

UNIVERSITY OF KENT

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she passes the programme. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found [*either* by following the links provided *or* in the programme handbook]. The accuracy of the information contained in this specification is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

Degree and Programme Title

1. Awarding Institution/Body	University of Kent
2. Teaching Institution	University of Kent
3. Teaching Site	Canterbury
4. Programme accredited by:	See section 17
5. Final Award	BSc (Hons), BSc, Diploma, Certificate
6. Programme	Web Computing, Web Computing with a Year in Industry
7. UCAS Code (or other code)	G450, G451
8. Relevant QAA subject benchmarking group(s)	Computing 2007
9. Date of production/revision	March 2013
10. Applicable cohort(s)	2012 entry

11. Educational Aims of the Programme

The programme aims to:

1. To provide a programme which will attract and meet the needs of students contemplating a career in computing with a particular emphasis on current and future web technologies.
2. To produce graduates who have an informed and critical technical understanding of how the web can be used to deliver information and services to a diverse range of users.
3. Provide a sound knowledge and a systematic understanding of the basic computing principles and techniques which underpin web systems.
4. Prepare students to make an intellectual contribution to a broad and rapidly changing field.
5. Provide teaching which is informed by current research and scholarship and which requires students to engage with aspects of work at the frontiers of knowledge.
6. Offer a range of options to enable students to match their interests and study aspects of the field in more depth.
7. Provide proper academic guidance and welfare support for all students.
8. Develop general critical, analytical and problem-solving skills that can be applied in a wide range of computing and non-computing settings.
9. For the programme “with a Year in Industry”, provide an opportunity for students to develop their knowledge, understanding and skills within a relevant industrial or commercial setting.

<p>12. Programme Outcomes</p> <p>The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the subject benchmarking statement for Computing (SB).</p>	
Knowledge and Understanding	Teaching/learning and assessment methods and strategies used to enable outcomes to be achieved and demonstrated
A. Knowledge and Understanding of:	
<ol style="list-style-type: none"> 1. Hardware: the major functional components of a computer system. 2. Software: programming languages and practise; tools and packages; computer applications; structuring of data and information. 3. Communication and interaction: basic computer communication network concepts; communication between computers and people; the control and operation of computers. 4. Practise: problem identification and analysis; design development, testing and evaluation. 5. Theory: algorithm design and analysis; formal methods and description; modelling. <p><i>Outcomes specific to:</i></p> <p><i>Year in Industry programme</i></p> <p>13. Aspects of the core subject areas from the perspective of a commercial or industrial organisation.</p>	<p>Teaching/Learning</p> <p>Acquisition is through lectures, supported where appropriate by classes and/or laboratory work. Self-directed learning is facilitated by directed reading, study guides and web-based material.</p> <p>Core aspects of computing and web technologies are covered in the first stage when there is an emphasis on supporting students via supervised classes and laboratory sessions. These core components are built on in stage 2 with more emphasis on self-directed study via directed reading and research. In stage 3, the project provides an opportunity for independent and/or group work under supervision from academic staff.</p> <p>Assessment</p> <p>Assessment is through a combination of unseen written examinations, assessed coursework and both individual and group project work. Coursework consists of both written reports and practical assignments.</p>
Skills and Other Attributes	
B. Intellectual Skills:	
<ol style="list-style-type: none"> 1. Modelling: knowledge and understanding in the modelling and design of computer-based systems in a way that demonstrates comprehension of the trade-off involved in design choices. (CO-SB 3.2) 2. Reflection and communication: 	<p>Teaching/Learning</p> <p>Intellectual skills are developed through the teaching and learning programme outlined below. Students develop critical reflection by verbal and written discussion of key themes introduced in the core modules. Project work</p>

<p>present succinctly to a range of audiences rational and reasoned arguments (CO-SB 3.2)</p> <p>3. Requirements: Identify and analyse criteria and specifications appropriate to specific problems and plan strategies for their solution (CO-SB 3.2)</p> <p>4. Criteria evaluation and testing: Analyse the extent to which a computer- or web-based system meets the criteria defined for its current use and future development. (CO-SB 3.2)</p> <p>5. Methods and tools: Deploy appropriate theory, practices, and tools for the specification, design, implementation, and evaluation of computer- or web-based systems. (CO-SB 3.2)</p> <p>6. Professional responsibility: Recognize and be guided by the professional, economic, social, environmental, moral and ethical issues involved in the sustainable exploitation of computer technology. (CO-SB 3.2)</p> <p>7. Computational thinking: demonstrate a basic analytical ability and its relevance to everyday life. (CO-SB 3.2)</p> <p><i>Outcomes specific to:</i> <i>Year in Industry programmes</i></p> <p>8. Apply some of the intellectual skills specified for the programme from the perspective of a commercial or industrial organisation.</p>	<p>contributes to the development of these skills by providing the opportunity to consider larger practical and theoretical problems.</p> <p>Assessment Assessment is through a combination of unseen written examinations, assessed coursework and both individual and group project work. Coursework consists of both written reports and practical assignments.</p>
<p>C. Subject-specific Skills:</p> <p>1. Design and implementation: Specify, design, and implement computer-based systems. (CO-SB 3.2)</p> <p>2. Evaluation: Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem (CO-SB 3.2)</p> <p>3. Information management: Apply the principles of effective information management,</p>	<p>Teaching/Learning</p> <p>Acquisition of computing and web specific skills is through lectures, classes and directed study. From the start of the course, students receive guidance and gain practical experience via supervised practical classes and directed study. As the programme progresses, these skills are further encouraged by the introduction of larger scale problems and</p>

<p>information organisation, and information-retrieval skills to information of various kinds, including text, images, sound, and video. (CO-SB 3.2)</p> <p>4. Tools: Deploy effectively the tools used for the construction and documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.</p> <p>Operation: Operate computing equipment and software systems effectively. (CO-SB 3.2)</p> <p><i>Outcomes specific to:</i> <i>Year in Industry programmes</i></p> <p>13. Apply some of the subject-specific skills specified for the programme from the perspective of a commercial or industrial organisation.</p>	<p>project work.</p> <p>Assessment</p> <p>Assessment is through a combination of unseen written examinations, assessed coursework and both individual and group project work. Coursework consists of both written reports and practical assignments.</p>
<p>D. Transferable Skills:</p> <ol style="list-style-type: none"> 1. Teamwork: Be able to work effectively as a member of a development team. (CO-SB 3.3) 2. Communication: Make succinct presentations to a range of audiences about technical problems and their solutions. (CO-SB 3.2) 3. Information Technology: Effective use of general IT facilities; information retrieval skills (CO-SB 3.3) 4. Numeracy: understand and explain the quantitative dimensions of a problem (CO-SB 3.3) 5. Self management: Managing one's own learning and development, including time management and organisational skills (CO-SB 3.3) 6. Professional Development: Appreciating the need for continuing professional development in recognition of the need for lifelong learning (CO-SB 3.3) 	<p>General IT facilities are used throughout the course for the preparation of written work. Browsers, search engines and catalogues are used for research and self-study material. All students work within teams during the course and provide presentations of their work to both their peers and academic staff.</p> <p>Assessment</p> <p>Assessment is through a combination of unseen written examinations, assessed coursework and both individual and group project work. Coursework consists of both written reports and practical assignments.</p>
<p>For more information on the skills provided by individual modules and on the specific learning outcomes associated with the Certificate, Diploma and non honours degree awards see the module mapping.</p>	

13. Programme Structures and Requirements, Levels, Modules, Credits and Awards

The Web Computing programme is studied over three years full-time with an additional industrial placement year for the “Year in Industry” variant.

Study is undertaken at three levels (one for each year of study). Each year of the programme is arranged in 2 x 12-week terms and a final 6-week term, 30 weeks in total. The programme is divided into study blocks called modules. Most modules have a credit value of 15 or 30 credits. Each 15-credit module represents approximately 150 hours of student learning, endeavour and assessment.

All students take required modules. All students must take in every stage, modules amounting to 120 credits, making up their choices from the list of optional modules. Required modules must be passed before students progress to the next stage of the programme.

The programme is divided into three stages for Web Computing programme and four stages for the “Year in Industry” programme. Each stage comprising 120 credits represents an academic year of study and students must achieve specified requirements before being permitted to proceed to the next stage.

Classification of degrees is based on the overall average of marks obtained after the first stage, taking into account weightings for examinable modules and the following stage weightings:

Three stage programmes:	Stage 2	40%
	Stage 3	60%
Year in Industry programmes:	Stage 2	35%
	Stage S (Placement Year)	10%
	Stage 3	55%

In Stage 3 students undertake a compulsory 30- or 45-credit project and may select up to six 15-credit modules depending on the programme from a selection of optional modules. The optional modules are primarily research led and consequently the list of modules will vary according to emerging research interests and the availability of individual academics.

The structure of the programme and the modules that make it up, their levels, credits and the terms in which they are taught, are shown below. Details of each module can be found at <http://www.cs.kent.ac.uk/teaching/>

At its discretion the University allows for narrow failure in a small proportion of modules to be compensated by good performance in other modules or, in cases of documented illness or other mitigating circumstances, condoned. Failure in certain modules, however, may not be compensated or condoned, as indicated by the symbol * below.

Details of programme structure and requirements are subject to change without notice.

The programme is studied over three years full time. It is divided into three stages each comprising 120 credits and students must successfully complete each stage before being permitted to proceed to the next stage. A degree without honours will be awarded where students achieve 300 credits with at least 150 credits at level I or above including at least 60 credits at level H or above. Students may not progress to the non-honours degree programme; the non-honours degree programme will be awarded as a fallback award only

Students successfully completing Stage 1 of the programme and meeting credit framework requirements who do not successfully complete Stage 2 will be eligible for the award of the Certificate. Students successfully completing Stage 1 and Stage 2 of the programme and meeting credit framework requirements who do not successfully complete Stage 3 will be eligible for the award of the Diploma. For an award in two subjects at least 37.5% of the credits should come from each half of an 'and' and at least 65% of the major and at least 25% of the minor for a 'with' award

Code	Title	Level	Credits	Term
Stage 1				
Required Modules				
EL331	Introduction to Internet Technology	C	15	1
EL337	Digital Visual Narrative	C	15	2
CO320	Introduction to Object-Oriented Programming	C	15	1
CO322	Foundations of Computing 1	C	15	1
CO334	People and Computing	C	15	1
CO323	Databases and the web.	C	15	2
CO520	Further Object-Oriented Programming	I	15	2
CO324	Computer Systems	C	15	1
Stage 2				
Required Modules				
EL538	Interaction Design	I	15	2
EL640	Mobile Application Design	H	30	1 & 2
CO510	Software Engineering	I	30	1 & 2
CO518	Algorithms correctness and efficiency	I	15	1
CO527	Operating Systems and Architecture	I	15	2
CO532	Database Systems	I	15	2
Stage S (Year in Industry programme only)				
Required Modules				
CO790	Sandwich Placement*	I	120	1 + 2
Stage 3				
Required Modules (one of)				

CO600	Group Project*	H	30	1 + 2
CO620	Research Project*	H	30	1 + 2
CO650	ITC Project *	H	30	1 + 2
EL600	Solo Project*	H	45	1 + 2
<i>Optional Modules (indicative)</i>				
CO633	Computer Networks and Communication	H	15	1
CO634	Computer Security and Cryptography	H	15	1
CO636	Cognitive Neural Networks	H	15	1
CO637	Natural Computation	H	15	1
CO639	Electronic Commerce	H	15	2
CO645	IT Consultancy Practice 2	H	15	2
EL639	Videogames Design	H	15	1
CO641	Computer Graphics and Animation	H	15	1
CO643	Computing Law & Professional Responsibility	H	15	2
CO646	Computing in the Classroom	H	15	2
EL667	Embedded Computer Systems	H	15	1 + 2
EL561	Image Analysis and Applications	I	15	1 + 2
CO831	Mobile and Ubiquitous Computing	M	15	2
CO832	Data Mining and Knowledge Discovery	M	15	2

14. Support for Students and their Learning

- Orientation programme for all arriving students
- Introductory talk at the start of each teaching term of Stages 2 and 3
- On-line Student Data System
- Course handbook for all Stages
- An extensive website containing information on all modules including:
 - Module Learning Outcomes
 - module specification
 - details of any classes
 - module assessment
 - course material
 - anonymous question pages
 - copies of course handbooks
 - past examination papers
 - staff/student liaison information including
 - details of student representatives
 - minutes of meetings
- Assignment to a tutor who monitors individual student progress
- University central support services
 - Unit for the Enhancement of Learning and Teaching
 - Careers Service
 - Medical Centre

- Counselling Service
- Computing Service
- Library Service
- Disability and Dyslexia Support Service
- Centre for English and World Languages.
- Administrative support via the Course Administration Office
- Industrial placement support via an Industrial Placement co-ordinator and visits by academic staff

15. Entry Profile

Entry Route

For fuller information, please refer to the University prospectus

Candidates must be able to satisfy the general admission requirements of the University and the subject-specific requirements of the programme.

Please refer to the General Requirements and Web Computing sections in the University prospectus for full details

Note: for students who are not native speakers of English the standard IELTS requirements will apply.

General Minimum requirements:

- You must be at least 17 years old by 20 September in the year you begin your programme. There is no upper age limit to studying.
- Five GCSE passes, including English Language or Use of English, and at least two subjects at A level. See Curriculum 2000 for details of our minimum requirements for the new AS levels tariff.

A levels and AS levels:

- 340 points over 21 units, of which 18 at A level.
- GCSE Mathematics grade C required

International Baccalaureate:

- 33 points

BTEC National Certificates/Diplomas:

- Diploma: DDD overall
- Certificate: counts as double A level (e.g. DD is 240 points)
- BTEC QCF Extended Diploma: DDD overall
- Direct entry to stage 2: typically distinction at HND level

Mature Students

- For mature students without “traditional” qualifications we ask for proof of any recent study or of an ability to complete a degree course successfully

What does this programme have to offer?

- High quality teaching that was rated “Excellent” after a visit by independent assessors from the Higher Education Funding Council
- Teaching that is informed by research activity, using research-led teaching whenever possible
- The development of a broad range of skills that are highly sought after by employers and which open up a wide range of careers to graduates, within Computing and other professional fields.
- Programming, modelling and design skills you can use throughout a career in Computing

- Coverage of software engineering principles which underlie large scale programme construction
- Strong links with Industry that are maintained through an 'Industrial Panel' and which result in industrial placements and joint research projects.
- An optional year in industry that provides valuable experience

Personal Profile

Desirable qualities include:

- an enthusiasm about computing subjects, especially as they relate to web technologies
- a willingness to accept new ideas and be flexible in your thinking
- a willingness to work with others
- good oral and written communication skills
- an interest in developing a career in a web-related area

16. Methods for Evaluating and Enhancing the Quality and Standards of Teaching and Learning

Mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards

- Student evaluation of individual modules taught
- Student representation on key committees
- Periodic programme reviews
- Annual staff appraisal
- Annual programme monitoring reports (includes review of progression and achievement statistics)
- External examiners attending Board of Examiners
- External Examiners' reports
- Departmental staff acting as external examiners at other institutions
- Moderation of examinations and assessed work
- Industrial links
- Evaluation of graduate destination statistics
- Active staff development programme
- QAA Institutional Audit
- Continuous monitoring of student progress and attendance
- Vetting process of examination questions by module team, and external examiners
- External examiners attending Board of Examiners
- External Examiners' reports
- Departmental staff acting as external examiners at other institutions
- Double marking and/or moderation of examinations and some assessed work
- Industrial links
- Evaluation of graduate destination statistics
- Departmental director of learning and teaching
- Module teams

Committees with responsibility for monitoring and evaluating quality and standards

- School of computing Staff/student liaison committee
- Module teams

- Programme Teams
- Board of Studies
- Board of examiners
- School Learning and Teaching Committee
- Faculty and University Learning and Teaching Committees
- Faculty Board
- Programme Approval sub-committee of the University Learning and Teaching Board

Mechanisms for gaining student feedback on the quality of teaching and their learning experience

- National Student Survey
- University Internal Student Surveys
- Student evaluation of individual modules
- Staff/student liaison committee
- Discussions with tutor
- Discussions with senior tutor
- Newsgroups for each year of the programme
- Anonymous question pages for individual modules
- Student programme evaluations
- Informal meetings and social contact with students (including student role in recruitment activities)
- Student representation on department committees
- Student representation on faculty committees
- Student representation on university committees

Staff Development priorities include:

- Newly appointed lecturers, teaching fellows and computing fellows who have no prior teaching experience take part in the University of Kent Postgraduate Certificate in Higher Education qualification
- Staff training of various kinds including appraiser training, interview training, meeting skills etc.
- Study leave is available at the rate of one term in seven
- Participation in staff development week
- Annual appraisal of staff
- Research group support for research-led teaching
- Research seminars
- Annual away-days that cover a number of staff-related issues
- Module team meetings
- Regular formal and informal collaboration in programme development
- Attendance at relevant industry/business conferences/seminars
- Conference attendance (with or without departmental funding)
- Minimum expected qualifications for appointments to lecturing posts
- Minimum expected research record for appointments to lecturing posts
- Membership of relevant professional/academic bodies
- Widening participation
- Health and safety
- Participation on learning and teaching innovative projects

17. Indicators of Quality and Standards

- Degree results and graduate recruitment statistics
- Independent (HEFCE TQA) review of the quality of educational provision in the two contributing departments: Computing Laboratory rated “Excellent”, Electronics Department awarded 21/24.
- Accreditation by the British Computer Society: Full Chartered IT Professional (CITP) and CEng (partial).

The following reference points were used in creating these specifications:

- QAA benchmark statements for Computing (2007)
- Requirements of the British Computer Society.
- Association for Computing Machinery, Computing Curricula 2008
- Staff Research
- University plan/Learning and Teaching Strategy

Learning Outcomes Matrix for Web Computing Programmes

WebComp	A1	A2	A3	A4	A5	A13	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	C4	C13	D1	D2	D3	D4	D5	D6			
Required																												
CO320		X	X							X	X		X	X								X		X				
CO322											X													X	X			
CO324	X	X	X																					X	X			
CO334	X	X	X					X			X												X	X	X	X	X	
CO323		X		X			X			X	X				X	X	X	X				X		X				
CO520	X		X			X				X	X	X		X														
CO510	X	X	X			X	X	X	X	X				X	X	X	X		X	X	X	X	X	X	X	X		
CO518	X		X	X		X		X	X				X		X	X								X	X			
CO527	X	X								X				X	X			X				X	X		X			
CO532		X		X	X		X	X	X					X	X	X					X	X		X				
EL331	X	X	X			X							X									X	X			X		
EL337					X					X														X				
EL538	X		X																X								X	
EL640		X	X							X				X	X		X					X			X	X	X	
Year in industry																												
CO790					X								X						X	X	X	X	X	X	X	X	X	
One of																												
CO600	O	X	O	X	O	O	X	X	X	X	X	O	O	O	X	X	X	X	O	O	X	X	X	O	O	X	X	
CO620	O	X	O	X	O	O	X	X	X	X	X	O	O	O	O	X	X	X	X	O	O	X	X	O	O	X	O	
CO650	X	X	X	X			X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X		
EL600	O	X	O	X	O	O	X	X	X	X	X	O	O	O	X	X	X	X	O	O	X	X	X	O	O	X	X	
Options																												
CO633			X	X			X		X	X	X				X			X			X	X	X	X	X	X	X	
CO634	X	X	X						X	X	X	X			X	X							X	X	X	X		
CO636	X		X			X	X								X					X	X	X		X				
CO637	X		X	X		X						X		X	X								X			X		
CO639		X					X	X	X	X	X	X		X	X	X	X	X			X	X		X		X		
CO641	X	X	X	X		X				X		X		X		X		X			X	X	X	X				
CO643		X	X			X			X	X	X		X														X	
CO645	X	X	X	X		X	X	X	X	X	X		X		X	X	X	X		X	X	X	X	X	X	X		
CO646							X													X	X	X		X	X			
CO831	X	X	X	X		X	X	X		X			X		X	X	X	X			X	X		X		X		
CO832		X		X	X	X		X	X	X	X		X		X	X	X	X			X		X		X		X	
EL561	X			X				X		X			X			X							X					
EL639	X		X	X				X					X			X		X			X	X		X		X		
EL667	X	X	X	X				X	X	X			X	X		X	X	X				X		X		X		

Notes: LOs: A13, B8 and C13 are only required for the Year in Industry version of this degree programme.

Module CO790 is only taken by students taking the year in industry version of this degree programme.