Aston University

PROGRAMME SPECIFICATION
(2012-13)

Programme Title	Computing Science
UCAS/JACS Code	G400
School/Subject Area	Engineering and Applied Science / Computer Science
Final Award	BSc Honours
Interim Awards	Certificate of Higher Education (stage 1) Diploma of Higher Education (stage 2)
Mode(s) of Study	Full-Time or Sandwich including optional placement year
Normal Length of Program	3 academic years (full-time) or 4 years (sandwich, comprising: two academic years; 40 week placement during third year; final academic year)
Total Credits	360 (full-time), 480 (sandwich)
Programme Accredited By	British Computer Society Chartered IT Professional (CITP) Accreditation
Dates Program Specification Written and Revised	December 2002, August 2006, August 2007, August 2008, July 2011

Education Aims of the Programme	• Produce Graduate Software Engineers who specialize in object-oriented software design and Implementation. Graduates will be highly attractive to employers and well prepared for a rewarding career as a computing professional adaptable to a wide range of employment opportunities. • Develop practical information systems engineering capability based on well-founded principles, allowing graduates to be seen as candidate software engineers. • Promote generic attributes appropriate to professionally oriented graduates. • Enable students opting for the sandwich variant of the programme to enhance their career preparation through a period of structured professional training. • Provide a participation route leading to professional computing employment that is accessible to students who have demonstrated good intellectual aptitude rather than necessarily subject-specific preparation.
Relevent Subject Benchmark Statements and other External and Internal Reference Points used to inform programme outcomes	• Framework for Higher Education Qualifications • Quality Assurance Agency for Higher Education subject benchmark statement for Computing • Professional approval requirements of the British Computer Society • Curriculum recommendations of the Association for Computing Machinery • SFIA Skills Framework for the Information Age

Programme Structures and Requirements: Levels, Modules and Credits Stage 1				
Module Title	**Credits**	**Level**	**Module Code**	**Core**
Information Systems and Databases	20	4	CS1050	YES
Academic and Professional Communication Skills	10	4	CS1150	YES
Introduction to Computer Systems	10	4	CS1170	YES
Internet Computing	10	4	CS1240	YES
Mathematics for Computing Professionals	10	4	CS1260	YES
Java Programming Foundations (CS)	20	4	CS1310	YES
Problem Solving	10	4	CS1320	YES
Java Program Development	20	4	CS1410	YES
Computer Systems Organisation	10	4	CS1420	YES
TOTAL	120			

Programme Structures and Requirements: Levels, Modules and Credits Stage 2				
Module Title	**Credits**	**Level**	**Module Code**	**Core**
Group Project (CS)	20	5	CS2010	YES
Software Engineering	20	5	CS2020	YES
Programming Language Concepts	10	5	CS2130	YES
Computer Graphics	10	5	CS2150	YES
Professional and Social Aspects of Computing	10	5	CS2160	YES
Operating Systems	10	5	CS2230	YES
Human-Computer Interaction	10	5	CS2260	YES
Data Structures and Algorithms with Java	10	5	CS2310	YES
Introduction to Computational Intelligence	10	5	CS2320	YES
Internet Applications and Techniques	10	5	CS2410	YES
TOTAL	120			

Programme Structures and Requirements: Levels, Modules and Credits Stage P				
Module Title	**Credits**	**Level**	**Module Code**	**Core**
Professional Placement	120	P	CSP010	NO
TOTAL	120			

Programme Structures and Requirements: Levels, Modules and Credits **Stage F**				
Module Title	**Credits**	**Level**	**Module Code**	**Core**
Computer Animation	10	5	CS2420	NO
Individual Project	40	6	CS3010	YES
Mobile Design and Development	20	6	CS3040	NO
Enterprise Application Technology	10	6	CS3160	NO
Natural Language Processing and Applications	10	6	CS3180	NO
Information Security	10	6	CS3190	NO
Geographic Information Systems	10	6	CS3210	NO
Distributed Systems	10	6	CS3250	NO
Testing and Reliable Software Engineering	10	6	CS3270	YES
Multimedia Information Retrieval	10	6	CS3320	NO
Image and Video Processing	10	6	CS3330	NO
Multi Agent Systems	10	6	CS3340	NO
Software Project Management	10	6	CS3360	YES
Interaction Design	10	6	CS3410	NO
Data Mining	10	6	CS3440	NO
Game Development	10	6	CS3450	NO
Enterprise Computing Strategies	10	6	CS3460	NO
TOTAL	120			

Programme Outcomes, Learning and Teaching and Assessment Strategies			
Knowledge and Understanding			
	On successful completion of their programme students, are expected to have knowledge and understanding of:	**Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated**	
		Learning and Teaching Methods	**Assessment Methods**
1	Concepts and principles of information systems engineering (ISE), emphasising software engineering, computer systems and application technologies	A mixture of formal lectures, tutorial classes, computing laboratory classes, independent practical work associated with taught and project modules, independent study. For the sandwich option, an agreed programme of professional experience and training.	Knowledge and understanding are assessed through unseen examinations and project reports, and (particularly in the case of (2)), through coursework reports. Assessment of the sandwich option is based on: • a reflective log-book kept by the student • ananalytical final report written by the student • reports by an academic supervisor, taken together with the employers views.
2	Analysis, design and implementation methods applicable to ISE		
3	Mathematics relevant to ISE		
4	The legal, social and ethical context for professional ISE		
5	Problem solving strategies		
6	Concepts and principles and methodologies relevant to chosen areas of specialisation, thereby acheiving additional depth and breadth		
7	(Sandwich students only) The relevance of the programme's discipline-specific and generic content to the professional world		

Intellectual Skills			
	On successful completion of their programme students, are expected to have knowledge and understanding of:	**Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated**	
		Learning and Teaching Methods	**Assessment Methods**
1	Analyse requirements of computing solutions and design solutions	Intellectual skills are developed through formal lectures (often including suitable case studies), tutorial classes, practical work (both assessed and unassessed) associated with taught modules, and project work.	Unseen written examinations, coursework submissions relating to design exercises, project reports and presentations.
2	Plan, conduct and report on a programme of work covering multiple ISE lifecycle stages and leading to an end-product, with evaluation of end-product and process		
3	Integrate and apply knowledge and methods from a variety of sources		

Professional Skills			
	On successful completion of their programme students, are expected to have knowledge and understanding of:	**Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated**	
		Learning and Teaching Methods	**Assessment Methods**
1	Construct, test and document computer software	Formal lectures (including suitable case studies), tutorial classes,practical work (both assessed and unassessed) associated with taught modules, and project work.	Unseen written examinations, coursework submissions relating to design exercises, project reports and presentations.
2	Use a variety of programming languages, software tools and environments		
3	Apply Internet technology		
4	Prepare technical reports and presentations		
5	Use appropriate diagrammatic and formal written notations in design work and in reports		

Transferable Skills			
	On successful completion of their programme students, are expected to have knowledge and understanding of:	**Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated**	
		Learning and Teaching Methods	**Assessment Methods**
1	The ability to communicate effectively in writing and through technical diagrams	Written and oral communication and information skills are taught in a dedicated module employing tutorial classes and practical work. Other skills are developed through practical work for taught modules,project work, and the professional placement option.	An English Speaking Board oral examination provides independent certification for (1). Other assessments (particularly project reports and presentations) provide direct or indirect evidence of the level of skills acquired.
2	The ability to communicate effectively through oral presentation		
3	Information gathering skills		
4	Team-working skills		
5	A capability for independent working able to tackle substantial practical problems with limited individual guidance		
6	Problem solving skills		
7	Good ICT skills		
8	Time management skills		

Entry Requirements	As specified by the General Regulations for Undergraduate Programmes, plus a pass in mathematics at GCSE grade B or above or a qualification recognised as equivalent.
Programme Regulations	**Attendance requirements** Full-time students are normally required to attend the University for the first, second and third term of each of three consecutive academic years. Sandwich students are normally required to attend the University for the first, second and third term of the first, second and fourth of four consecutive academic years, and undertake an integrated programme of professional training between the second and fourth academic years. The approved specification for any particular module may include assessment elements that require attendance at scheduled classes. **Professional Training** The programme of professional training undertaken by a sandwich student must be approved by the Associate Dean for Undergraduate Programmes and of at least 40 weeks duration, excluding any periods of vacation.It will be assessed on a pass/fail basis and will not contribute to the overall degree classification. **Specific assessment requirements for modules** The module *CS1310, Java Programming Foundations,* is fundamental to the entire programme of study and cannot be condoned for progression on the Honours Degree, but may be condoned for progression on the Ordinary Degree. **Requirements for the Ordinary Degree** The modules taken in a particular stage of study by a student who has transferred to the Ordinary Degree are derived from those for the corresponding stage of the Honours Degree by omitting selected modules to reduce the credit requirement of the stage. The modules omitted must be approved by the Associate Dean for Undergraduate Programmes. Project modules (CS2010 and CS3010) cannot be omitted. **Exemptions from (Professional Qualification) examinations** BCS Accreditation means that a graduate has fulfilled the academic requirement for registration as a Chartered IT Professional (CITP) **Alterations to the programme for 2012/13** CS3180 and CS3340 will not be available in 2012/13.

This specification provides a concise summary of the main features of the programme and the threshold learning outcomes that a student might normally be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. **The individual modules included in the programme may differ from those included in this programme specification as our programmes are subject to continuous review**. Information on admissions requirements and career opportunities is available in the relevant prospectus. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the appropriate module guides and programme handbook(s) which are available to students on enrolment.