

Faculty: Science Technology and Creative Arts

Title of Programme: Modular BSc Honours in Computer Science

Programme Code: EICSIT

Programme Specification

Start Date: September 2011

Date of Approval: 19 August 2011

Associate Dean (Academic Quality): Petros Khoudian



Signature

Programme Specification **Modular BSc Honours in Computer Science**

This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs) and Module Guides.

Section 1

Awarding Institution/Body	University of Hertfordshire
Teaching Institution	University of Hertfordshire
University/partner campuses	College Lane
Programme accredited by	British Computer Society (BCS)
Final Award	BSc Honours, MEng
	BSc Honours in Computer Science*
	BSc Honours in Computer Science (Software Engineering)*
	BSc Honours in Computer Science (Networks)*
	BSc Honours in Computer Science (Artificial Intelligence)*
	BSc Honours in Computer Science with a year Abroad
	BSc Honours in Information Technology*
	BSc Honours in Information Technology (Web-based Systems)*
	BSc Honours in Information Technology (Entertainment Systems)*
	BSc Honours in Information Technology (Business Systems)*
	BSc Honours in Information Technology with a year Abroad
	BSc Honours in Computer Studies*
	MEng in Computer Science*
	MEng in Computer Science (accelerated)**
	* NB – all awards marked are available with an optional sandwich award
	** NB – industrial placement is compulsory
FHEQ level of award	For BSc awards: Honours (H) – Level 6 For MEng awards: Masters (M) – Level 7
UCAS code(s)	G402 MEng/CS, GG47 BSc/CSAI, G491 BSc/CSNet, GG46 BSc/CSSoft, G404 BSc/CSAm, G400 BSc/CS, G501 BSc/IT, G590 BSc/ITBS, GG54 BSc/ITWbS, GG5K BSc/ITES, G502 BSc/ITAm

A. Programme Rationale

The programme is designed to recruit students who will benefit from the learning opportunities offered, and be able to achieve the specified learning outcomes within the normal timescales of their mode of study. For all the awards no subject specific entry requirements are expected, beyond basic numeracy and literacy at a level equivalent to at least GCSE grade C. Students will be expected to take an increasing responsibility for their own studies and an initial ability to succeed at learning in a supported environment, as demonstrated by a good performance at A Level or equivalent, is required. Students entering the programme with high achievement at A Level (or equivalent) will be offered the opportunity to extend the depth and scope of their knowledge to Level 7, through the MEng awards. The integrated MEng award is

offered in full-time (4 years), sandwich (5 years) and accelerated modes (4 years with compulsory work placement).

The structure of the programme is designed such that there is a core of material, relating to the principles of design and development underpinning programmed computer systems and applications, presented at levels 4 and 5, with opportunities to apply these in a variety of specialist domains being introduced at levels 5 and 6. In addition, levels 5 and 6 offer the opportunities to develop a deeper understanding of theoretical ideas within a practical context. At level 4, the first semester is common to all awards and for the second semester, students are given the opportunity to choose either the Computer Science or the Information Technology theme. Students will be offered learning opportunities which allow them to develop a wide variety of generic skills throughout the three levels, with all of these represented within the core to ensure no students will be denied such opportunities. In addition, students attending in the sandwich mode will undertake a period of industrial placement, where the understanding and skills developed at levels 4 and 5 can be applied within a professional context. Additionally, an alternative to a sandwich placement, a year abroad is offered for those who want to extend their computing related knowledge in the context of a different cultural and academic environment.

Specialist routes through the programme allow students to focus on particular generic application domains at levels 5 and 6. Students, who elect to carry out specialist project work within this domain in order to deepen their understanding of the domain and have passed the contributory modules for a specialist award, will gain that award. Students who wish to retain a broader study path, or who wish to use a particular domain as a vehicle to deepen understanding and develop skills more closely associated with the core relating to the design and development of programmed systems or the use of applications and tools, will be awarded a Computer Science or an Information Technology degree. Students who wish to broaden their study through taught modules only may elect to take an exit award of a Computer Studies degree, which does not contain the depth of an individual project.

Employers typically look for graduates who have good in-depth technical skills or who have the ability to apply technology to meet the real needs of their business or the specific domain. The programme is divided into two overarching and distinct “themes”, both of which cater for the two requirements, but each has a different emphasis. The BSc (Honours) Computer Science has a technical and software development focus across a broad area of the subject, whereas the BSc (Honours) Information Technology has more of a focus on business and applications.

Graduates are equipped for a variety of careers including any areas that involve the design and development of programmed systems, or the use of such systems where an understanding of systems issues is important. This is a very wide area and the development of generic skills has been designed to empower students to continue learning within the contexts of their first and subsequent posts.

B. Educational Aims of the Programme

The programme has been devised in accordance with the University's general educational aims of programmes of study as set out in UPR TL01.

Additionally this programme aims to:

Provide students with opportunities to:

- develop a range of cognitive abilities and skills relevant to the task of designing, developing and evaluating programmed solutions to problems;
- develop a range of practical skills relevant to the task of designing, developing and evaluating programmed solutions to problems;
- develop a range of transferable skills, including clear communication and logical presentation of ideas and arguments and practice them within the context of their studies;
- apply their knowledge and skills to a range of problems and hence begin to develop an appreciation for the social, professional and legal issues involved and the contexts within which solutions arise.

For the MEng awards, it aims to provide students with opportunities to:

- develop Computer Science practices and technical understanding at a breadth and depth beyond BSc Honours level;
- study at a level beyond undergraduate provision, thus enhancing prospects of professional and managerial employment within the context of national and international industries;
- develop the potential to be a leader in the computing profession and with industry and business;
- study Masters-level computing related subjects underpinned by current research practices in a number of fields.

For the Computer Science and Information Technology awards, students will encounter a broad range of activities drawn from a variety of problem domains. In overview:

For the Computer Science award, at a high level, it aims to provide students with opportunities to:

- develop specific in depth technical abilities and skills that are relevant to the design, development and management of computer based systems.

For the Computer Studies award, at a high level, it aims to provide students with opportunities to:

- develop a broad understanding of and practical abilities in a range of computing disciplines.

For the Information Technology award, at a high level, it aims to provide students with opportunities to:

- develop specific information focused and application derived abilities and skills that are relevant to the design, development and management of information technology based systems.

Additionally for either the Computer Science with a Year Abroad or the Information Technology with a Year Abroad awards, it aims to provide students with opportunities to:

- develop understanding of the appropriate subject domain topics within the context of a non United Kingdom cultural environment;
- gain experience of developing appropriate solutions drawn from a variety of problem domains in the context of non United Kingdom cultural environment.

For the other awards, students will acquire a deeper understanding and more specific skills relevant to particular domains and the generic aims can be further refined as follows:

For the Computer Science (Software Engineering) specialist award, it aims to provide students with opportunities to:

- develop the ability to choose suitable tools and techniques for software development depending on the characteristics of the problem;
- develop an appreciation of good practice in the management of software development and of that process as an engineering discipline;
- develop a responsible and professional attitude to the quality and timeliness of their products;
- develop an appreciation of the role of theory in practical applications.

For the Computer Science (Networks) specialist award, it aims to provide students with opportunities to:

- develop a knowledge of the function of both hardware and software aspects of computer systems;
- gain an understanding of the principles of operation of a wide variety of network technologies;
- develop an appreciation of how network services are developed and a knowledge of their uses;
- gain an understanding of the special problems of the development of concurrent systems, including design, implementation, validation and testing.

For the Computer Science (Artificial Intelligence) specialist award, it aims to provide students with opportunities to:

- gain an understanding of the theoretical basis of Artificial Intelligence;
- acquire the software engineering skills necessary for the design, implementation and testing of Artificial Intelligence systems;
- acquire the requisite mathematical and modelling skills to engineer Artificial Intelligence systems;
- gain experience of a range of applications of Artificial Intelligence and an understanding of their suitability to a range of problem domains.

For the Information Technology (Entertainment Systems) specialist award, it aims to provide students with opportunities to:

- gain an understanding of the theoretical and contextual basis underlying the development of interactive entertainment systems;
- acquire knowledge of the properties of the typical media content employed in entertainment and multimedia systems;
- gain an understanding of how the tools and techniques of media design may be applied to the design and development of entertainment systems;
- develop an appreciation of how hardware and other constraints affect the quality of entertainment systems.

For the Information Technology (Business Systems) specialist award, it aims to provide students with opportunities to:

- gain an understanding of the effects that business information systems have on organisations as a whole and on the individuals who are part of them;
- develop an appreciation of a variety of business information systems environments and contexts of use, such as commercially oriented computing;
- gain a sound understanding of the ethics of business information systems (human, social, legal aspects);
- gain experience of the design, development and management of business information systems.

For the Information Technology (Web-based Systems) specialist award, it aims to provide students with opportunities to:

- gain an understanding of the principles of operation of a wide variety of web-based technologies and their infrastructure;
 - acquire knowledge of the properties of the typical content employed in web-based systems;
 - gain experience of the design, development and management of web-based systems;
 - develop an appreciation of a variety of web-based systems environments and contexts of use, such as e-commerce, information provision and edutainment.
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C. Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced to the QAA benchmark statements for Computing and the framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education 2003 have been used as a guiding framework for curriculum design.

The programme outcomes have been selected to form a coherent educational experience for the students to provide both sufficient breadth for the students to support a wide range of future careers and sufficient exposure to theoretical and fundamental issues to support life-long learning in the discipline. The theme of the programme is one of designing and developing programmed solutions to problems, recognising the complexity of interaction between people and systems. Students will be given the choice of either specialising (at levels 5 and 6) in particular application domains, or maintaining breadth. Within this theme students will gain an understanding of programmed computer systems, how they operate, the contexts within which they operate and the theories which govern aspects of their operation. Practice is used as a way of exploring theory through its application

Knowledge and Understanding of:	Teaching/learning methods & strategies	Assessment
<p>A1 - The methodology of software development and a subset of the tools, notations and techniques appropriate to the various stages of development, from problem identification to system implementation and evaluation.</p> <p>A2 - The complexity of interactions between agents, which could be human or programmed systems, at various levels and the implications of this for the software designer.</p> <p>A3 - The context within which a professional software designer operates and implications for professional practice including the moral, legal, safety and ethical issues involved.</p> <p>Additionally for BSc Computer Science and specialist awards:</p> <p>A4 - A broad understanding of the theories and principles relevant to the design and development of programmed systems and their subsequent use in specific contexts.</p> <p>Additionally for BSc</p>	<p>Acquisition of knowledge and understanding is through:</p> <p>At level 4, A1-A5 are introduced via specific topics using lectures, tutorials, practicals and guided self-study to introduce and consolidate ideas and understanding. The material is integrated via the core theme of programmed system design and students will be helped to see these topics within this framework. Tasks will, in general, however, concentrate on building proficiency and confidence at the topic level and students will not be expected to work at the systems level without considerable support.</p> <p>At level 5, additional topics addressing A1-A5 will be introduced using lectures, tutorials, practicals and guided self-study and students will be expected to start integrating material and adopting a more critical and analytical attitude to system design. Their learning opportunities will afford insights into the range of options available for solving design problems and therefore into the selection of appropriate methodological and system components, as well as of their evaluation. The core theme will continue to be developed explicitly and generically, but students will also have the</p>	<p>Knowledge and understanding at level 4 are assessed through testing of knowledge and understanding in A1, A2, A4 and A5 through a combination of unseen examinations, in-course tests and coursework. A3 is not assessed specifically at this level. Coursework exercises will concentrate on specific topics, within a provided framework, rather than on substantive design tasks.</p> <p>At level 5, A1-A5 will be assessed through a combination of unseen examinations and coursework, including a more substantial element of project-type activity which will involve students in design tasks and give them experience of the issues that arise from group working on such projects. Students passing the six core modules will be deemed to have met the minimum threshold level in A1-A5 necessary to progress to examination for an Honours award.</p> <p>At levels 6 and 7 (where</p>

Information Technology and specialist awards

A5 - A broad understanding of the theories and principles relevant to the design and development of information technology and business systems and their subsequent use in specific contexts.

Additionally for BSc Computer Science (Software Engineering):

A6 - An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of programmed systems.

Additionally for BSc Computer Science (Computer Networks):

A7 - An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of computer networks and systems operating in a networked environment.

Additionally for BSc Computer Science (Artificial Intelligence):

A8 - An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of mechanisms enabling intelligence of various kinds in humans, robots and information processing systems.

Additionally for BSc

opportunity to specialise (A1 and A2) within more restricted domains (A4 and A5) of interest through their chosen electives. A3 will continue to be addressed explicitly via lectures, tutorials and guided self-study on specific topics, reinforced by expectations of good practice throughout.

The industrial placement offers the opportunity to contextualise A1, A2, A4 and A5 in a working environment and to continue development of A3 through interaction with other professionals in the discipline.

At levels 6 and 7 (where applicable), students are expected to integrate new material supportive of A1-A5 into the core theme with a minimum of support and take responsibility for the selection and use of theories, principles and methods in particular contexts (A6-A13 where applicable), developing their understanding of these independently if required. This understanding is expected to include an appreciation of the limits of applicability of theories, the uncertainty and inherent open-endedness of many practical problems in computing and of the human and societal constraints on approaches to problem solution. Some material will be presented via lectures and tutorials, but a significant component will be gained through self-study, some of it unguided.

Students are expected to continue their development in A3 outside of their formal studies as they start to consider their future careers and they will be supported in this by a range of activities such as research seminars and careers talks.

Throughout, the learner is encouraged to undertake independent study both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.

applicable), A1-A12 will be assessed through a combination of unseen examinations and coursework (coursework online for online and coursework and/or examination for tutored e-learning), including a substantial component of individual project activity, where students need to establish the framework within which work is carried out, select and apply the techniques and knowledge relevant to specific problems encountered and evaluate proposed solutions with reference to relevant published research or works of advanced scholarship. A13 is assessed through a range of examinations and coursework.

At levels 6 and 7 (fulltime and sandwich awards only) A3 is also assessed through the professional industrial placement and a professional issues module.

For MEng (accelerated), A3 at Level 7 is also assessed through a team based project.

**Information Technology
(Web-based Systems):**

A9 - An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of computer systems operating in a web-based environment.

**Additionally for BSc
Information Technology
(Entertainment Systems):**

A10 - An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of computer based entertainment and multimedia systems.

**Additionally for BSc
Information Technology
(Business Systems):**

A11 - An in depth understanding of the theories and principles relevant to the specification, design, implementation, evaluation and use of computer based systems employed within a business context.

**Additionally for the MEng
Computer Science
Programmes:**

A12 - A deeper and systematic understanding of the advanced principles and theories of design, implementation and management of software.

**Additionally for the BSc
Computer Studies award:**

A13 - A broad understanding of the principles of a range of computing related domains

Practical skills - able to:	Teaching/learning methods & strategies	Assessment
<p>B1 - Use specific tools, techniques, notations and methods in the context of the design and development of programmed computer systems.</p> <p>B2 - Use computer systems and associated technology to support the development of programmed systems.</p> <p>B3 - Engage in effective discussion of technical information as appropriate to the system design and development task.</p> <p>B4 - Carry out design activities ranging from initial problem identification to system implementation and evaluation as an individual, or participate as a member of a team carrying out a subset of these activities.</p> <p>Additionally for BSc Computer Science and specialist awards: B5 - Design, implement and evaluate systems as characterised by Computer Science approaches, methodologies and practices.</p> <p>Additionally for BSc Information Technology and specialist awards B6 - Design, implement and evaluate systems as characterised by Information Technology approaches, methodologies and practices.</p> <p>Additionally for BSc</p>	<p>B1, B2 and B3 are addressed throughout the levels using lectures and tutorials for the presentation of instructional material, with practicals, independent study and project work offering the opportunity to practise the skills in a supportive environment. The amount of instructional material will decrease as the programme progresses, with students being expected to take an increasing responsibility for developing their own skills and identifying resources to support this development. B4 will also be addressed throughout, but the examples used at level 4 will be very simple and considerable support will be given in problem identification and evaluation.</p> <p>During levels 5, 6 and 7 this support will be reduced and far more open tasks will be set. Students will be exposed to, and expected to utilise, a variety of technologies such as operating environments, programming languages, applications and specification techniques, and at level 6 and 7 they will be expected to extend the skills developed in B1-B7 to the task of evaluating and selecting appropriate candidates for specific tasks by level 6.</p> <p>The industrial placement period offers enhanced opportunities for developing either a wider range of skills, or developing specific skills to higher levels of proficiency.</p> <p>B1-B6 are further developed and deepened through an individual self-defined and managed project at levels 6 and 7.</p> <p>Throughout, the learner is encouraged to further develop intellectual skills by independent study.</p>	<p>At level 4 practical skills B1 and B2 will be assessed directly through coursework, but also indirectly through unseen examinations where understanding developed through activity relying on these skills is required.</p> <p>B3 and B4 are assessed at level 5, through a group design task. Students passing the six modules will be deemed to have met the minimum threshold level in B1-B6 necessary to progress to examination for an Honours award.</p> <p>The design activities encompassed by B4-B6 are also assessed at level 6 (or level 7) via an in depth individual project. The broad range of skills developed by B7 at Level 6 are assessed via a range of coursework assignments and examinations, as defined by the selected modules.</p>

<p>Computer Studies Award B7 - Design, Implement and evaluate systems as characterised by a broad range of computing related domains.</p>		
<p>Transferable skills - able to:</p>	<p>Teaching/learning methods & strategies</p>	<p>Assessment</p>
<p>C1 - Communicate effectively orally, in writing and visually using the conventions, vocabulary and the form and register of academic expression.</p> <p>C2 - Manage their own learning including time management, the organisation and retrieval of information and the identification of personal needs for continuing professional development.</p> <p>C3 - Select and use a variety of modes of discourse, including mathematical, informal and diagrammatic.</p> <p>C4 - Work effectively both independently and/or as part of a team.</p> <p>C5 - Reflect upon their work and the work of others and explain, justify and otherwise defend their work and ideas, with reference to academic, professional issues, debates and conventions.</p>	<p>Transferable skills are developed using a variety of teaching and learning methods and strategies. Students are expected to take an increasing responsibility for their own learning as the programme progresses and are supported in meeting C1 through tutoring and guided independent study using resources provided both locally and centrally (e.g. the Learning Resources Centre runs sessions and produces self-study guides on information retrieval and similar topics).</p> <p>The development of confidence and ability to use more formal, mathematical, modes is addressed at level 4 explicitly. Central support, such as the Mathematics drop-in centre and courses on written and spoken English, are available for students having particular difficulties in meeting aspects of C2. Students are encouraged to form study groups at level 4 and to start building a cooperative rather than competitive attitude towards studying, whilst also taking responsibility for their own individual studies.</p> <p>At level 5, team-working is used explicitly in the context of a design task and students will be supported in meeting C3 through this.</p> <p>The industrial placement offers the opportunity to address C1-C5.</p> <p>At level 6, the project addresses C1-C5, together with the independent aspects of C4. C5 is developed through exposure to contemporary issues at level 6 and beyond.</p> <p>During the course of the</p>	<p>Transferable skills are assessed through a variety of means built into the curriculum. C1 is assessed summatively primarily at level 6, although many assessment tasks at levels 4 and 5 will provide formative feedback to the students. C2 and C3 are assessed at all levels by setting tasks that require different modes of discourse for their completion, with mathematical modes being explicitly assessed at level 4. C4 is assessed for group work at level 5 and sustained individual work at levels 6 and 7, although individual work will obviously have been assessed at levels 4 and 5. C5 is assessed by reviewing the outcomes of assignments at levels 6 and 7 and in order to achieve those outcomes, this skill must be evident.</p>

programme, assessed and non-assessed work encourages the learner to develop a wide range of transferable skills. In level 4, this starts with closely defined and directed assignments. At level 5 the learner is encouraged by more loosely defined projects and at levels 6 and 7, these are supported through the self definition of work in the project.

Throughout, the learner is encouraged to develop transferable skills by maintaining a record of evidence and completing a personal development plan.

D. Programme Structures, Features, Levels, Modules, and Credits

The programme is offered in the following modes: BSc fulltime (3 years), BSc sandwich (4 years), MEng fulltime (4 years), MEng Accelerated (4 years including work placement), MEng sandwich (5 years), BSc online/tutored e-learning (level 6 entry – 2 years) and Part-time. The programme has been developed to satisfy the QAA Computing Benchmark, the Framework for Higher Education Qualifications in England, Wales and Northern Ireland, the British Computing Society and the SEEC (Southern England Consortium for credit accumulation and Transfer) credit level descriptors for higher education. Intake is normally Semester A (September).

For the BSc awards, entry is normally at level 4 with A Level qualifications or equivalent but is possible at level 5, with 120 credits at level 4 from an appropriate programme of study and at level 6 with an appropriate HND, FdSc or equivalent.

For the MEng awards, entry is normally at level 4 (with suitable A-level or equivalent qualifications), but is possible at level 5 with suitable qualifications (e.g. an HND Computing with appropriate subjects studied). Direct entry into level 6 is also possible, for example following successful completion of two years of a similar BSc or MEng degree programme at another HE institution. It is possible for a BSc Honours student to transfer to the MEng or vice versa after level 4 or 5.

In order to transfer from level 4 of the BSc Honours programme to level 5 of the MEng programme, students must have achieved pass grades in all level 4 modules (totalling 120 credits) with at least an upper second class grade profile as defined by UPR AS14. In order to transfer from level 5 of the BSc Honours programme to level 6 of the MEng programme, students must have achieved pass grades in all modules at levels 4 and 5 (totalling 240 credits) with at least an upper second class grade profile as defined by UPR AS14 at each level.

If a student does not meet the requirements to progress to year 3 of the MEng, then the Board of Examiners is empowered to require the student to transfer to the BSc (non-Honours) or the BSc (Honours) degree programme in Computer Science. The study pattern for students transferring onto the BSc (non-Honours) route shall be agreed on a case-by-case basis with the BSc Programme Tutor or Associate Head of School.

In order to progress to the final year of the MEng programme, students must have achieved pass grades in all year 3 modules. If a student has not obtained an upper-second class profile in year 3, the Programme Board of Examiners may choose to offer the student a BSc degree as an exit award.

A student who fails to meet the progression requirements to enter the final year of the MEng programme, or wishes to leave at this stage for any other reason, will be eligible for the award of BSc (Hons) in Computer Science as an exit award subject to achieving pass grades in the appropriate modules.

[Professional and Statutory Regulatory Bodies](#)

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British Computer Society (BCS) accreditation

Work-Based Learning, including Sandwich Programmes

A designated sandwich programme leads to a University award in the sandwich mode and the word “sandwich” appears on the award certificate if at least 48 weeks of approved, supervised work experience is undertaken in addition to the period for the full-time award. Prior to the period of work placement, all students entering level 5 are enrolled on the “Preparation for professional placement in Computer Science” module which helps students the necessary professional skills related to applying for a work placement. During this professional work placement, students are expected to complete a professional work log which forms the basis of the assessment for a zero credit module “Professional Placement work placement in Computer Science”.

A Year Abroad

A "Year Abroad" is an optional additional year that increases the length of the normal Honours degree award to a four-year full time degree. The “Year Abroad” feature of this programme is operated by the Study Abroad Office (located on the de Havilland campus). The additional year comprises an agreed programme of study in the third year at a partner institution abroad (for example; in USA, University of West Virginia, Oklahoma State University; in Canada, Concordia University; in Australia, Curtin University of Technology, Perth and in France, EUDIL Lille) with whom the University of Hertfordshire has an institutional agreement. The programme of study will support, supplement and extend the more usual three-year programme. Success in the third year abroad will be recognised in the title of award, but does not carry additional credit towards an Honours award.

The Study Programme

The programme of study for any student will be negotiated and approved by the Study Abroad Office in consultation with appropriate other Directors of Study or School representative and the host University. The programme, provided by the host institution, may consist of taught modules, a research project, field studies, or a mixture of these components. Prior to starting the year abroad, the student and programme officers from UH and the host institution will agree a learning contract and mode of assessment.

Assessment

The assessment includes a reflective report describing how the year abroad has impacted on their personal development and professional aspirations. The learning contract will specify the assessment requirements to be met for successful completion of the programme of study. A specialist Module Board of Examiners will consider the results for the year abroad during the first semester of the following academic year. All assessments must be completed by the end of the year abroad and no referrals will be permitted.

Eligibility for Study Programme

The student will normally elect for this mode of study on initial enrolment at UH. However, it will be possible to change programme prior to commencement of the second year. The student must confirm their intention to study abroad during the first term of study at Level 5. This will enable a place to be negotiated at a host institution and the study programme to be arranged and agreed. A limited number of places exist and they will be made available on a competitive basis, the best first and second year performances securing the places abroad. For a student to be eligible to proceed to a year abroad, they must, by the time of the Semester B Programme Board of Examiners, have achieved at least 210 credits overall including 90 at Level 5 and be eligible to progress to the final year of the BSc Computer Science or BSc Information Technology. For the year abroad where study will be undertaken in a foreign language, students must meet the University requirements.

Programme Structure

The programme structure and progression information below (Table 1a and 1b) is provided for the Honours award. Any interim awards are identified in Table 1b. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 (in section 2) identifies where each learning outcome is assessed. Progression information is shown at the end of table 1a.

BSc Computer Science Theme**Level 4**

Compulsory Modules Module Titles	Module Code	Credit Points	% examination	% coursework	semester
Professional and Academic Skills for Computer Science and Information Technology	4COM0087	0	0	100	AB
Foundations of Computation	4COM1001	15	80	20	A
Systems Requirements	4COM0055	15	0	100	A
Programming Principles	4COM0046	15	0	100	A
E-Media Design	4COM0047	15	0	100	A
Data Driven Systems	4COM1002	15	60	40	B
Programming and Program Design 1	4COM0049	15	0	100	B
Principles of Network Systems	4COM0072	15	67	33	B
Optional Modules – choose 1 from:					
Module Titles					
Principles of Artificial Intelligence and Artificial Life	4COM0048	15	0	100	B
Computer Systems Architecture	4COM0051	15	75	25	B
Internet Technologies	4COM0052	15	0	100	B
Business Information Systems	4COM0053	15	0	100	B
The Human, the Screen and their Interactions	4COM0054	15	0	100	B

Progression regulations are shown at the end of this table.

Level 5

Compulsory Modules Module Titles	Module Code	Credit Points	% examination	% coursework	Semester
Programming and Program Design 2	5COM0087	30	67	33	AB
Computer Science Development Exercise	5COM0085	30	50	50	AB
Operating Systems and Computer Networks	5COM0088	30	67	33	AB
Preparation for Professional Placement in Computer Science	5COM0108	0	0	100	AB
Optional Modules – choose 1 from:					
Module Titles					
Computer Architecture	5COM0091	30	67	33	AB
Artificial Intelligence and Robotics	5COM0105	30	50	50	AB
Interaction and Games Design	5COM0093	30	0	100	AB
Information Technology for Business	5COM0089	30	0	100	AB
Data Management and Applications	5COM0090	30	67	33	AB

Optional 1 year industrial placement or optional 1 year studying abroad.

Level 4

	Module Code	Credit Points	% examination	% coursework	Semester
Compulsory Modules					
<u>Module Titles</u>					
Professional and Academic Skills for Computer Science and Information Technology	4COM0087	0	0	100	AB
Foundations of Computation	4COM1001	15	80	20	A
Systems Requirements	4COM0055	15	0	100	A
Programming Principles	4COM0046	15	0	100	A
E-Media Design	4COM0047	15	0	100	A
Data Driven Systems	4COM1002	15	60	40	B
Internet Technologies	4COM0052	15	0	100	B
Business Information Systems	4COM0053	15	0	100	B
Optional Modules – choose 1 from:					
<u>Module Titles</u>					
The Human, the Screen and their Interactions	4COM0054	15	0	100	B
Principles of Artificial Intelligence and Artificial Life	4COM0048	15	0	100	B
Programming and Program Design 1	4COM0049	15	0	100	B
Principles of Network Systems	4COM0072	15	67	33	B
Computer Systems Architecture	4COM0051	15	75	25	B

Progression regulations are shown at the end of this table.

Level 5

	Module Code	Credit Points	% examination	% coursework	Semester
Compulsory Modules					
<u>Module Titles</u>					
Information Technology for Business	5COM0089	30	0	100	AB
Information Technology Development Exercise	5COM0086	30	50	50	AB
Data Management and Applications	5COM0090	30	67	33	AB
Preparation for Professional Placement in Computer Science	5COM0108	0	0	100	AB
Optional Modules – choose 1 from:					
<u>Module Titles</u>					
Computer Architecture	5COM0091	30	67	33	AB
Artificial Intelligence and Robotics	5COM0105	30	50	50	AB
Interaction and Games Design	5COM0093	30	0	100	AB
Operating Systems and Computer Networks	5COM0088	30	67	33	AB
Programming and Program Design 2	5COM0087	30	67	33	AB

Optional 1 year industrial placement or optional 1 year studying abroad.

Both Computer Science and Information Technology Themes

Project Modules (core for CS & IT awards) Module Title	Module Code	Credit Points	% examination	% coursework	Semester
BSc Computer Science Computer Science Project	6COM0282	30	0	100	B
BSc Computer Science (Software Engineering) Software Engineering Project	6COM0283	30	0	100	B
BSc Computer Science (Networks) Networks Project	6COM0287	30	0	100	B
BSc Computer Science (Artificial Intelligence) Artificial Intelligence Project	6COM0286	30	0	100	B
BSc Information Technology Information Technology Project	6COM0285	30	0	100	B
BSc Information Technology (Web-based Systems) Web-based Systems Project	6COM0284	30	0	100	B
BSc Information Technology (Entertainment Systems) Entertainment Systems Project	6COM0278	30	0	100	B
BSc Information Technology (Business Systems) Business Systems Project	6COM0281	30	0	100	B
For Year Abroad Award Computer Science - Year Abroad	6CST0005	0	0	100	AB
For sandwich awards Professional Work Placement in Computer Science	6COM0244	0	0	100	AB
Compulsory for all students Professional Issues in Computing A	6COM0280	15	100	0	A

Level 6 Optional Modules

Optional Modules Computer Science Core

Awards:

SE = Software Engineering

NW=Networks

AI = Artificial Intelligence

Module Titles

Module Titles	Module Code	Core for	Credit Points	% Examination	% Coursework	Semester
Further Object Oriented Development A (Analysis and Design)	6COM0277	SE	15	67	33	A
Further Object Oriented Development B (Implementation)	6COM0276	SE	15	67	33	B
AI 1 A (Constructive Artificial Intelligence)	6COM0274	AI	15	0	100	A
AI 1 B (Neural Computation and Intelligent Systems)	6COM0275	AI	15	0	100	B
AI 2 A (Artificial Life & Embodied Cognition)	6COM0272	AI	15	0	100	A
AI 2 B (Socially Intelligent Agents & Robots)	6COM0273	AI	15	0	100	B
Computer Network Protocols and Architecture A	6COM0271	NW	15	75	25	A
Computer Network Protocols and Architecture B	6COM0270	NW	15	75	25	B
Empirical Evaluation in Software Engineering A (Principles)	6COM0269	SE	15	0	100	A
Empirical Evaluation in Software Engineering B (Applications)	6COM0267	SE	15	0	100	B
Quantum Computing A	6COM0247	-	15	0	100	A
Quantum Computing B	6COM0260	-	15	100	0	B
Real Time Systems A (Small Embedded Systems)	6COM0259	-	15	0	100	A
Real Time Systems B (Design and Development)	6COM0258	-	15	0	100	B
Programming Language Design & Implementation A	6COM0252	-	15	60	40	A
Programming Language Design & Implementation B	6COM0250	-	15	60	40	B

Optional Modules Information Technology Core

Awards:

ES = Entertainment Systems

WS = Web-based Systems

BS = Business Systems

Strategic Information Systems Planning & Management A	6COM0268	BS	15	0	100	A
Strategic Information Systems Planning & Management B	6COM0266	BS	15	0	100	B
Web Application Development A (Design)	6COM0265	WS	15	0	100	A
Web Application Development B (Enhancement)	6COM0264	WS	15	100	0	B
Digital Entertainment Systems A (Digital Media Production)	6COM0263	ES	15	0	100	A
Digital Entertainment Systems B (Production)	6COM0262	ES	15	0	100	B
Data Mining and Visualisation A (Warehousing)	6COM0249	BS	15	0	100	A
Data Mining and Visualisation B (Data Visualisation)	6COM0261	BS	15	100	0	B
Advanced Databases A	6COM0255	-	15	67	33	A
Advanced Databases B	6COM0254	-	15	67	33	B
Principles and Applications of Web Services A (technology)	6COM0253	WS	15	75	25	A
Principles and Applications of Web Services B (architecture)	6COM0251	WS	15	100	0	B

Optional Modules Non Core

Professional Issues in Computing B	6COM0279	-	15	0	100	B
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MEng Computer Science

Progression regulations are shown at the end of this table.

Level 4 (year 1)

Same as BSc Computer Science above.

Level 5 (year 2)

Same as BSc Computer Science above.

(Year 3)

Typically optional 1 year industrial placement.

Level 6/7 (year 3 or 4)

Compulsory Modules (core for award) Module Titles	Module Code	Credit Points	% examination	% coursework	Semester
Professional Issues in Computing A	6COM0280	15	100	0	A
MEng Team Project	7COM0189	30	0	100	B
Strategic Info. Systems Planning & Management A	6COM0268	15	0	100	A
Strategic Info. Systems Planning & Management B	6COM0266	15	0	100	B
For sandwich awards			0		
Professional Work Placement in Computer Science	6COM0244	0	0	100	AB
Optional Modules – choose 3 from: Module Titles					
Further Object Oriented Development A (Analysis and Design)	6COM0277	15	67	33	A
Further Object Oriented Development B (Implementation)	6COM0276	15	67	33	B
AI 1 A (Constructive Artificial Intelligence)	6COM0274	15	0	100	A
AI 1 B (Neural Computation and Intelligent Systems)	6COM0275	15	0	100	B
AI 2 A (Artificial Life & Embodied Cognition)	6COM0272	15	0	100	A
AI 2 B (Socially Intelligent Agents & Robots)	6COM0272	15	0	100	A
Computer Network Protocols and Architecture A	6COM0273	15	0	100	B
Computer Network Protocols and Architecture B	6COM0271	15	75	25	A
Empirical Evaluation in Software Engineering A (Principles)	6COM0270	15	75	25	B
	6COM0269	15	0	100	A
Empirical Evaluation in Software Engineering B (Applications)	6COM0267	15	0	100	B
Quantum Computing A	6COM0247	15	0	100	A
Quantum Computing B	6COM0260	15	100	0	B
Real Time Systems A (Small Embedded Systems)	6COM0259	15	0	100	A
Real Time Systems B (Design and Development)	6COM0258	15	0	100	B
Programming Language Design & Implementation A	6COM0252	15	60	40	A
Programming Language Design & Implementation B	6COM0250	15	60	40	B

Level 6/7 (year 4 or 5)

Compulsory Modules Module Titles	Module Code	Credit Points	% examination	% coursework	Semester
Computer Science MSc Project	7COM0088	60	0	100	A,B,C
Creative Problem Solving	7BSP0392	15	0	100	A
Advanced Project Management	7COM0191	15	0	100	B
Optional Modules – choose 1x30 Level 7 module OR 2 x 15 Level 6 module pair (not already studied):	Module Code	Credit Points	% examination	% coursework	Semester
Further Object Oriented Development A (Analysis and Design)	6COM0277	15	67	33	A
Further Object Oriented Development B (Implementation)	6COM0276	15	67	33	B
AI 1 A (Constructive Artificial Intelligence)	6COM0274	15	0	100	A
AI 1 B (Neural Computation and Intelligent Systems)	6COM0275	15	0	100	B
AI 2 A (Artificial Life & Embodied Cognition)	6COM0272	15	0	100	A
AI 2 B (Socially Intelligent Agents & Robots)	6COM0273	15	0	100	B
Computer Network Protocols and Architecture A	6COM0271	15	75	25	A
Computer Network Protocols and Architecture B	6COM0270	15	75	25	B
Empirical Evaluation in Software Engineering A (Principles)	6COM0269	15	0	100	A
Empirical Evaluation in Software Engineering B (Applications)	6COM0267	15	0	100	B
Quantum Computing A	6COM0247	15	0	100	A
Quantum Computing B	6COM0260	15	100	0	B
Real Time Systems A (Small Embedded Systems)	6COM0259	15	0	100	A
Real Time Systems B (Design and Development)	6COM0258	15	0	100	B
Programming Language Design & Implementation A	6COM0252	15	60	40	A
Programming Language Design & Implementation B	6COM0250	15	60	40	B
Distributed Systems and Security	7COM0108	30	100	0	B
Measures and Models for Software Engineering	7COM1001	30	67	33	A
Advanced Database	7COM0105	30	67	33	A
Multimedia Specification Design & Production	7COM0102	30	0	100	B
E-Business Processes and Strategies	7BSP0198	30	0	100	AB
Artificial Life	7COM0188	30	0	100	A
Data Mining	7COM0200	15	60	40	B

MEng Computer Science (accelerated mode)

Progression regulations are shown at the end of this table.

Level 4 (year 1)

Same as BSc Computer Science above.

Level 5 (year 2)

Semesters A and B same as BSc Computer Science above.
Semester C (see note*)

Placement (Year 3)

Mandatory 1 year industrial placement.

Compulsory Module Module Titles	Module Code	Credit Points	% examination	% coursework	Semester
Strategic Information Systems Planning & Management (COM)	6COM1005	30	0	100	A, B

Free Choice Online Elective (during placement year) choose 1 from: (see note *) Module Titles	Module Code	Credit Points	% examination	% coursework	Semester
Comp. Network Protocols and Architecture (COM)	6COM1012	30	0	100	A, B
Principles and Applications of Web Services (COM)	6COM1004	30	0	100	A, B
Further Object Oriented Development (COM)	6COM1014	30	0	100	A, B

Note*: The structure shown for the study of online modules for accelerated MEng students represents the typical pattern of study. However the pattern may differ and is dependent on the pattern of modules offered on the online programme. However, the two online modules will never be operated in parallel. Alternative patterns include Semester A (end in Jan) of placement, 6COM1005, Semester B of placement (start in Jan) choose 1 module from those offered. OR Semester A (end in Jan) of placement, choose 1 module from those offered and then Semester B (start in Jan) 6COM1005.

Levels 6 and 7 (year 4)

Compulsory Modules (core for awards) Module Titles	Module Code	Credit Points	% examination	% coursework	Semester
Creative Problem Solving	7BSP0392	15	0	100	A
Advanced Project Management	7COM0191	15	0	100	B
MEng Team Project	7COM0189	30	0	100	B
Professional Work Placement in Computer Science	6COM0244	0	0	100	AB
Professional Issues in Computing A	6COM0280	15	100	0	A
Project Computer Science MSc Project	7COM0088	60	0	100	A, B, C

Optional Modules – choose 1x30 Level 7 module OR 2 x 15 Level 6 module pair (not already studied) AND 1 x 15 credit Semester A (not already studied) Level 6:

	Module Code	Credit Points	% examination	% coursework	Semester
Further Object Oriented Development A (Analysis and Design)	6COM0277	15	67	33	A
Further Object Oriented Development B (Implementation)	6COM0276	15		33	B
AI 1 A (Constructive Artificial Intelligence)	6COM0274	15	0	100	A
AI 1 B (Neural Computation and Intelligent Systems)	6COM0275	15	0	100	B
AI 2 A (Artificial Life & Embodied Cognition)					
AI 2 B (Socially Intelligent Agents & Robots)	6COM0272	15	0	100	A
Computer Network Protocols and Architecture A	6COM0273	15	0	100	B
Computer Network Protocols and Architecture B	6COM0271	15	75	25	A
Empirical Evaluation in Software Engineering A (Principles)	6COM0270	15	75	25	B
	6COM0269	15	0	100	A
Empirical Evaluation in Software Engineering B (Applications)	6COM0267	15	0	100	B
Quantum Computing A	6COM0247	15	0	100	A
Quantum Computing B	6COM0260	15	100	0	B
Real Time Systems A (Small Embedded Systems)	6COM0259	15	0	100	A
Real Time Systems B (Design and Development)	6COM0258	15	0	100	B
Programming Language Design & Implementation A	6COM0252	15	60	40	A
Programming Language Design & Implementation B	6COM0250	15	60	40	B
Distributed Systems and Security	7COM0108	30	100	0	B
Measures and Models for Software Engineering	7COM1001	30	67	33	A
Advanced Database	7COM0105	30	67	33	A
Multimedia Specification Design and Production	7COM0102	30	0	100	B
E-Business Processes and Strategies	7BSP0198	30	0	100	AB
Artificial Life	7COM0188	30	0	100	A
Data Mining	7COM0200	15	60	40	B

Level 6

Note the table indicates that all modules are operational in all semesters. In reality, this is not the case, and the programme publishes a rolling two year calendar showing which semester modules operate in for that cycle. Typically in each year, project modules operate in semesters A, B and C and taught modules operate in semesters A & B.

BSc Computer Science Compulsory Modules					
Module Title	Module Code	Credit Points	% examination	% coursework	Semester
Further Object Oriented Development (COM)	6COM1014	30	0	100	A, B, C
PLUS					
Computer Science Project (COM)	6COM1009	30	0	100	A, B, C
OR E-Learning Applications Design and Development (COM)	6COM1006	30	0	100	A, B, C

BSc Information Technology Compulsory Modules					
Module Title	Module Code	Credit Points	% examination	% coursework	Semester
Strategic Information Systems Planning & Management (COM)	6COM1005	30	0	100	A, B, C
PLUS					
Information Technology Project (COM)	6COM1002	30	0	100	A, B, C
OR Rich Internet Applications Design and Development (COM)	6COM1017	30	0	100	A, B, C

Optional Modules (choose any 2)					
Module Title	Module Code	Credit Points	% examination	% coursework	Semester
Computer Network Protocols and Architecture (COM)	6COM1012	30	0	100	A, B, C
Quantum Computing (COM)	6COM1010	30	0	100	A, B, C
Databases (COM)	6COM1020	30	0	100	A, B, C
Principles and Applications of Web Services (COM)	6COM1004	30	0	100	A, B, C
Business Intelligence (Online)	6BUS0287	30	0	100	A, B, C

Progression

From any of: (pathway points)	To any of: (pathway points)	Minimum Requirements
CSIT1 CSMENG1	CS2	120 credit points at level 4 including a pass in 4COM0049
CSIT1 CSMENG1	IT2	120 credit points at level 4 including a pass in 4COM1002
CSIT1 CSMENG1	CSU2	90 credit points at level 4 including a pass in 4COM0049 (maximum study rate permissible is 150 credits per year and the level 4 shortfall should be redeemed at the first available opportunity) OR 75 credit points at level 4 including a pass in 4COM0049 (maximum study rate permissible is 120 credits per year and the level 4 shortfall should be redeemed at the first available opportunity)
CSIT1 CSMENG1	ITU2	90 credit points at level 4 including a pass in 4COM1002 (maximum study rate permissible is 150 credits per year and the level 4 shortfall should be redeemed at the first available opportunity) OR 75 credit points at level 4 including a pass in 4COM1002 (maximum study rate permissible is 120 credits per year and the level 4 shortfall should be redeemed at the first available opportunity)
CSIT1 CSMENG1	CSMENG2	120 credit points from CS modules with an average upper second class grade profile at level 4
CS2, IT2 CSU2 ITU2 CSMENG2	CSU4 ITU4	180 credit points (including 90 credits at level 5) (maximum study rate permissible is 120 credits per year and the level 4/level 5 shortfall should be redeemed at the first available opportunity). Any lower level shortfall above 30 credits must be redeemed before students can start any of the final year project modules.
CS2 CSMENG2	CSMENG3 CSMENGA3 CSMENG4	120 credit points from CS modules with an average upper second class grade profile at each of levels 4 and 5.
CSMENGA3	CSMENGA4	as MENGCSA3 entry plus 60 credits at level 6 and a pass in the placement.
CSMENG4 CSMENGA4	CSMENG5	as MENGCS4 entry plus 90 credits at level 6 and 30 credits at level 7, with an average upper second class grade profile.

The regulations governing the awards within this programme are as laid down in AS14.

The award of a non honours degree requires a minimum of 300 credits, including 180 at Level 5 or above, of which at least 60 must be at Level 6 or above.

The award of a BSc Honours degree requires a minimum of 360 credits, including 240 at Level 5 or above, of which at least 120 must be at Level 6 or above. Additionally for a BSc Computer Science, BSc Information Technology and all Computer Science/Information Technology named awards, the student must satisfactorily complete the Individual Project, or be deemed by the Board of Examiners to have achieved the learning outcomes of the BSc Individual Project during the Team Project. A compensated pass cannot be awarded for the Individual Project module. Students choosing not to take an individual project at level 6, may if they achieve the prescribed number of credits, be awarded BSc (HONS) Computer Studies

For a Sandwich award, students must have completed a period of approved Industrial Training meeting the requirements set out earlier in this section.

The award of an MEng degree requires a minimum of 480 credits, including 360 at Level 5 or above, of which at least 240 must be at Level 6 or above, of which at least 120 must be at Level 7. The MEng awards are classified in accordance with Section D6.3 of AS14.

Honours classification

The University has approved structure and assessment regulations common to all programmes (see AS14).

Table 1b Interim awards available

The programme provides the following interim awards:

Award	Minimum requirements	Available at end of Level
University Certificate	45 credit points at level 4	4
Certificate of Higher Education	120 credit points at level 4	4, 5
University Diploma in Computer Science	180 credit points including at least 60 at level 5	5, 6
Diploma of Higher Education in Computer Science	240 credit points including at least 120 at level 5	5, 6
Students with an enrolment date of September 2008, or thereafter will be eligible for: BSc in Computer Science BSc in Information Technology	300 credits, including 180 at Level 5 or above, of which at least 60 must be at Level 6 or above.	6
Students with an enrolment date prior to September 2008 will be eligible for: BSc in Computer Science BSc in Information Technology	270 credits, including 180 at Level 5 or above, of which at least 90 must be at Level 6 or above.	6
BSc (Hons) <i>Computer Science is available as an exit award for MEng awards</i>)	360 credit points including 240 at level 5 or above, of which 120 must be at level 6 or above.	6

E. Support for students and their learning

An overview of the primary support mechanisms provided for students and their learning is shown in the table below:

Activity	STUDY MODE		
	CAMPUS MODE	ON-LINE MODE	TUTORED E-LEARNING MODE ¹
Delivery of primary teaching material	By UH staff in class contact time	“Any where, any when” study of materials prepared by UH staff obtainable electronically	By study of materials prepared by UH staff obtainable electronically
Tutorial support	By UH staff in class contact time and electronically	By electronic communication with UH staff (“any where, any when” subject to reasonable response delays)	By support centre academic staff in class contact and electronically ²
Practical work	By UH staff (academic and technical) in class contact time and by private study by the student	By “any where, any when” private study supported by UH staff (academic and technical) subject to reasonable response delays	By support centre academic staff (academic and technical) in class contact ² and by private study by the student
Setting and marking of assessed work	By UH staff	By UH staff	By UH staff
Books and Journals	UH Learning and Information Services and student-purchased textbooks	UH Learning and Information Services and supplied textbooks	UH Learning and Information Services and supplied textbooks
Pastoral care	UH staff	UH staff	Support centre academic staff
Student administration	UH staff	UH staff	UH staff
Private study	By the student at UH, their residence or elsewhere by their choice	By the student at their residence or elsewhere by their choice	By the student at the support centre, their residence or elsewhere by their choice

¹ A full-time student is expected to study for approximately 40 hours per week, some of which will be at the Support Centre. The Support Centre will be expected to provide facilities for students to study there for at least 15 hours per week for a full-time student.

² This will mirror the level of support provided on the equivalent campus programme but will typically be 12 hours per 15 credit module in total for practical and tutorial support

More specifically support is provided as follows:

On campus students are typically supported by:

- a Year/Programme Tutor to help students understand the course/programme structure;
- Personal Tutors to provide academic and pastoral support;
- student representatives on programme committees;
- a designated programme administrator;
- an induction week at the beginning of each new academic session;
- Overseas Orientation (where applicable);
- an extensive Learning Resources Centre, incorporating a library and computer centre;
- a substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters, accommodation, international student support, etc;
- Office of Dean of Students, incorporating Chaplaincy, Counselling and nursery;
- Medical Centre;
- a Mathematics Drop-in Centre;
- a Faculty-based Disabled Student Co-ordinator;
- an Equal Opportunities Officer;
- The Students' Union;
- guided student-centred learning through the use of StudyNet;
- a Careers Service for all current students and graduates;
- module option talks, which provide students with the opportunity to receive information relating to modules on offer for the following academic year;
- module delivery information given out at the commencement of each module;
- the computing laboratories of the Faculty of Science, Technology and Creative Arts;
- The Faculty of Science, Technology and Creative Arts Industrial Training Placements Office;
- Day Nursery for pre-school children;
- student handbook, accessible on-line;
- catering facilities;
- car parking permits; Uno a university owned bus company and a park'n'ride facility.

Student support for online students typically includes:

- on-line material to assist in starting the programme and settling into it;
- provision of other learning resources at the start of modules, as appropriate, for instance CD's providing programming environments or modelling tools, text-based material via suitable media;
- student handbook provided on-line to explain the programme and give the calendar of events for an academic year;
- module delivery information provided on-line at the commencement of each module;
- programme support infrastructure provided by UH web-site: notice boards, email, discussion groups, the whole comprising UH managed learning environment;
- methods of access to the web-site and the managed learning environment which are compliant with recognised standards for access for disabled students;
- the University's managed learning environment, providing access to on-line study resources of the University's Learning Resources Centre;
- student representation in the procedures for management and delivery of the programme, through the on-line programme forum, the University's managed learning environment and the student feedback questionnaire mechanisms;
- tutorial support which will be provided by tutors who have individual responsibility for a group of not more than 30 students on a module;
- a project tutor who offers one-to-one tutoring during the 30-credit project module;
- extensive guidance for overseas students about studying in the English language, provided on-line at: <http://www.uefap.co.uk>.

Additionally for tutored e-learning students:

- the facilities and staff resources of the partner institutions and their support mechanisms.

F. Entry requirements

The normal minimum entry requirements for the programme are:

For Level 4 entry to BSc awards:

- UCAS tariff points: 240 points from a minimum of two 6-unit awards or one 12-unit award. All key skills and other tariff points will be counted; or
- BTEC ND/NC level: 7 merits in level III subjects.

In addition, applicants must have passes in GCSE English language and Mathematics at grade C or above.

Applications are welcomed from those with qualifications equivalent to the above, for instance from Access Certificate courses.

For Level 4 entry to MEng awards:

- UCAS tariff points: 300 points from a minimum of two 6-unit awards or one 12-unit award. All key skills and other tariff points will be counted; or
- BTEC ND/NC level: 7 distinctions in level III subjects.

In addition, applicants must have passes in GCSE English language and Mathematics at grade C or above.

For Level 5 entry to BSc awards:

Applicants for direct entry to Level 5 from other programmes within the University or elsewhere must have gained a minimum of 120 credits at Level 4 and are required to demonstrate that their previous studies and experience have provided a broad equivalence to the learning outcomes of Level 4 of the programme.

For Level 5 entry to MEng:

Applicants for direct entry to Level 5 with suitable qualifications (e.g. an HND Computing with appropriate subjects studied).

For Level 6 entry to BSc awards (all modes):

Applicants for direct entry to Level 6 from other programmes within the University or elsewhere must have gained a minimum of 240 credits at Levels 4 and 5, including a minimum of 120 credits at Level 5 and are required to demonstrate that their previous studies and experience have provided a broad equivalence to the learning outcomes of Levels 4 and 5 of the programme. Applicants that apply for direct entry to Level 6 may hold a variety of qualifications that may include (but are not restricted to) Higher National Diploma, Foundation Degree, or following successful completion of two years of a similar BSc degree programme at another HE institution and other equivalent national and international qualifications.

For Level 6 entry to MEng:

Exceptionally, direct entry into Level 6 of the MEng is also possible, for example following successful completion of two years of a similar BSc or MEng degree programme at another HE institution. It is possible for a BSc Honours student to transfer to the MEng or vice versa after Level 4 or 5.

Admissions for students applying for the online/tutored e-learning routes are processed and received in the same way as applicants for Level 6 of the full-time BSc programme.

For students whose first language is not English, competence in English must be demonstrated through: a TOEFL score of 550 in the written test or 213 in the CBT test, together with a TOEFL Test of Written English of 4.0, or an overall IELTS score of 6.0, or equivalent qualification.

The programme is subject to the University's Principles, Policies, Regulations and Procedures for the Admission of Students to Undergraduate and Taught Postgraduate Programmes and will take account of University policy and guidelines for assessing accredited prior certified learning (APCL) and accredited prior experiential learning (APEL).

Programme management

JACS code(s)	G400
Modes of study	F/T, P/T, Sandwich, online, tutored e-learning
Intakes	Semester A
Relevant QAA subject benchmarking group	Computing
Date of validation/last periodic review	February 2009
Date of production/ last revision of PS	March 2011
Relevant cohorts	Level 4 students entering September 2011
Faculty	Science, Technology and Creative Arts
Administrative School(s)/Departments	Computer Science

Course (i.e. pathway) details:

Course (i.e. Pathway Point) Titles	Course (i.e. Pathway Point) Codes
Year 1 Computer Science/ Info Technology - Honours	CSIT1
Year 2 Computer Science – Honours	CS2
Year 2 Computer Science - Degree	CSU2
Year 3 (Placement) Computer Science - Honours	CS3
Year 3 (Placement) Computer Science - Degree	CSU3
Year 4 Computer Science – Honours	CS4
Year 4 Computer Science – Degree	CSU4
Year 3 (Year Abroad) Computer Science - Honours	CSYA3
Year 3 (Year Abroad) Computer Science - Degree	CSYAU3
Year 4 (Direct Entry) Computer Science - Honours	CSDE4
Year 4 (On-line) Computer Science – Honours	CSOL4
Year 4 (On-line) Computer Science – Degree	CSOLU4
Year 2 Information Technology – Honours	IT2
Year 2 Information Technology – Degree	ITU2
Yr 3 (Placement) Information Technology - Honours	IT3
Yr 3 (Placement) Information Technology - Degree	ITU3
Year 4 Information Technology – Honours	IT4
Year 4 Information Technology – Degree	ITU4
Yr 3 (Yr Abroad) Information Technology - Honours	ITYA3
Yr 3 (Yr Abroad) Information Technology - Degree	ITYAU3
Yr 4 Direct Entry-Information Technology – Honours	ITDE4
Year 4 (On-line) Information Technology – Honours	ITOL4
Year 4 (On-line) Information Technology – Degree	ITOLU4
Year 1 MEng Computer Science	CSMENG1
Year 2 MEng Computer Science	CSMENG2
Yr 3 (Placement) MEng Computer Science	CSMENG3
Year 4 MEng Computer Science	CSMENG4
Year 5 MEng Computer Science	CSMENG5
Year 3 MEng Accelerated Computer Science	CSMENGA3
Year 4 MEng Accelerated Computer Science	CSMENGA4

The programme is managed by:

- Head of School;
- the Associate Head of School (Academic) who has overall responsibility for programmes in Computer Science;
- the Programme Tutor and Assistant Programme Tutors who are responsible for day to day management; each Assistant has a designated area of responsibility, which is described in the student handbook; management is conducted through the Programme Committee, which includes representation from each cohort of students;
- an Admissions Tutor, with specific responsibility for open days and selection;
- a programme administrator to deal with day to day administration of the programme;
- Module Leaders who are responsible for the delivery of individual modules;
- a programme committee, the membership of which includes staff delivering modules, programme management and representation from each cohort of students.

Programme-specific assessment regulations

The programme is compliant with the University's generic assessment regulations (Structure and Assessment Regulations for Academic Programmes, UPR AS14) with the exception of those listed below, which have been specifically approved by the University:

Period of registration

The maximum period within which a student may gain an award on the programme is eight years from their date of registration on it.

Further points of clarification and interpretation relevant to this specific programme are given below:

Eligibility for a specific Honours award

To be eligible for a specialist Honours award, a student must pass, or be accredited with passes in, both the contributory modules (shown below) for the award in question and pass the project module (without compensation) for the award – except in the case of BSc (Hons) Computer Studies

Award	Compulsory		Modules		
	Taught	Project	Sem	Core	Elective
BSc Computer Science	6COM0280	6COM0282	A	2 x 15pts from CS core	1 x 15 pts any
			B	1 x 15pts from CS core	1 x 15 pts any
BSc Computer Science (Software Engineering)	6COM0280	6COM0283	A	1 x 15pts SE core 1 x 15pts from CS core	1 x 15 pts any
			B	1 x 15pts SE core	1 x 15 pts any
BSc Computer Science (Networks)	6COM0280	6COM0287	A	1 x 15pts NW core 1 x 15pts from CS core	1 x 15 pts any
			B	1 x 15pts NW core	1 x 15 pts any
BSc Computer Science (Artificial Intelligence)	6COM0280	6COM0286	A	1 x 15pts AI core 1 x 15pts from CS core	1 x 15 pts any
			B	1 x 15pts AI core	1 x 15 pts any
BSc Information Technology	6COM0280	6COM0285	A	2 x 15pts from IT core	1 x 15 pts any
			B	1 x 15pts from IT core	1 x 15 pts any
BSc Information Technology (Entertainment Systems)	6COM0280	6COM0278	A	1 x 15pts ES core 1 x 15pts from IT core	1 x 15 pts any
			B	1 x 15pts ES core	1 x 15 pts any
BSc Information Technology (Web-based Systems)	6COM0280	6COM0284	A	1 x 15pts WS core 1 x 15pts from IT core	1 x 15 pts any
			B	1 x 15pts WS core	1 x 15 pts any
BSc Information Technology (Business Systems)	6COM0280	6COM0281	A	1 x 15pts BS core 1 x 15pts from IT core	1 x 15 pts any
			B	1 x 15pts BS core	1 x 15 pts any
BSc Computer Studies	-	-	A	4 x 15 pts any	
			B	4 x 15 pts follow on from semester A	

Eligibility for MEng awards

In addition to achieving the prescribed number of credits for the MEng awards, students must satisfactorily complete the Team Project and Individual Project modules; a compensated pass cannot be awarded in these modules.

Equivalence of modules with the BSc Honours Computer Science On-line (TCCSITW)

A separate programme is the BSc Honours Computer Science (On-line), providing a route to the same awards as the BSc Honours Computer Science, but via study on-line and without attendance at the University. Students at Level 6 of the BSc Honours Computer Science whose circumstances preclude continuing attendance at the University, such as students who have taken up full-time employment or have returned overseas, may, after seeking academic guidance from a programme officer, be permitted to complete study on the programme by taking the equivalent on-line modules, where these are available.

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Modules offered in this online mode are equivalent to their campus based alternatives (module pairs delivered in Semester A and B) in name, with the online version having the suffix “(online)” in the module name, for example, the campus based “Quantum Computing A” AND “Quantum Computing B” is equivalent to the online module “Quantum Computing (COM)”.

Where any of these modules are taken as equivalents following the award of fail grades in Level 6 modules on the BSc Honours Computer Science, assessment and grading in these equivalent modules will be governed by the regulations in UPR AS14, paragraph D5.3.

Other sources of information

- Definitive Module Documents;
- Module Guides;
- Student Handbook;
- Programme Specification website:
<http://perseus.herts.ac.uk/uhinfo/administration/aqo/programmes/programmes.cfm>;
- University of Hertfordshire Prospectus website:
http://perseus.herts.ac.uk/prospectus/prospectus_home.cfm;
- QAA Benchmark Statement website:
<http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp>;
- The Framework for Higher Education Qualifications in England, Wales and Northern Ireland, 2008:
<http://www.qaa.ac.uk/academicinfrastructure/FHEQ/EWNI/default.asp>;
- SEEC Credit Level Descriptors for Further and Higher Education 2003: <http://www.seec-office.org.uk/creditlevel descriptors2003.pdf>;
- External Quality Review report website:
http://www.qaa.ac.uk/revreps/inst_reports.asp?instID=H-0060;
- Professional or Statutory Regulatory Body information:
<http://www.bcs.org.uk>;
- Teaching Quality Information (TQI) website:
<http://www1.tqi.ac.uk/sites/tqi/home/index.cfm>;
- University of Hertfordshire Academic Quality Office website:
<http://perseus.herts.ac.uk/uhinfo/administration/aqo/general/aqo.cfm>;
- Structure & Assessment Regulations - Undergraduate & Taught Postgraduate Programmes, UPR AS14:
<http://sitem.herts.ac.uk/secreg/upr/AS14.htm>
- Learning and Teaching Policy and General Educational Aims, UPR TL01:
<http://sitem.herts.ac.uk/secreg/upr/TL01.htm>
- Admissions - Undergraduate & Taught Postgraduate Students, UPR SA03:
<http://sitem.herts.ac.uk/secreg/upr/SA03.htm>
- Academic Quality, UPR AS17:
<http://sitem.herts.ac.uk/secreg/upr/AS17.htm>
- Index of UPRs for students:
http://www.herts.ac.uk/secreg/upr/upr_azlist_student_info.htm;
- Computer Science Student Intranet:
<http://go.stca.herts.ac.uk>.

Other information relevant to the programme

Relationship with other programmes/awards/modules

The School of Computer Science attempts where practicably possible, (subject to resource and other constraints) to ensure that the content and learning outcomes of this programme and its constituent awards and modules are equivalent to (or closely equivalent to) the on-line version of the programme (TCCSITW) and its constituent awards and modules.

This should enable students to transfer between the two programmes (subject to satisfying admissions and progression requirements) with little impact on their digest of study. For this purpose the following table shows the modules delivered by this programme that are equivalent to those delivered by TCCSITW on-campus.

Equivalent Modules delivered on EICSIT		Modules delivered on TCCSITW	
Module Title	Module Code	Module Title	Module Code
Further Object Oriented Development A (Analysis and Design)	6COM0277	Further Object Oriented Development (COM)	6COM1014
and	and		
Further Object Oriented Development B (Implementation)	6COM0276		
Computer Network Protocols and Architecture A	6COM0271	Computer Network Protocols and Architecture (COM)	6COM1012
and	and		
Computer Network Protocols and Architecture B	6COM0270		
Quantum Computing A	6COM0247	Quantum Computing (COM)	6COM1010
and	and		
Quantum Computing B	6COM0260		
Strategic Information Systems Planning & Management A	6COM0268	Strategic Information Systems Planning & Management (COM)	6COM1005
and	and		
Strategic Information Systems Planning & Management B	6COM0266		
Principles and Applications of Web Services A (technology)	6COM0253	Principles and Applications of Web Services (COM)	6COM1004
and	and		
Principles and Applications of Web Services B (architecture)	6COM0251		
<i>No equivalent modules</i>	<i>N/A</i>	Databases (COM)	6COM1020
<i>No equivalent modules</i>	<i>N/A</i>	E-learning Applications Design and Development (COM)	6COM1006
<i>No equivalent modules</i>	<i>N/A</i>	Rich Internet Applications Design and Development (COM)	6COM1017
Computer Science Project	6COM0282	Computer Science Project (COM)	6COM1009
Information Technology Project	6COM0285	Information Technology Project (COM)	6COM1002

University policies relevant to the Programme

The University undertakes to use all reasonable endeavours to deliver, assess and administer this programme in accordance with this Programme Specification. At the same time it is recognised that it is in the nature of academic developments that changes, for example to the structure, curriculum, and assessment of a programme may be necessary in order to ensure that the programme remains up to date, in response to issues raised as a result of on-going monitoring and evaluation, and/or in order to conform to new regulatory requirements imposed by this institution, by professional or statutory bodies, or by national or governmental bodies.

The programme operates within the guidelines and policies relating to equal opportunities and environmental issues which may be agreed from time to time by the Board of Governors and/or the Academic Board of the University.

Where the programme is offered in collaboration with another institution these policies and guidelines will normally be those of the partner institution.

The programme operates in accordance with the University's Regulations Governing Studies Involving the Use of Human Subjects (UPR RE01) agreed from time to time by the Academic Board of the University. However, where the programme is offered in collaboration with another institution (for example through a franchise arrangement for all or part of the programme) then specific approval must be obtained from the University for the operation of the programme within ethical guidelines prepared by the partner institution. The partner institution will be responsible for all insurance liability in connection with the observance of ethical guidelines.



Signed
Chair of Faculty Academic Quality Enhancement Committee

Date 19th August 2011

If you would like this information in an alternative format please contact:
Programme Tutor

BSc Information Technology Levels 4 and 5

This map identifies where the programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

		elective(e) or compulsory (c)	Programme Learning Outcomes (as identified in section 1 and the following page)																								
			Knowledge & Understanding											Practical Skills							Transferable Skills						
Module Title	Module Code		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5
Level 4	Foundations of Computation	4COM1001	c	x	x		x	x	x						x	x	x					x	x	x	x		
	Data Driven Systems	4COM1002	c	x	x		x	x					x		x	x	x					x	x	x	x		
	Programming Principles	4COM0046	c	x	x		x	x	x			x			x	x	x					x	x	x	x		
	E-Media Design	4COM0047	c	x	x		x	x			x	x			x	x	x					x	x	x	x		
	Programming and Programme Design 1	4COM0049	e	x	x		x	x	x						x	x	x					x	x	x	x		
	Internet Technologies	4COM0052	c	x	x		x	x		x		x			x	x	x					x	x	x	x		
	Business Information Systems	4COM0053	c	x	x		x	x	x						x	x	x					x	x	x	x		
	The Human, the Screen and their Interactions	4COM0054	c	x	x		x	x			x				x	x	x					x	x	x	x		
	Principles of Network Systems	4COM0072	e	x	x		x	x	x			x		x	x	x	x					x	x	x	x		
	Computer Systems Architecture	4COM0051	e	x	x		x	x		x		x	x	x	x	x	x					x	x	x	x		
	Principles of Artificial Intelligence and Artificial Life	4COM0048	e	x	x		x	x			x		x		x	x	x					x	x	x	x		
	Systems Requirements	4COM0055	e	x	x		x	x			x	x	x		x	x	x					x	x	x	x		
	Professional and Academic Skills for CS & IT	4COM0087	c			x										x			x			x	x	x	x	x	
Level 5	Information Technology for Business	5COM0089	c	x	x	x	x	x	x						x	x	x	x	x	x	x	x	x	x	x		
	Information Technology Development Exercise	5COM0086	c	x	x	x	x	x	x						x	x	x	x	x	x	x	x	x	x	x		
	Data Management and Applications	5COM0090	c	x	x	x	x	x		x		x			x	x	x	x		x	x	x	x	x	x		
	Computer Architecture	5COM0091	e	x	x	x	x	x							x	x	x	x		x	x	x	x	x	x		
	Artificial Intelligence and Robotics	5COM0105	e	x	x	x	x	x			x				x	x	x	x		x	x	x	x	x	x		
	Interaction and Games Design	5COM0093	e	x	x	x	x	x			x	x			x	x	x	x		x	x	x	x	x	x		
	Operating Systems and Computer Networks	5COM0088	e	x	x	x	x	x					x		x	x	x	x		x	x	x	x	x	x		
	Programming and Programme Design 2	5COM0087	e	x	x	x	x	x	x			x	x	x		x	x	x	x		x	x	x	x	x		
Preparation for Professional Placement in CS	5COM0108	c			x																	x	x	x	x		

BSc Computer Science and named Awards / BSc Information Technology and Named Awards - Level 6

This map shows where programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes & (iii) a means to help students monitor their learning, personal & professional development as the programme progresses.

Modules marked: c = compulsory for all, c* = core for a specific award, cp = compulsory for sandwich.

Module Title	Module Code	elective(e) or compulsory(c)	Programme Learning Outcomes (as identified in section 1 and the following page)																											
			Knowledge & Understanding											Practical Skills							Transferable Skills									
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5			
Computer Science Project	6COM0282	c*	x	x	x	x		x	x	x								x	x	x	x	x				x	x	x	x	x
Software Engineering Project	6COM0283	c*	x	x	x	x		x										x	x	x	x	x				x	x	x	x	x
Networks Project	6COM0287	c*	x	x	x	x			x									x	x	x	x	x				x	x	x	x	x
Artificial Intelligence Project	6COM0286	c*	x	x	x	x				x								x	x	x	x	x				x	x	x	x	x
Information Technology Project	6COM0285	c*	x	x	x		x				x	x	x					x	x	x	x		x			x	x	x	x	x
Web-based Systems Project	6COM0284	c*	x	x	x		x				x							x	x	x	x	x	x			x	x	x	x	x
Entertainment Systems Project	6COM0278	c*	x	x	x		x					x						x	x	x	x	x	x			x	x	x	x	x
Business Systems Project	6COM0281	c*	x	x	x		x						x					x	x	x	x	x	x			x	x	x	x	x
Professional Work Placement in CS	6COM0244	cp	x	x	x								x		x			x			x				x	x	x	x	x	x
Professional Issues in Computing A	6COM0280	c	x	x	x	x	x							x		x		x	x			x			x	x	x	x	x	x
Professional Issues in Computing B	6COM0279	c*/e	x	x	x	x	x	x						x		x		x	x			x			x	x	x	x	x	x
Computer Science - Year Abroad	6CST0005	e	x	x	x	x	x											x	x	x	x	x	x	x	x	x	x	x	x	x
Computer Network Protocols and Architecture A	6COM0271	c*	x	x		x			x		x							x	x	x	x	x	x			x	x	x	x	x
Computer Network Protocols and Architecture B	6COM0270	c*	x	x		x			x		x							x	x	x	x	x	x			x	x	x	x	x
AI 1 A (Constructive Artificial Intelligence)	6COM0274	c*	x	x		x				x								x	x	x	x	x	x			x	x	x	x	x
AI 1 B (Neural Computation and Intelligent Systems)	6COM0275	c*	x	x		x				x								x	x	x	x	x	x			x	x	x	x	x
AI 2 A (Artificial Life & Embodied Cognition)	6COM0272	c*	x	x		x				x								x	x	x	x	x	x			x	x	x	x	x
AI 2 B (Socially Intelligent Agents & Robots)	6COM0273	c*	x	x		x				x								x	x	x	x	x	x			x	x	x	x	x

BSc Computer Science (online/tutored e-learning) and BSc Information Technology (online/tutored e-learning) - Level 6

This map shows where programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes & (iii) a means to help students monitor their learning, personal & professional development as the programme progresses.

Module Title		Module Code		elective(e) or compulsory(c)		Programme Learning Outcomes (as identified in section 1 and the following page)																											
						Knowledge & Understanding													Practical Skills							Transferable Skills							
						A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5			
Level 6	Computer Science Project (COM)	6COM1009	e	x	x	x	x										x	x	x	x	x	x		x	x	x	x	x	x				
	E-Learning Applications Design and Development	6COM1006	e	x	x	x	x											x	x	x	x	x			x	x	x	x	x				
	Information Technology Project (COM)	6COM1002	e	x	x	x		x										x							x								
	Rich Internet Applications Design and Development	6COM1017	e	x	x	x		x											x	x	x	x		x		x	x	x	x	x			
	Databases (COM)	6COM1020	e	x	x		x	x	x					x						x	x	x	x		x		x	x	x	x	x		
	Computer Network Protocols and Architecture (COM)	6COM1012	e	x	x		x				x			x						x	x	x	x	x	x		x	x	x	x	x		
	Principles and Applications of Web Services (COM)	6COM1004	e	x	x		x	x	x	x				x	x	x					x	x	x	x	x		x	x	x	x	x	x	
	Quantum Computing (COM)	6COM1010	e	x	x		x		x												x	x	x	x	x	x		x	x	x	x	x	
	Further Object Oriented Development (COM)	6COM1014	e	x	x		x		x												x	x	x	x	x	x		x	x	x	x	x	
	Strategic Information Systems Planning & Management (COM)	6COM1005	e	x	x	x	x	x														x	x			x		x	x	x	x	x	x
	Business Intelligence (Online)	6BUS0287																															

MEng Computer Science - Levels 6 and 7

This map shows where programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes & (iii) a means to help students monitor their learning, personal & professional development as the programme progresses.

		Module Title	Module Code	elective(e) / compulsory(c)	Programme Learning Outcomes (as identified in section 1 and the following page)																					
					Knowledge & Understanding										Practical Skills							Transferable Skills				
					A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	C1	C2
Level 6	Professional Work Placement in CS	6COM0244	cp	x	x	x						x		x	x			x			x	x	x	x	x	x
	Professional Issues in Computing A	6COM0280	c	x	x	x	x	x				x		x	x			x			x	x	x	x	x	x
	Computer Network Protocols and Architecture A	6COM0271	c1	x	x		x			x		x			x	x	x	x	x	x		x	x	x	x	x
	Computer Network Protocols and Architecture B	6COM0270	c1	x	x		x			x		x			x	x	x	x	x	x		x	x	x	x	x
	AI 1 A (Constructive Artificial Intelligence)	6COM0274	c1	x	x		x				x				x	x	x	x	x	x		x	x	x	x	x
	AI 1 B (Neural Computation and Intelligent Systems)	6COM0275	c1	x	x		x				x				x	x	x	x	x	x		x	x	x	x	x
	AI 2 A (Artificial Life & Embodied Cognition)	6COM0272	c1	x	x		x				x				x	x	x	x	x	x		x	x	x	x	x
	AI 2 B (Socially Intelligent Agents & Robots)	6COM0273	c1	x	x		x				x				x	x	x	x	x	x		x	x	x	x	x
	Empirical Evaluation in Software Engineering A (Principles)	6COM0269	c1	x	x		x	x	x				x		x	x	x	x	x	x		x	x	x	x	x
	Empirical Evaluation in Software Engineering B (Applications)	6COM0267	c1	x	x		x	x	x				x		x	x	x	x	x	x		x	x	x	x	x
	Quantum Computing A	6COM0247	c1	x	x		x		x						x	x	x	x	x	x		x	x	x	x	x
	Quantum Computing B	6COM0260	c1	x	x		x		x						x	x	x	x	x	x		x	x	x	x	x
	Further Object Oriented Development A (Analysis and Design)	6COM0277	c1	x	x		x		x						x	x	x	x	x	x		x	x	x	x	x
	Further Object Oriented Development B (Implementation)	6COM0276	c1	x	x		x		x						x	x	x	x	x	x		x	x	x	x	x
	Strategic Information Systems Planning & Management A	6COM0268	c	x	x	x	x	x					x		x	x			x		x	x	x	x	x	x
	Strategic Information Systems Planning & Management B	6COM0266	c	x	x	x	x	x					x		x	x			x		x	x	x	x	x	x
	Programming Language Design & Implementation A	6COM0252	c1	x			x		x						x	x	x	x		x		x	x	x	x	x
	Programming Language Design & Implementation B	6COM0250	c1	x			x		x						x	x	x	x		x		x	x	x	x	x
	Real Time Systems A (Small Embedded Systems)	6COM0259	c1	x	x		x		x						x	x	x	x	x	x		x	x	x	x	x
Real Time Systems B (Design and Development)	6COM0258	c1	x	x		x		x						x	x	x	x	x	x		x	x	x	x	x	
Level 7	Computer Science MSc Project	7COM0088	c	x	x	x	x							x		x	x	x	x	x	x		x	x	x	x
	Creative Problem Solving	7BSP0392	c			x	x							x		x	x	x	x	x		x	x	x	x	x
	MEng Team Project	7COM0189	c	x	x	x	x	x	x						x	x	x	x	x			x	x	x	x	x
	Advanced Project Management	7COM0191	c	x	x	x	x								x		x	x	x	x	x		x	x	x	x
	Distributed Systems and Security	7COM0108	e	x	x	x	x								x		x	x	x	x	x		x	x	x	x
e	Measures and Models for Software Engineering	7COM1001	e	x	x	x	x							x		x	x	x	x	x	x		x	x	x	x

**cp = compulsory for sandwich / c = compulsory for all /
c1 = compulsory but choose 3 from list**

Module Title	Module Code	elective(e) / compulsory(c)	Programme Learning Outcomes (as identified in section 1 and the following page)																										
			Knowledge & Understanding											Practical Skills							Transferable Skills								
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5		
Advanced Database	7COM0105	e	x	x	x	x									x		x	x	x	x	x	x			x	x	x	x	x
Multimedia Specification Design and Production	7COM0102	e	x	x	x	x									x		x	x	x	x	x	x			x	x	x	x	x
E-Business Processes and Strategies	7BSP0198	e	x	x	x	x									x		x	x	x	x	x	x			x	x	x	x	x
Artificial Life	7COM0188	e	x	x	x	x									x		x	x	x	x	x	x			x	x	x	x	x
Data Mining	7COM0200	e	x	x	x	x									x		x	x	x	x	x	x			x	x	x	x	x

MEng Computer Science (Accelerated) - Levels 5 (semester C), 6 and 7

This map shows where programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes & (iii) a means to help students monitor their learning, personal & professional development as the programme progresses.

c=compulsory / c1=choose 1 / e=elective (choose 1 x 30 level 7 or 2 x 15 module pair not already studied online)

		Programme Learning Outcomes (as identified in section 1 and the following page)																									
		c/e/c1/e1	Knowledge & Understanding											Practical Skills							Transferable Skills						
Module Title	Module Code		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5
Strategic Information Systems Planning & Management (COM)	6COM1005	c	x	x	x	x	x					x			x			x		x		x	x	x	x	x	
Professional Issues in Computing A	6COM0280	c	x	x	x			x				x			x			x				x	x	x	x	x	
Professional Work Placement in CS	6COM0244	c	x	x	x							x	x		x			x			x	x	x	x	x	x	
Computer Network Protocols and Architecture (COM)	6COM1012	c1	x	x		x			x		x				x	x	x	x	x			x	x	x	x	x	
Principles and Applications of Web Services (COM)	6COM1004	c1	x	x		x	x	x	x		x	x	x		x	x	x	x		x		x	x	x	x	x	
Further Object Oriented Development (COM)	6COM1014	c1	x	x		x		x							x	x	x	x	x			x	x	x	x	x	
Computer Network Protocols and Architecture A	6COM0271	e	x	x		x			x		x			x	x	x	x	x	x	x		x	x	x	x	x	x
Computer Network Protocols and Architecture B	6COM0270	e	x	x		x			x		x			x	x	x	x	x	x	x		x	x	x	x	x	x
AI 1 A (Constructive Artificial Intelligence)	6COM0274	e	x	x		x				x				x	x	x	x	x	x	x		x	x	x	x	x	x
AI 1 B (Neural Computation and Intelligent Systems)	6COM0275	e	x	x		x				x				x	x	x	x	x	x	x		x	x	x	x	x	x
AI 2 A (Artificial Life & Embodied Cognition)	6COM0272	e	x	x		x				x				x	x	x	x	x	x	x		x	x	x	x	x	x
AI 2 B (Socially Intelligent Agents & Robots)	6COM0273	e	x	x		x				x				x	x	x	x	x	x	x		x	x	x	x	x	x
Empirical Evaluation in Software Engineering A (Principles)	6COM0269	e	x	x		x	x	x					x		x	x	x	x	x	x		x	x	x	x	x	x
Empirical Evaluation in Software Engineering B (Applications)	6COM0267	e	x	x		x	x	x					x		x	x	x	x	x	x		x	x	x	x	x	x
Quantum Computing A	6COM0247	e	x	x		x		x						x	x	x	x	x	x	x		x	x	x	x	x	x
Quantum Computing B	6COM0260	e	x	x		x		x						x	x	x	x	x	x	x		x	x	x	x	x	x
Further Object Oriented Development A (Analysis and Design)	6COM0277	e	x	x		x		x						x	x	x	x	x	x	x		x	x	x	x	x	x
Further Object Oriented Development B (Implementation)	6COM0276	e	x	x		x		x						x	x	x	x	x	x	x		x	x	x	x	x	x
Programming Language Design & Implementation A	6COM0252	e	x			x		x						x	x	x	x	x		x		x	x	x	x	x	x
Programming Language Design & Implementation B	6COM0250	e	x			x		x						x	x	x	x	x		x		x	x	x	x	x	x
Real Time Systems A (Small Embedded Systems)	6COM0259	e	x	x		x		x						x	x	x	x	x	x	x		x	x	x	x	x	x
Real Time Systems B (Design and Development)	6COM0258	e	x	x		x		x						x	x	x	x	x	x	x		x	x	x	x	x	x
Computer Science MSc Project	7COM0088	c	x	x	x	x								x	x	x	x	x	x	x		x	x	x	x	x	x

c=compulsory / c1=choose 1 / e=elective (choose 1 x 30 level 7 or 2 x 15 module pair not already studied online)

Module Title	Module Code	elective(e) / compulsory(c)	Programme Learning Outcomes (as identified in section 1 and the following page)																											
			Knowledge & Understanding													Practical Skills							Transferable Skills							
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5			
MEng Team Project	7COM0189	c	x	x	x	x	x	x										x	x	x	x	x			x	x	x	x	x	
Creative Problem Solving	7BSP0392	c			x	x							x					x	x	x	x	x	x			x	x	x	x	x
Distributed Systems and Security	7COM0108	e	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x
Measures and Models for Software Engineering	7COM1001	e	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x
Advanced Database	7COM0105	e	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x
Multimedia Specification Design and Production	7COM0102	e	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x
E-Business Processes and Strategies	7BSP0198	e	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x
Artificial Life	7COM0188	e	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x
Advanced Project Management	7COM0191	c	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x
Data Mining	7COM0200	e	x	x	x	x							x					x	x	x	x	x	x			x	x	x	x	x

Key: Learning Outcome which is assessed as part of the module

Key to Programme Learning Outcomes

Knowledge and Understanding

- A1- The methodology of software development and a subset of the tools, notations and techniques appropriate to the various stages of development, from problem identification to system implementation and evaluation.
- A2- The complexity of interactions between agents, which could be human or programmed systems, at various levels and the implications of this for the software designer.
- A3- The context within which a professional software designer operates and implications for professional practice including the moral, legal, safety and ethical issues involved.
- A4- A broad understanding of the theories and principles relevant to the design and development of programmed systems and their subsequent use in specific contexts.
- A5- A broad understanding of the theories and principles relevant to the design and development of information technology and business systems and their subsequent use in specific contexts.
- A6- An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of programmed systems.
- A7- An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of computer networks and systems operating in a networked environment.
- A8- An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of mechanisms enabling intelligence of various kinds in humans, robots and information processing systems.
- A9- An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of computer systems operating in a web-based environment.
- A10- An in depth understanding of the theories and principles relevant to the specification, design, implementation and evaluation of computer based entertainment and multimedia systems.
- A11- An in depth understanding of the theories and principles relevant to the specification, design, implementation, evaluation and use of computer based systems employed within a business context.
- A12- A deeper and systematic understanding of the advanced principles and theories of design, implementation and management of software.
- A13 – A broad understanding of the principles of a range of computing related domains.

Practical Skills

- B1-Use specific tools, techniques, notations and methods in the context of the design and development of programmed computer systems.
- B2-Use computer systems and associated technology to support the development of programmed systems.
- B3-Engage in effective discussion of technical information as appropriate to the system design and development task.
- B4-Carry out design activities ranging from initial problem identification to system implementation and evaluation as an individual, or participate as a member of a team carrying out a subset of these activities.
- B5- Design, Implement and evaluate systems as characterised by Computer Science approaches, methodologies and practices.
- B6- Design, implement and evaluate systems as characterised by Information Technology approaches, methodologies and practices.
- B7- Design, implement and evaluate systems as characterised by a broad range of computing related domains

Transferable Skills

- C1-Communicate effectively orally, in writing and visually using the conventions, vocabulary and the form and register of academic expression.
- C2-Manage their own learning including time management, the organisation and retrieval of information, and the identification of personal needs for continuing professional development.
- C3-Select and use a variety of modes of discourse, including mathematical, informal and diagrammatic.
- C4-Work effectively both independently and/or as part of a team.
- C5-Reflect upon their work and the work of others and explain, justify and otherwise defend their work and ideas, with reference to academic, professional issues, debates and conventions.