.

Our staff have also written several internationally acclaimed textbooks for learning programming, which have been translated into eight languages and are used worldwide.

Sun Microsystems awarded us the status of Sun Centre of Excellence in Object-Oriented Programming and some of our courses also offer professional accreditation by the British Computer Society.

One of our staff has become the first British academic in 30 years to receive the SIGCSE Award for an Outstanding Contribution to Computer Science Education. The award is made by ACM, the world's largest educational and scientific computing society.

Wide ranging courses

We offer a wide variety of degree programmes ranging from the more technical Computer Science courses through to joint honours degrees, combining Computing with another subject. It is possible to switch between closely related programmes in the early parts of your course.

Within the degree, there is a wide choice of modules. The first language you learn is Java, the standard programming language for many mobile devices and widely used in industry. You can also learn other languages such as C++ and Haskell.

Other areas covered include software engineering, networking technology and human-computer interaction. You learn how to develop software, program mobile devices such as telephones and discover the underlying protocols on which the internet runs.



World leading research

Our courses are taught by leading researchers – 95% of our Computer Science research is of international quality, with 65% rated as world-leading or internationally excellent in the latest national Research Assessment Exercise. You get a chance to study subjects close to the leading edge in areas such as artificial intelligence, computer security, parallel systems, bio-inspired computing and mobile computing.

“Kent has quite a reputation for the strength of its computing department, which was enough reason to place it on my shortlist. After visiting for an Open Day and seeing the facilities and atmosphere around the place, I was convinced. Kent was the right university for me.”

Simon Todd
BSc (Hons) Computer Science

DID YOU KNOW?

In the *National Student Survey 2010*, 87% of students were satisfied with Kent.



SCHOLARSHIPS ON OFFER!

The School of Computing offers a scholarship that, for one full-time student, could mean an extra £1,000 a year. For details, see www.kent.ac.uk/studying/funding/scholarships/

STUNNING LOCATION AND FIRST-CLASS FACILITIES

A scenic, friendly and safe campus, Kent is also one of the best-equipped universities in the country.

Excellent computing facilities

At Canterbury, we have over 1,000 public computers for student use, many available for 24 hours a day. All study bedrooms have free connections to the University network and the internet, and include free access to digital TV channels online (a TV licence is required), and access to telephone services for making cheap or free calls over the internet. Free wireless access points are also widely available across campus, enabling you to choose where and when you work.

Course materials for all our modules are web-based and you can access these on campus or from home.

Green and friendly campus

Our campus is set in a superb location on a hill overlooking Canterbury and the Cathedral. Built on 300 acres of parkland, it is surrounded by green open spaces, fields and woods.

Everything you need on campus is within walking distance: the Gulbenkian Theatre and Cinema, the library, the medical centre and pharmacy, the computing service,



the campus shop and bookshop, banks and cashpoints, bistros, bars, nightclub, launderettes and bus stops. Our extensive sports facilities include a gym and cardio theatre, climbing wall, squash courts, a 3G artificial football pitch and a new £2.5m sports pavilion.

Kent has a reputation for being a very friendly and supportive university with a diverse mix of people and a cosmopolitan atmosphere – currently there are 129 different nationalities represented at the University.

Excellent study support

We provide excellent support for you throughout your stay at Kent. This includes access to web-based information systems, podcasts, web forums and an online anonymous questions facility, as well as study

skills services and our Value LITE programme for students who can benefit from extra help. We use innovative teaching methodologies, including BlueJ and LEGO® Mindstorms for teaching Java programming. The library has over a million books, periodicals and journals.

Beautiful location

Canterbury city centre is a 20-minute walk or short bus-ride from campus. It is a beautiful city with medieval buildings, lively bars, pubs, restaurants and cafés and a wide range of shops. The attractive seaside town of Whitstable and beautiful countryside of the North Downs Way is close by. London is 60 minutes away by train.



STUDENT PROFILE

Luke Eaton, BSc Computer Science with a Year in Industry

Why did you choose to study at Kent?

A few reasons really. It was in a nice area and on a campus, rather than split up over a city. Also it was a great course which allowed me to do a Year in Industry. At the Open Day, I got the sense that the University really wanted me to be there. I was very impressed by the enthusiasm of the staff, the goals of the course and how the University saw itself.

How have you found your studies at Kent?

I am in my final year and each year I have found the course progressively more advanced; the lecturers are always available for extra help and there are plenty of resources if you are finding something difficult. My overall feeling is that the course has been great, well-balanced and an excellent learning experience.

What have you enjoyed most about your time at Kent?

How proud the University is to be the University of Kent – it gives you the feeling that you're part of something. The social side of Kent is great too with a wide range of societies and groups.

Which part of your course have you enjoyed the most?

The IT Consultancy modules, working in the Kent IT Clinic, and the Year in Industry. Each one helped me to understand what it is to work in the real world, something which is vital in this subject area and sets you apart from other university graduates around the world.

What are the most interesting things you have learned on your course so far?

It's interesting to realise how much business and ICT are actually linked. This became clear during my Year in Industry. Even though I am studying for a Computer Science degree, a lot of my skills would be transferable to other parts of a company.

What about the teaching?

First class! Lectures are always interesting and fully supported by the lecturers, with the option to have a one-to-one meeting if you are ever stuck on a particular subject.

How would you describe your fellow students?

A dedicated, hardworking bunch of people – I've made some friends for life here.

What about the facilities on campus?

They are unique and suited to students which is something that most universities cannot offer, due to space. The University really has tried to put the students first.

What do you think about the level of study support?

For our course we have always been told that there is help, whether it be from one of your peers, from a lecturer or from the Unit for the Enhancement of Learning and Teaching. It's just down to the individual to go out and get help.

In regards to other matters, there is support all over the University. I have always felt that if I needed help, someone would be there.

Do you think your degree will help you in your career?

Yes, being at the University is teaching me skills I couldn't learn anywhere else. The degree has been a major part of my development and worth every penny.

How did you find your Year in Industry?

Absolutely amazing. I was lucky enough to spend the year with Morgan Stanley, a global leader in the financial markets.

After graduation, Luke was employed by Morgan Stanley and is doing his initial training in New York.

CAREERS AFTER GRADUATION

For Computer Science and IT graduates, Kent is among the top 20 institutions in the UK for career prospects, according to *The Guardian University Guide 2011*.

Graduates have launched their careers in many different sectors including finance and insurance, technology and IT, commerce, engineering, government, education, and health.

Possible careers include:

- software engineering
- applications programming
- mobile applications development
- project management
- systems analysis
- consultancy
- networking
- research and development

- web design and e-commerce
- teaching and lecturing.

What do employers think?

Our high graduate employment rate speaks for itself. Leading companies, such as Ericsson Ltd, BAe Systems, JP Morgan Chase Bank and PWC Accountants, are keen to employ our graduates.

Many employers who provide placements for our Year in Industry students choose to offer them permanent jobs after graduation. This is a clear indication that employers are impressed with the calibre of our undergraduate students.

Work experience

Employers are very keen to employ graduates who already have work experience. Choosing to spend a Year in Industry can provide you

with real commercial experience with leading companies in the UK, including Accenture, BT, Eli Lilly, IBM, Intel, Microsoft and Morgan Stanley, or overseas with our placement partners in Amsterdam and Hong Kong.

Valuable consultancy skills can also be gained by choosing to work in our Kent IT Clinic. Our consultancy modules allow you to gain academic credits, while working on commercial projects with local companies.

Professional accreditation

As well as gaining your degree, your studies at Kent can lead to professional qualifications and you may attain British Computer Society accreditation.

Key skills

Studying for a degree is not just about mastering your subject area. These days employers are also looking for a range of key skills, and we encourage you to develop these within your degree programme. The ability to analyse situations, troubleshoot problems, and construct written and verbal presentations are all valuable skills, no matter what your final profession.



GRADUATE PROFILE

Rebecca Burden graduated with a degree in Computer Science with a Year in Industry.

How did your degree course lay the foundations for your chosen career path?

The Computer Science degree at Kent covers many subject areas. This means that graduates from this course are more versatile than most. Companies want to shape you to fit into their working environment and the course gives you the perfect springboard in order to develop.

My industrial placement at Pfizer was the best thing I could have done while at university. I would recommend it to everyone. Not only do you earn some money but it gives you invaluable work experience and that puts you in a much better position when you leave university and enter the job market.

What about university life?

Studying at university is a time for learning but not just academically. It's a time when you become independent, become a grown-up and make friends that last a lifetime. The summer balls were great and ArtsFest was fantastic for good summer fun and fabulous fireworks out on the hill.

I played the flute in the concert band and played in concerts in the Gulbenkian Theatre and at ArtsFest. In my first year I also sang Verdi's Requiem in Canterbury Cathedral – that was an amazing experience and one that will never be forgotten.

Could you describe your first job on leaving Kent?

I was fortunate enough to get a job from my second application, which was a miracle given the economic climate at that time. I got the position thanks to some of the skills I gained in my final year project and my Year in Industry.

In my job, I worked closely with a group of project managers at Essex and Suffolk Water to help roll out a company-wide project. My day-to-day work involved testing the new systems, communicating with the developers and the people who were going to receive the project to ensure that the specifications were being met, creating training material in the form of manuals, presentations and system training, and making sure that all the project targets were being met.

I was able to draw upon my learning at University to do my job well and efficiently.

EXCELLENT PROSPECTS

Six months after graduation in 2009, only 4.8% of Kent's graduates were without a job or study opportunity.

CHOOSING YOUR DEGREE PROGRAMME

All our degrees use Java and equip you with programming, modelling and design skills. A Year in Industry option is available with all the degrees offered by the School of Computing.

To make sure you choose the right degree, we give you the freedom to switch between closely related courses in the early stages of your studies. All our degrees are based at the Canterbury campus except for Information Technology degrees which are at the Medway campus.

Computer Science: single honours

Our Computer Science and Web Computing degrees focus on the technical aspects of computing. We offer Computer Science as a 'general' degree and as a 'themed' degree.

- The general degree in Computer Science leaves you free to combine your module options in the way you choose. You can decide to keep your degree broad-based throughout or you can specialise later on, once you have gained more experience in the subject. If you want to keep your options open, then the general form of the degree is for you.

- The themed degree is based on the general degree but has a subject focus and this appears in the degree title. We offer four themed degrees, focused on artificial intelligence, business, consultancy or networks. You will still have a choice of module options but there will be compulsory modules for the focus subject. Having a themed degree in your CV identifies you as having greater knowledge in a particular area, and this may give you an advantage when you look for work after graduation. If you have a special interest which you would like to pursue, then a themed degree is for you.

Computer Science

This general degree covers the core subjects of program design and implementation using Java, and software engineering, as well as offering a broad range of computer science topics including operating systems, computer architectures, computer security and dynamic web.

Computer Science (Artificial Intelligence)

This degree covers the core elements of Computer Science as well as a broad range of AI techniques, including neural networks, and evolutionary algorithms, which draw on philosophy and psychology.

Computer Science (Consultancy)

This degree covers the core elements of Computer Science and offers practical consultancy work as a student consultant in the Kent IT Clinic.

Computer Science (Networks)

This degree covers the core elements of Computer Science and looks at distributed systems, such as the internet and mobile phone networks, and how to make those systems secure using techniques such as cryptography.

Web Computing

This covers software engineering and other core computer science topics and also gives you an excellent understanding of web software development, e-commerce and internet security.

Computer Science: joint honours

Mathematics and Computer Science

This degree combines the core elements of Computer Science and Mathematics. For more details on the joint subject area, see the leaflet on Mathematics and Statistics.



Computing: joint honours

Computing joint honours degrees are shared with another subject. The computing element of the degree focuses on the practical uses of computers rather than on the technical aspects. Central to the computing element are programming and information systems. You can also choose from a wide range of topics which focus on computer applications including web publishing and electronic commerce.

Computing and Business Administration

Your time is divided between a business-oriented, practical approach to Computing and the study of Business Administration. For more details, see Kent's leaflet on *Business Administration*.

Other Computing degrees

Computing joint honours with 'and' in the title means your time is divided equally between computing and your joint subject. Joint honours options include the following:

Computing and...

- Classical & Archaeological Studies
- English and American Literature
- Film Studies
- French
- German
- Hispanic Studies
- History
- Philosophy.

Other degree subjects

If you are planning to take your degree in another subject but would like to have Computing as part of your studies, choose a degree 'with Computing'. A quarter of your time will be spent studying Computing.

Options include:

- Economics with Computing
- Social Policy with Computing.

Information Technology

Kent's Information Technology degrees are based at the Medway campus and focus on software applications and their use within a commercial context.

For more details, see our *Information Technology* leaflet.



STUDYING AT STAGE 1

Your first year of study is known as Stage 1. At this level, you learn how to program in an object-oriented language; no previous programming experience is required.

Each module has about four to five hours of lectures, private study and practical work per week. Practical work starts with weekly small-scale exercises.

The marks from Stage 1 do not go towards your final degree grade, but you must pass in order to continue on to Stage 2. If you choose to do the Year in Industry then your marks from Stage 1 will be used by employers to assess your suitability for a placement.

For joint honours programmes, including Computing and Business Administration, half of your credits are taken in Computing; the others are in your joint subject.

A list of typical Stage 1 modules follows. Please note that the exact modules are subject to change.



Modules for all Computer Science degrees

- Computer Systems
- Introduction to Object-Oriented Programming
- Further Object-Oriented Programming
- Foundations of Computing I
- Introduction to Information Systems

Modules for specific degrees

Computer Science

- Foundations of Computing 2
- Managers and Organisations
- Web Applications

Computer Science (Artificial Intelligence)

- Foundations of Computing 2
- Introduction to Philosophy
- Web Applications

Computer Science (Consultancy)

- Foundations of Computing 2
- Managers and Organisations
- Web Applications

Computer Science (Networks)

- Foundations of Computing 2
- Managers and Organisations
- Web Applications

Web Computing

- Interaction Design
- Managers and Organisations
- Website Design

Modules for Computing (joint honours) degrees

Computing and Business Administration

- Introduction to Object-Oriented Programming
- Financial Accounting, Reporting and Analysis

STUDYING AT STAGE 1 (CONT)

- Further Object-Oriented Programming
- Introduction to Information Systems
- Introduction to Marketing
- Managers and Organisations
- Web Applications

You also take one of the following:

- Computing for Business and Accounting
- Global Business Environment
- Microeconomics for Business.

Other Computing degrees

You take two Computing modules including one of the following:

- Introduction to Business-Oriented Programming
- Web Applications.

Credits are also taken in your joint subject area.

Modules: Stage 1

Modules taught by the School of Computing

Computer Systems

Computer systems are the fundamental components and behaviours (hardware and software) of a typical computer system. This module explores the fundamentals of how computer systems collaborate to manage resources and provide services. It also gives you an introduction to computer architecture and operating systems, and looks at the important topic of communications.

Computing for Business and Accounting

This module covers the theoretical knowledge and practical computing skills you need to make full use of computers and information technology across other modules. It does not assume any previous knowledge of computers. Topics covered include operating systems, computer networking, wordprocessing, spreadsheets, databases, and the use of electronic mail. The principles of designing spreadsheet applications is covered in detail.

Foundations of Computing 1 & 2

Construction of computer programs often requires some understanding of mathematics – either directly (for example, in graphics programming) or indirectly (for example, to prove the correctness of programs).

These two modules teach the mathematical foundations of computer science, using examples that relate directly to the field of computing.

Introduction to Information Systems

Information systems (IS) are interrelated components that collect, process, store and disseminate information to support decision making, control, analysis and visualisation. They include manual processes and people, as well as hardware and software, and are vital to the success of every

organisation. In this module you study IS technology and some of the tools and techniques necessary to build and use information systems.

Introduction to Object-Oriented Programming

Programs are fundamental building blocks of computing systems. This module introduces the design and implementation of programs using Java, which is a programming language that describes systems as interrelated objects. It uses an objects-first approach to cover the principles of object-orientation, modelling, and testing, and gives you the practical skills you need to work across a range of modern computing environments.

Further Object-Oriented Programming

A continued look at the areas covered in Introduction to Object-Oriented Programming (see above).

Web Applications

This module introduces the basic principles for designing both websites and individual web pages. You learn how to link applications to web pages, cover the basic concepts of data structuring, and use web-authoring software to create a database application involving a simple user interface. The module also looks at how to program components that improve the usability, robustness and reliability of applications.

Modules taught by the School of Engineering and Digital Arts

Interaction Design

This module focuses on the design and development of interactive systems, looks at the current developments on the WWW – Web 2.0, and explores various prototyping techniques, usability and accessibility.

Website Design

This module looks at designing, publishing and programming for the web. Topics include HTML, CSS, graphics and browsers. You will explore website design issues, use a publishing system such as Macromedia Dreamweaver and learn how to provide dynamic web pages using JavaScript.

Modules taught by Kent Business School

Financial Accounting, Reporting and Analysis

This module gives you an understanding of the relationship between business and accounting and covers the principles underlying a double-entry accounting system; how to prepare primary financial statements from trial balance; the regulatory framework of financial reporting; the annual report and accounts of plcs; the analysis and interpretation of financial statements.

Global Business Environment

You will analyse specific real-world examples of multinational enterprises and international organisations such as the World Trade Organisation, International Monetary Fund, and the World Bank. You will use analytical tools and frameworks to help you understand the complexity and diversity of doing business internationally.

Introduction to Marketing

This module will demonstrate the importance of marketing in competitive and dynamic environments. The centrality of the consumer provides the focus for the module, with the needs of the firm shown in balance with consumers' needs and wants. Key topics include: the marketing concept; the marketing environment; market segmentation and targeting; brand development and management; management of the marketing mix; new product development; and an overview of internationalisation.

Managers and Organisations

This module introduces you to the key concepts and theories of organisational behaviour and management. It integrates organisational theory with practical people management issues. You also explore how the management of people and organisations are shaped by an increasingly complex and dynamic business environment, and the implications for managerial action.

Modules taught by the School of Economics

Microeconomics for Business

This module introduces students to economics and the use of economics in analysing business decisions, strategic behaviour and issues. The module covers business organisations, supply and demand, operation of markets, business in a market environment and alternative theories of the firm.

Modules taught by the School of European Culture and Languages

Introduction to Philosophy

This module begins with an examination of René Descartes' *Meditations on First Philosophy*. These not only provide a comprehensive picture of Descartes' philosophical system but also constitute an admirable introduction to several of the fundamental problems of philosophy. The writings of contemporary philosophers are also used in the study of these problems.

KENT IT CLINIC

All of our degree programmes give you the opportunity to gain work experience as a student consultant with our Kent IT Clinic at Stage 2 or Stage 3.

What is the Kent IT Clinic?

The Kent IT Clinic is a not-for-profit organisation operated by the University of Kent, providing a project-based consultancy service to small businesses in Kent. It uses current students to provide the consultancy work under the guidance of dedicated professional IT staff employed by the University.

Student consultants gain academic credit for the work they do, which counts towards their degree. In its first five years, more than 50 of our undergraduates have worked in the Clinic as student consultants and over 30 consultancy projects have been successfully completed.

How can the Kent IT Clinic help me?

Working for the Clinic can significantly improve your employment prospects. It gives you real work experience, which is invaluable to future employers. Also, when applying for jobs, it gives you the edge over other graduates who have not had this opportunity.

You can try out different aspects of IT consultancy work while still a student and find out what you like to do best, helping you to plan your career.



How do I become a student consultant in the Clinic?

You do not need any previous experience as a consultant but you do need to have successfully completed Stage 1 of a Computer Science-based degree or a Computing joint honours degree. You also need to demonstrate a keen interest in IT and have an aptitude for consultancy work.

You take an introductory module to familiarise yourself with the consultancy environment. You can then choose further modules that involve doing real consultancy assignments for the Clinic.

As a student consultant you work at the University and take the consultancy modules as part of your degree. It is different to the Year in Industry, where you spend an additional year away from the University on placement.

What help is provided?

The Clinic is managed by dedicated, professional staff with a detailed knowledge of the consultancy business. They help and support you through all stages of the process, supporting both your relationship with the customer and the consultancy work you do, and advising you on your final project report.

You are also assigned an academic supervisor to help with the academic aspects of the Kent IT Clinic experience.

STUDYING AT STAGE 2

Your second year of study is known as Stage 2. Subjects covered here often build on Stage 1 modules and cover topics at a deeper level.

Most Stage 2 modules are assessed by coursework and end-of-year examination. Marks from Stage 2 count towards your degree result.

If you are taking a joint honours programme, half of your credits are taken in Computing; the others in your joint subject.

A list of typical Stage 2 modules is as follows. Please note that the exact modules available are subject to change.

Core modules

Each degree has specific modules that students on that programme take. These are as follows:

Computer Science

- Database Systems
- Distributed Systems and Networks
- Functional Programming
- Algorithms, Data Structures and Complexity
- Operating Systems and Architecture
- Software Engineering Practice

Computer Science (Artificial Intelligence)

- Algorithms, Data Structures and Complexity
- Cognitive Neural Networks
- Introduction to Intelligent Systems
- Philosophy of Artificial Intelligence

- Software Engineering Practice
- Database Systems
- Distributed Systems and Networks

Computer Science (Consultancy)

- Database Systems
- Software Engineering Practice
- Algorithms, Data Structures and Complexity
- Distributed Systems and Networks
- IT Consultancy Methods
- Operating Systems and Architecture

Computer Science (Networks)

- Database Systems
- Software Engineering Practice
- Algorithms, Data Structures and Complexity
- Distributed Systems and Networks
- Dynamic Web
- Functional Programming
- Operating Systems and Architecture

Web Computing

- Database Systems
- Software Engineering Practice
- Algorithms, Data Structures and Complexity
- Audio and Video Technology
- Distributed Systems and Networks
- E-Commerce Technology
- Operating Systems and Architecture



STUDYING AT STAGE 2 (CONT)

Computing and Business Administration

- Database Systems
- Further Object-Oriented Programming (if not taken at Stage 1)
- Software Engineering Practice
- Accounting for Management Control and Decision Making
- Managing HR in Contemporary Organisations
- Marketing Strategy
- Strategy Analysis and Tools

Other Computing joint honours degrees

- Further Object-Oriented Programming (if not taken at Stage 1)
- Software Engineering Practice

You also take required modules in your other subject area.

Optional modules

All programmes include optional Computing modules. Options available depend upon which programme you are taking.

Optional modules, include but are not limited to:

- Advanced Programming Techniques
- Algorithms, Data Structures and Complexity
- Cognitive Neural Networks
- Concurrency Design and Practice
- Database Systems
- Distributed Systems and Networks
- Dynamic Web
- Electronic Commerce

- Human Computer Interaction
- Introduction to Intelligent Systems
- IT Consultancy Methods
- IT Consultancy Practice
- Operating Systems and Architecture
- Programming Language Technology.

Optional modules are also offered by other Schools. Those available are subject to change.

Stage 2 modules

Modules taught by the School of Computing

Advanced Programming Techniques

Programmers need to understand software design and be able to choose the right language for an application. This module takes a look at advanced techniques in both low-level and high-level programming languages.

Algorithms, Data Structures and Complexity

This module gives you an understanding of how to design and use linked data structures and analyse the efficiency of some commonly used algorithms. You also gain an understanding of known algorithms (in particular, graph, text manipulation and geometric algorithms) and of computer representation and manipulation of numerical data.

Cognitive Neural Networks

You learn about neural networks, the mathematical equations that they are based on and look at some examples of computation applied to neurobiology and cognitive psychology. This knowledge is put into practice by building neural networks using state-of-the-art simulation technology and using them in the solution of problems.



Concurrency Design and Practice

Parallel processing involves multiple-core processors and the combining of many computers to solve complex problems. The CSP/occam concurrency model is the core of this module. Key ideas include processes, channel communication, layered networks, non-determinism, choice, interfaces, encapsulation and modularity. You discuss issues such as concurrency for design and performance and compare to Java's threads/monitors model.

Database Systems

This module looks at the design, implementation and use of database systems. Topics include: database management systems architecture; data modelling and database design; query languages – recent developments.

Distributed Systems and Networks

You look at the way in which systems are modelled to control the problems that arise from distribution in networks such as the internet and mobile phone networks. The module also introduces the main techniques used to achieve coordinated and consistent use of distributed resources, such as web services.

Dynamic Web

XML is an important language that allows document structures to be described in a way that is easy for programs to process. In this module you learn how to use a range of

XML-based languages to construct web documents containing multimedia content. The module includes client-side scripting in web documents, and server-side configuration in support of dynamic content and interaction with other applications.

Electronic Commerce

Electronic commerce is an increasingly important area for consumers, businesses and national economies. This module looks at its economic and social implications, its drivers and limitations. You learn about the principal features of e-commerce and compare them with traditional forms of trading. You have the chance to implement an end-to-end e-commerce system.

Functional Programming

It is important for computer science graduates to understand there is more than one way to implement a solution to a programming problem. Functional programming offers a radical alternative to conventional programming languages. Programming by specifying what is to be computed rather than listing how it is to be done leads to programs that are not only concise (and hence easier to understand) but also easier to 'prove' correct.

Further Object-Oriented Programming

See Stage 1 listing for details.

Human Computer Interaction

At best, poor design of an interface is an inconvenience; at worst, it could mean injury or even loss of life. You study the principles of user-centred HCI design and learn how to defend the importance of a well-designed HCI in application design. The module includes practical skills in testing an HCI design for usability.

Introduction to Intelligent Systems

You look at the motivation for designing intelligent machines, as well as the philosophical issues. Topics include number methods for knowledge representation and machine learning. In addition, you look at biologically-inspired algorithms, including genetic algorithms, swarm-based methods and artificial immune systems.

IT Consultancy Methods

You must take this if you want to gain consultancy experience in our Kent IT Clinic (see p16). It provides a general appreciation of consultancy and includes managing customer relations and computing for business.

IT Consultancy Practice

In this module you work within the Kent IT Clinic (see p16), typically on a contract for a commercial client, requiring high professional standards. Assignments could involve project management, implementation, quality assurance, testing and marketing.

STUDYING AT STAGE 2 (CONT)

Operating Systems and Architecture

This module covers the principles of computer operating systems and the architectures for which they are designed, you discover how these underlying systems can affect layered software systems. It also looks at the hardware implications of high-level programming language support.

Programming Language Technology

You look at how programming languages are designed and structured. You also examine models ('abstract machines') and methods of analysing complex documents ('parsing').

Software Engineering Practice

To create a complex software system requires a professional approach in analysis, design and implementation. We show you how to deal with problems of scale and complexity by combining software engineering and traditional systems methodologies.

Modules taught by the School of Engineering and Digital Arts

Audio and Video Technology

You explore the audio and video technology that underpins multimedia hardware. You look at camera and display technology, broadcasting standards, digital television principles, MIDI and 3D sound, among others.

E-commerce Technology

This module covers advanced topics related to the internet and electronic commerce. You study the technology needed to build dynamic websites and undertake a project aimed at developing an e-commerce site. You are introduced to techniques used in computer security and encryption.

Modules taught by Kent Business School

Accounting for Management Control and Decision Making

This module introduces you to the role of the accountant in the management information system as well as to accounting techniques and methods which play a role in the organisational decision-making process and control of the business.

Managers and Organisations

See Stage 1 listing for details.

Managing HR in Contemporary Organisations

The topics studied include: the theory of HRM; corporate social responsibility and HRM; human resource planning; recruitment and selection; training and development; performance management and appraisal; reward management; employment involvement and participation; international and comparative HRM.

Marketing Strategy

Integrating theory and practice, you use real market data to lead decisions in marketing strategy. You are expected to be able to identify markets where continuous innovation is possible with the introduction of products with distinctive consumer benefits.

Strategy, Analysis and Tools

You learn how to identify strategic issues and develop strategic options to address them, developing an appreciation of the complexity of strategic decision-making. This also enhances your ability to read business articles from a strategic perspective and to present strategic arguments.

Modules taught by the School of European Culture and Languages

Philosophy of Artificial Intelligence

You look at fundamental issues such as whether machines are capable of intelligence, and what the nature of this intelligence might be. This module also examines proposals for building intelligent machines and the key philosophical arguments related to machine intelligence.

YEAR IN INDUSTRY

More than half of our students choose to do a Year in Industry, between Stages 2 and 3.

Career and study benefits

Employers are very keen to employ graduates who already have work experience. So this year can greatly enhance your job prospects by providing you with real commercial experience. It also allows you to evaluate a career path, and gain knowledge of the working environment. If your placement is a success, you may even be offered a job with the same employer after graduation.

The practical experience also improves your skills in many areas. This means it will be useful during your final year of study, helping you to gain a better degree.

Finding a placement

Our students have been on placements with leading companies in the UK, such as BT, Eli Lilly, IBM, Intel, Microsoft, Morgan Stanley and Thomson Reuters. Some of our students go overseas to our placement partners in Amsterdam and Hong Kong. There are frequent visits to the University by companies who present placement opportunities and interview candidates.

The School has a Placement Office, with a team dedicated to helping you to secure the right placement. They also give advice on placements that are likely to enhance your career prospects, how to write a winning CV and hone your interview skills, and maintain close contact with you during your year away to give you support during your placement.

Salary and benefits

Students usually work for an entire calendar year. Salary and holiday entitlements vary according to the employer you work for. Many students find that they earn enough to be able to save some of their income, and this helps them in their final year of study.

Assessment

Your placement is assessed by employer feedback and academic evaluation. It contributes 10% to the overall degree mark.



“I spent my placement year in Hong Kong working for HSBC. I really enjoyed my time there. I was part of a development and support team and it was awesome to be able to use my knowledge to solve real-life-problems. I worked with teams in Hong Kong, China and France.”

Alex Alferovs

BSc (Hons) Computer Science with a Year in Industry

STUDYING AT STAGE 3

Stage 3 is the final year of study and you are able to choose from a wide range of optional modules, allowing you to specialise in an area of your choosing.

Everyone takes a project module on a topic of their choice. This may be a group project, an individual research project or an IT consultancy project.

Most Stage 3 modules are assessed by a combination of coursework and end-of-year examination. The project is assessed by your individual contribution to the final project, the final report, an oral presentation and a viva examination. Your project counts for at least 25% of the year's marks. Marks from Stage 3 count towards your degree result.

A list of typical Stage 3 modules in each programme is as follows. Please note: the exact modules available are subject to change.

Modules for all degrees

- Project

Core modules for specific degrees

Computing and Business Administration

- Operations and Services Management



Optional modules

All programmes include optional computing modules. Other options depend upon your degree. Stage 2 optional modules are also available if not already taken.

Optional modules include, but are not limited to:

- Advanced Concurrency Design and Practice
- Business to Business Marketing
- Cognitive Neural Networks
- Comparative Programming Languages
- Computer Graphics and Animation
- Computer Networks and Communications
- Computer Security and Cryptography
- Computing in the Classroom
- Computing Law and Professional Responsibility

- Data Mining and Knowledge Discovery
- Electronic Commerce
- Embedded Computer Systems
- Graphs
- Human-Computer Interaction
- IT Consultancy Methods
- IT Consultancy Practice
- Intelligent Media and Security
- International Business
- Mobile and Ubiquitous Computing
- Natural Computation
- Operations and Services Management
- Paradoxes
- Philosophy of Science
- Software Failure and Risk.

Further options in business or philosophy are available for students following a themed degree in these areas.

Modules taught by the School of Computing

Project

You apply the skills acquired in other modules to complete a project. This gives you the chance to explore an area of interest and produce a large piece of work. Prospective employers often ask about projects in interviews and this module helps you to develop professional work practices.

Advanced Concurrency Design and Practice

You study advanced concepts of dynamic parallel programming, based on the CSP model and using Kent's KRoc occam compiler and JCSP Network Edition. Topics include: mobile data, channel-ends and processes; shared channels; extended process synchronisation; priorities; and dynamic network restructuring. You also look at rules for building deadlock-free systems that are free from livelock and starvation.

Cognitive Neural Networks

See Stage 2 listing for details.

Comparative Programming Languages

With thousands of programming languages in existence, what are their similarities and differences? You compare programming languages using an appropriate set of concepts. This helps you to learn new languages and make an informed choice of programming

language. You will also apply your object-oriented programming skills (focused on Java so far) to other object-oriented languages.

Computer Graphics and Animation

This module examines the concepts of computer graphics and animation. You become familiar with technologies, techniques and algorithms for the acquisition, generation, manipulation, presentation, storage and communication of various kinds of graphical data. You then apply this through the development of computer graphics software.

Computer Networks and Communications

This module starts with current computer network and communication technologies. You learn how the hardware and software components are organised and how they actually work (as opposed to how they are used, which is covered in an earlier module). Key topics are then chosen to reveal the nature of state-of-the-art technology and issues that have yet to be solved.

Computer Security and Cryptography

Here you learn about techniques including computer operating systems, distributed applications (such as e-commerce) and embedded systems (from smart cards and pay-TV to large industrial plant and telecommunication systems).

Computing in the Classroom

This module runs under the Undergraduate Ambassadors' Scheme. You promote computing in a local school, where you will begin by observing the class teacher, and progress to small group/whole class teaching. You will devise and run a special computing project with the pupils.

Computing Law and Professional Responsibility

This module will study professional issues within organisations and include topics on data privacy legislation, criminal law relating to networked computer use, and intellectual property rights, including copyright, patent and contract law. Specific topics will change from year to year, as both computer law and professional responsibilities continue to evolve.

Data Mining and Knowledge Discovery

What are the strengths and weaknesses of various data mining and knowledge discovery techniques? How do you choose the most appropriate for any particular task? This module gives you the chance to use a state-of-the-art data-mining tool. You evaluate the quality of the discovered knowledge and can extend data mining concepts and principles to text and web mining.

STUDYING AT STAGE 3 (CONT)

Electronic Commerce

See Stage 2 listing for details.

Graphs

Database design, AI, pattern matching, networking, software engineering, document structuring, web navigation and scheduling all depend on graph representation and algorithms. Graphs are also a useful tool for demonstrating computer science principles such as complexity and searching. This module explains how we use graphs in application areas, issues in graph algorithm design and the techniques for presenting graphs to users.

Human Computer Interaction

See Stage 2 listing for details.

IT Consultancy Methods

See Stage 2 listing for details.

IT Consultancy Practice

See Stage 2 listing for details.

Mobile and Ubiquitous Computing

In this module, you look at the hardware devices, communication and software infrastructures and environments used in small devices such as mobile phones, as well as in ubiquitous computing contexts. Topics include current practice and professional and ethical issues, particularly those relating to security and privacy.

Natural Computation

You examine developments in biological-inspired computation and other areas such as quantum computing. There is also a practical element to the module; you gain knowledge of a widely-used computing paradigm – genetic algorithms (GA). Topics covered include evolutionary computation, swarm intelligence and artificial immune systems.

Software Failure and Risk

The module introduces you to the culture of software failure by providing an appreciation of risk and risk analysis. We aim to make you aware of possible sources of risk (project, process and product) and to provide you with the theory of analysing risk, and techniques to put into practice. You gain experience using case studies in the area of safety critical systems.

Modules taught by the School of Engineering and Digital Arts

Embedded Computer Systems

This module examines the control and organisational centre of an electronic or mechanical system, and looks at issues related to time critical systems. It also provides exposure to practical embedded systems design through substantial practical work.

Intelligent Media and Security

This module introduces important techniques and applications for automated intelligent processing, including image processing, media security and biometrics, and neural network systems.

Modules taught by Kent Business School

Business to Business Marketing

This module is about marketing to businesses and/or organisations in contrast to individual consumers. You will gain an understanding about the distinctiveness of business markets as compared to consumer markets and acquire the ability to analyse and respond to managerial problems in managing business markets.

International Business

The module gives you an understanding of the complex environment in which international business takes place and the ways that companies deal with these challenges.

The first part examines the political, economic and cultural environments that affect business. The second part is dedicated to analysing the ways in which international business performs main functions such as human resource management, marketing and finance in an international context.

Operations and Services Management

This deals with the management of service operations: that part of any organisation that produces and delivers services required by customers of the organisation. The module provides a clearly structured qualitative treatment of service management that explores the design of service delivery systems and how customer service quality can be managed.

Strategic HR Management

This introduces you to the key concepts of managing people, looking at organisational, HR management and industrial relations theory. You relate theory to practical issues in people and organisational management.

Modules taught by the School of European Culture and Languages

Paradoxes

This module introduces you to a range of philosophical issues surrounding the nature of paradoxes and their resolution. The Sorites, Liar and Surprise Examination paradoxes will be examined and the philosophical progress on the solution of these paradoxes will be assessed.



Philosophy of Science

Why is science successful? To what extent should we believe what scientists say? Is science a mechanical process? The philosophy of science addresses such questions as these. Topics studied include the nature of scientific theory change, the status of scientific claims, the methodology of scientific reasoning, and the prospects for automating scientific reasoning.

VISITING OUR CAMPUS AND APPLYING TO KENT

Come along for an Open Day or a UCAS Visit Day and see for yourself what it is like to be a student at Kent.

Open Days

Open Days are held in July and October for potential students, and their families and friends, to have a look round the campus. The day includes a wide range of subject displays, demonstrations and informal lectures and seminars, and the chance to tour the campus with current students to view accommodation and facilities. For more information, see www.kent.ac.uk/opendays/

UCAS Visit Days

UCAS Visit Days take place between December and April and include a tour of the campus with student guides, lunch in one of the colleges, an opportunity to ask questions of a panel of Computing staff and students, and a talk about university life. You also have the chance to talk to one of the academics and discuss any queries about the course. For more details, see www.kent.ac.uk/visitdays/

Informal visits

You are welcome to visit the campus at any time. We produce a leaflet that can take you on a self-guided tour and you may be able to meet up with an academic member of staff. For more details, please contact the Information and Guidance Unit (see right).

More information

For more information about the University, or to order another subject leaflet, please contact the Information and Guidance Unit.

Tel: 01227 827272 Freephone (UK only): 0800 975 3777
Email: information@kent.ac.uk

You can also write to us at: Information and Guidance Unit, The Registry, University of Kent, Canterbury, Kent CT2 7NZ

For the latest departmental information, please see www.cs.kent.ac.uk



Terms and conditions: The University reserves the right to make variations to the content and delivery of courses and other services, or to discontinue courses and other services, if such action is reasonably considered to be necessary. If the University discontinues any course it will endeavour to provide a suitable alternative. To register for a programme of study, all students must agree to abide by the University Regulations (available online at: www.kent.ac.uk/regulations/).

Data protection: for administrative, academic and health and safety reasons, the University needs to process information about its students. Full registration as a student of the University is subject to your consent to process such information.

Location

Canterbury

Award

BA (Hons), BSc (Hons).

Degree programme**Single honours**

- Computer Science (G400)
- Computer Science with a Year in Industry (G404)
- Computer Science (Artificial Intelligence) (G4G7)
- Computer Science (Artificial Intelligence) with a Year in Industry (G4GR)
- Computer Science (Consultancy) (G403)
- Computer Science (Consultancy) with a Year in Industry (G406)
- Computer Science (Networks) (G421)
- Computer Science (Networks) with a Year in Industry (G420)
- Web Computing (G450)
- Web Computing with a Year in Industry (G451)

Joint honours

Computer Science and...

- Mathematics (GG41)
- Mathematics with a Year in Industry (GGC4)

Computing and...

- Business Administration (GNL2)
- Business Administration with a Year in Industry (GNK2)
- Classical & Archaeological Studies (QG84)
- English & American Literature (QG34)
- Film Studies (WG64)
- French (RG14)

- German (RG24)
- Hispanic Studies (GR44)
- History (VG14)
- Philosophy (VG54)

Degrees 'with' Computing

You spend less than half of your time studying Computing.

- Economics (L1G4)
- Social Policy (L4G4)

Typical offer levels**Computer Science degrees:**

A/AS level 320 points (3.5 A level equivalents inc 3 A level passes), IB Diploma 33 points inc 5 in Mathematics (6 in Mathematics Studies) or IB Diploma with 16 points at Higher inc 5 in Mathematics (6 in Mathematics Studies).

BTEC National Diploma: Distinction, Distinction, Merit overall.

Direct entry to Stage 2: typically, Distinction at HND level.

Computing degrees:

A/AS level 280/300/320/340 points inc BC/BB/AB/AA at A level, or AAB at A level, depending on other subject, IB Diploma 33 points or IB Diploma with 14/15/16 points at Higher.

BTEC National Diploma: Distinction, Distinction, Merit overall.

Direct entry to Stage 2: typically, Distinction at HND level.

Required subjects

GCSE Mathematics grade C.

Year abroad

If you are studying a modern language, you will spend a year abroad as part of your course.

Year in Industry

Available on many programmes (see left).

Professional recognition

G400, G404, G4G7, G4GR: These have full Chartered IT Professional (CITP) accreditation from the British Computer Society (BCS).

GNL2, GNK2: These have partial BCS CITP accreditation.

G403, G406, G421, G420: Full accreditation has been applied for.

Foundation programme

International students can take a foundation programme at Kent in order to gain the necessary entry requirements.

See www.kent.ac.uk/studying/foundation

For latest course information, including entry requirements, see: www.kent.ac.uk/ug

COME AND VISIT US

We hold Open Days at our Canterbury
and Medway campuses twice a year.

For more information, see:
www.kent.ac.uk/opensdays