Programme Specification

MSc Web Technology (2017-18)

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

Awarding Institution	University of Southampton
Teaching Institution	Electronics and Computer Science University of Southampton Highfield Campus
Mode of Study	Full Time
Duration in years	1 Year
Accreditation details	Currently Partially Accredited by the BCS
Final award	Master of Science (MSc)
Name of award	Web Technology
Interim Exit awards	Postgraduate Diploma (PgDip) Postgraduate Certificate (PgCert)
FHEQ level of final award	Level 7
UCAS code	N/A
QAA Subject Benchmark or other external reference	Framework for Higher Education Qualifications and Subject Benchmark Statement (Computing Masters) The BCS Accreditation Guidelines The IET Learning Outcomes Handbook The Engineering Council UK-SPEC
Programme Coordinator	Leslie Carr
Date specification was written	10/06/2015
Date Specification last updated	08/12/2017

Programme Overview

Brief outline of the programme

The Web is a foundational technology for the digital economy, including the architecture and services that support a mobile infrastructure of social networks and big data services. This programme is a masters degree, aimed at enabling students to further their specialist knowledge of Web Technology. This programme is taken mainly by international students with a first degree in computing (or a closely related subject plus significant computing experience). The modules which comprise this masters degree covers state of the art techniques, technologies, and supporting tools, and expose students to their applications in meeting emerging business and social needs, and solving challenging problems. On this programme, students engage in focussed study on a number of advanced compulsory modules dedicated to Web Technology and can also pick a range of options across areas as diverse as Artificial Intelligence, Cyber Security, Software Engineering, and Web Technology in order to complement their core degree topic.

There is one compulsory module each semester, starting with an outline of the fundamental architecture of the Web as a basis for all other topics. In the second semester the focus is on preparing students for their project and enhancing their dissertation writing skills through the creation of a rigorous and peer reviewed project proposal.

Finally, during the summer the core research project enables students to demonstrate their mastery of specialist techniques, relevant methods of enquiry, and their ability to design and deliver advanced application, systems and solutions to a tight deadline, including the production of a substantial dissertation.

Please note: As a research-led University, we undertake a continuous review of our programmes to ensure quality enhancement and to manage our resources. As a result, this programme may be revised during a student's period of registration, however, any revision will be balanced against the requirement that the student should

receive the educational service expected. Please read our **Disclaimer** to see why, when and how changes may be made to a student's programme.

Programmes and major changes to programmes are approved through the University's programme validation process which is described in the University's Quality handbook.

Learning and teaching methods are explained in the following sections covering programme learning outcomes.

Assessment methods are explained in the following sections covering programme learning outcomes.

Educational Aims of the Programme

The aims of the programme are to:

a) Provide you with advanced knowledge of Web Technology topics and specialist areas such as Cyber Security or Web Science
b) Develop your research and development skills applicable to a career in Web Development, IT in the Digital Economy and software research
c) Stimulate your interest in Web Technology, and develop your ability to act as an ambassador for the subject

Programme Learning Outcomes

Knowledge and Understanding

Having successfully completed this programme you will be able to demonstrate knowledge and understanding of:

A1 Key concepts of Web Technology
A2 Advanced concepts in specialist areas of Web Technology such as Cyber Security, Software Engineering, and Web Science
A3 State of the art techniques, technologies and tools used in these specialist areas
A4 Methods of software design, development and testing used in these specialist areas
A5 Applicable methods of research and enquiry within the discipline

Teaching and Learning Methods
A1-A5: Most modules consist of a combination of lectures, small group teaching, practical work, directed reading and coursework assignments. At the end of the taught part of the course you will undertake an individual project associated with a research group. Small group teaching, including all practical work, and the individual project accommodate different learning styles. One-on-one tutorials can support full-class lectures, when required.

Assessment methods
Testing of the knowledge base is through a combination of unseen written examinations and assessed coursework in the form of problem solving exercises, laboratory reports with literature review components, design exercises, and individual and small-group projects.

Subject Specific Intellectual and Research Skills

Having successfully completed this programme you will be able to:

B1 Model, and design advanced and specialised Web applications, Web services, and other Web-based solutions
B2 Test, evaluate, and maintain such applications and solutions
B3 Analyse problems to determine appropriate methods of design, testing and evaluation
B4 Find, read, understand and explain literature related to advanced and specialised areas of computer science, including scientific publications, industrial documentation, standards, ethical, legal and environmental guidance
B5 Formulate a research project involving an advanced and specialised Web application or system, using appropriate state of the art techniques, technologies and tools

Teaching and Learning Methods
B1-B4: Most modules consist of a combination of lectures, small group teaching, and computer-based practical work including advanced software development tools, directed reading and coursework assignments, which can include a literature review. B4, B5: The Project Preparation module and the Individual Project itself concern the formulation of a research project. Small group teaching, including all practical work, and the individual project accommodate different learning styles. One-on-one tutorials can support full-class lectures, when required.

Assessment methods
B1-B5: Testing of the subject specific intellectual and research skills is through a combination of unseen written examinations and assessed coursework in the form of problem solving exercises, laboratory reports with literature review components, design exercises, and individual and small-group projects.
B4: The Project Preparation module and the dissertation from the MSc Project include a significant literature survey and peer review, and have assessment criteria related specifically to these skills.
B5: The Project dissertation is centrally focussed on assessing software research and development skills.

Transferable and Generic Skills

Having successfully completed this programme you will be able to:

C1 Use conventional and electronic indexing and search methods to find technical information
C2 Present technical information concisely in written and verbal forms to a range of audiences
C3 Work in a pair or in a small group on a given task, managing your own contribution and the overall task
C4 Work independently on a significant research project, managing time and risk in an effective manner
C5 Recognise legal and ethical issues of concern to business, professional bodies, and society, including but not limited to information security, and follow relevant guidelines to address these issues

Teaching and Learning Methods
A number of courses have a significant coursework element. This can range from design work through to presentations resulting from directed reading. The individual project includes independent research, project management and report writing.
C1-C3: Most modules include small group teaching, practical work with one or more lab partners, directed reading and coursework assignments with a literature review component. The Project Preparation module includes project management and the delivery of a project plan via a presentation. Small group teaching, including all practical work, and the individual project accommodate different learning styles.
C4: The individual project includes independent research and report writing.
C5: Legal, ethical and professional issues are covered in the compulsory taught modules.

Assessment methods
Coursework is generally assessed through written reports. The individual project is assessed by a dissertation of up to 15,000 words. The Project Preparation module is assessed via a literature review, as well as written and presentation versions of the project plan.

Subject Specific Practical Skills

The exact subject specific practical skills developed by the programme depend upon the optional modules that you choose. Having successfully completed this programme you will be able to:

D1 Use specialist software development and analysis tools

Teaching and Learning methods:
D1: Most modules include practical work, involving use of specialised tools for software development or analysis.

Assessment methods
Assessment is based on coursework in the form of technical reports, software designs and implementation, and also the MSc dissertation.

Programme Structure

Typical course content

The programme consists of eight taught modules, each worth 7.5 ECTS credit points and an individual project worth 30 ECTS credit points. *(Note that COMP6220 and RESM6004 are co-requisites of each other and together make a total of 7.5 ECTS credits.)* The single compulsory module in each semester respectively relate to the fundamentals of Web Technology and the applicable methods of research and enquiry within the discipline. You can also choose from a wide range of optional topics. These include modules covering advanced and specialised aspects of Artificial Intelligence, Cyber Security, Software Engineering, Web Science, and Web Technology, allowing you to tailor the structure to suit your own interests.

It should be noted that it may not be possible to run some optional modules if the number of students registered on the module is very small. It should also be noted that optional module choice can be restricted by the University Timetable, which varies from year to year: some optional modules may clash with other optional or compulsory modules. Please be aware that many modules are shared between different cohorts; the class size depends on cohort size, which varies from year to year.

Module choice: three options per semester.

Special Features of the programme

Southampton is recognised to be internationally leading in the areas mentioned above, and specialist modules are taught by staff involved in leading edge research. Students are therefore exposed to the most up to date thinking, current research problems, and state of the art techniques, technologies and tools.

Programme details

There are a number of compulsory and optional modules. Most of these options are shared with our Master of Engineering programmes in Computer Science and the other specialist MSc programmes we run.

The following is the normal pattern of study for a full-time student, completing the programme within 12 calendar months.

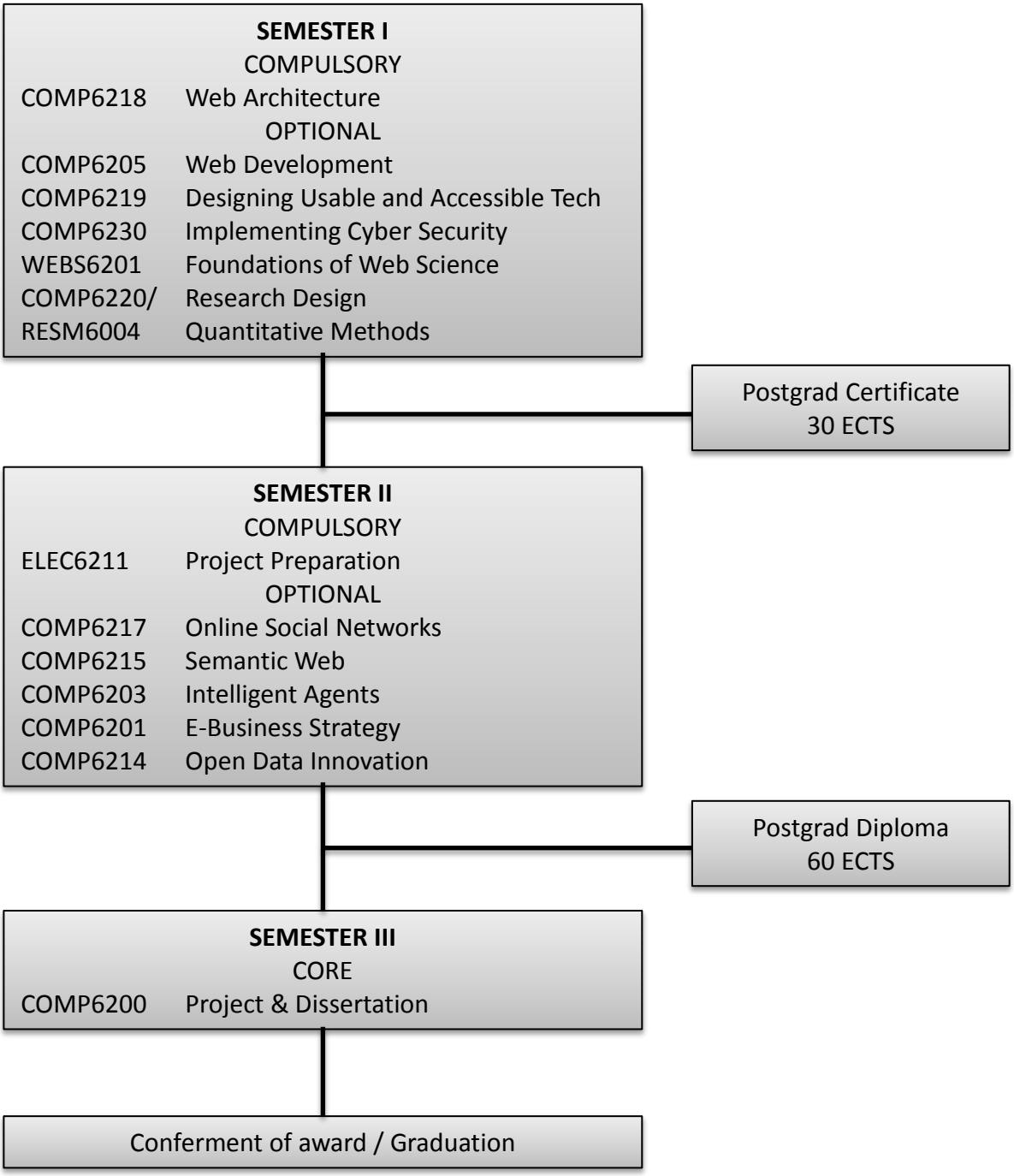
Semester 1: Four modules, including those specified as compulsory for the MSc programme. Examinations are held in January.

Semester 2: Four modules; including those specified as compulsory for the MSc programme. Examinations are held in May/June.

Summer/Part II/Semester 3: Following the successful completion of the taught component of the programme, you will undertake a research project lasting up to 14 weeks, which is assessed by a 15,000 word dissertation.

The diagram below shows the overall structure and exit points.

MSc Web Technology Programme Structure



Additional Costs

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. Costs that students registered for this programme typically also have to pay for are included in Appendix 2.

Progression Requirements

The programme follows the University's regulations for Stand-alone Masters programmes as set out in the University Calendar, and the ECS specific regulations which supplement these. See sections IV and XII of http://www.calendar.soton.ac.uk/. The pass mark for MSc modules is 50%, and the regulations cover the progression criteria, referral, repeat and resubmission arrangements, together with degree classification.

Intermediate exit points

You will be eligible for an interim exit award if you complete part of the programme but not all of it, as follows:

Qualification	Minimum overall credit in ECTS credits	Minimum ECTS credits required at level of award
Postgraduate Diploma	at least 60	45
Postgraduate Certificate	at least 30	20

Support for student learning

There are facilities and services to support your learning some of which are accessible to students across the University and some of which will be geared more particularly to students in your particular Faculty or discipline area.

The University provides:

- library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
- high speed access to online electronic learning resources on the Internet from dedicated PC Workstations onsite and from your own devices; laptops, smartphones and tablet PCs via the Eduroam wireless network. There is a wide range of application software available from the Student Public Workstations. Students can also access SVE (Southampton Virtual Environment), a virtual Windows University of Southampton desktop that can be accessed from personal devices such as PCs, Macs, tablets and smartphones from any location.
- computer accounts which will connect you to a number of learning technologies for example, the Blackboard virtual learning environment (which facilitates online learning and access to specific learning resources)
- standard ICT tools such as Email, secure filestore and calendars.
- access to key information through the MySouthampton Student Mobile Portal which delivers timetables, Module information, Locations, Tutor details, Library account, bus timetables etc. while you are on the move.
- Central IT support is provided through a comprehensive website, telephone and online ticketed support and a dedicated helpdesk in the Hartley Library foyer
- Enabling Services offering assessment and support (including specialist IT support) facilities if you have a disability, dyslexia, mental health issue or specific learning difficulties
- the Student Services Centre (SSC) to assist you with a range of general enquiries including financial matters, accommodation, exams, graduation, student visas, ID cards
- Career Destinations, advising on job search, applications, interviews, paid work, volunteering and internship opportunities and getting the most out of your extra-curricular activities alongside your degree programme when writing your CV
- a range of personal support services : mentoring, counselling, residence support service, chaplaincy, health service
- a Centre for Language Study, providing assistance in the development of English language and study skills for non-native speakers.

The Students' Union provides

- An academic student representation system, consisting of Course Representatives, Academic Presidents, Faculty Officers and the Vice-President Education; SUSU provides training and support for all these representatives, whose role is to represent students' views to the University.
- Opportunities for extracurricular activities and volunteering.
- An Advice Centre offering free and confidential advice including support if you need to make an academic appeal.
- Support for student peer-to-peer groups, such as Nightline.

Associated with your programme you will be able to access:

- The tutorial system – you will have a personal tutor whom you can meet on request for advice on your programme and choice of options, or for pastoral support
- The ECS Student Advisory Team who provide additional pastoral support
- ECS computer workstations, with a range of manuals and books
- Specialist project laboratories
- Personal email account and web access, including use of on-line collaboration tools
- Helpdesk (programming advisory)
- Post-graduate demonstrators who provide additional support for your design projects
  A web-site for each taught module, typically with teaching materials

Methods for evaluating the quality of teaching and learning

You will have the opportunity to have your say on the quality of the programme in the following ways:

- Completing student evaluation questionnaires for each module of the programme.
- Acting as a student representative on various committees, e.g. Staff: Student Liaison Committees, Faculty Programmes Committee OR providing comments to your student representative to feed back on your behalf.
- Serving as a student representative on Faculty Scrutiny Groups for programme validation.
- Taking part in programme validation meetings by joining a panel of students to meet with the Faculty Scrutiny Group.

The ways in which the quality of your programme is checked, both inside and outside the University, are:

- Regular module and programme reports which are monitored by the Faculty.
- Programme validation, normally every five years.
- External examiners, who produce an annual report.
- Professional body accreditation/inspection.
- A national evaluation of research – which is relevant since our research activity contributes directly to the quality of your learning experience.
- Higher Education Review by the Quality Assurance Agency.

Criteria for Admission

The University's Admissions Policy applies equally to all programmes of study. The following are the typical entry criteria to be used for selecting candidates for admission. The University's approved equivalencies for the requirements listed below will also be acceptable.

Undergraduate programmes

Qualification	Grades	Subjects required	Subjects not accepted	EPQ Alternative offer (if applicable)	Contextual Alternative offer (if applicable)
GCE A level					
GCSE					
BTEC					
International Baccalaureate					
European Baccalaureate					

Postgraduate programmes

Qualification	Grade/GPA	Subjects requirements	Specific requirements
Bachelor's degree	2:1 Honours	Good base of computing modules at 2.1 level ideal, web design, Computer Architecture, programming languages, networks, database, web design, Artificial intelligence.	
Master's degree			

Mature applicants
Applications from mature students (over 21 years in the October of the year of entry) are welcome. Applications will be considered on an individual basis.

English Language Proficiency

Overall	Reading	Writing	Speaking	Listening
6.5	6.0	6.0	6.0	6.0

Career Opportunities

Graduates from our MSc programme are employed worldwide in development and consultancy roles in a number of leading companies at the forefront of information technology; and some have gone on to doctoral study and University careers, while others have been involved in IT start-ups. ECS runs a dedicated careers hub which is affiliated with over 100 renowned companies like IBM, ARM, Microsoft Research, Imagination Technologies, Nvidia, Samsung and Google to name a few. Visit our careers hub for more information.

External Examiners(s) for the programme

Name Prof Russell Beale
Institution. University of Birmingham

Students must not contact External Examiner(s) directly, and external examiners have been advised to refer any such communications back to the University. Students should raise any general queries about the assessment and examination process for the programme with their Course Representative, for consideration through Staff: Student Liaison Committee in the first instance, and Student representatives on Staff: Student Liaison Committees will have the opportunity to consider external examiners' reports as part of the University's quality assurance process. External examiners do not have a direct role in determining results for individual students, and students wishing to discuss their own performance in assessment should contact their personal tutor in the first instance.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided. More information can be found in the student handbook online at http://www.fpse.soton.ac.uk/student_handbook.

Appendix 1: Learning Outcomes and Assessment

Learning Outcomes		Knowledge and Understanding					Subject Specific Intellectual Skills					Transferable and Subject Specific Practical Skills					
Module Code	**Module Title**	**A 1**	**A 2**	**A 3**	**A 4**	**A 5**	**B 1**	**B 2**	**B 3**	**B 4**	**B 5**	**C 1**	**C 2**	**C 3**	**C 4**	**C 5**	**D 1**
S1 – compulsory																	
COMP6218	Web Architecture		X	X	X		X	X	X			X	X	X			X
S2 – compulsory																	
ELEC6211	Project Preparation	X				X			X	X	X	X	X		X	X	
Summer – core																	
COMP6200	MSc Project	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
S1 – most popular options																	
COMP6205	Web Development	X	X	X	X		X	X	X			X	X			X	X
COMP6219	Designing Usable and Accessible Technologies	X	X	X	X		X			X		X				X	X
COMP6230	Implementing Cyber Security	X	X	X	X		X		X	X		X				X	X
WEBS6201	Foundations of Web Science		X	X		X				X		X	X		X	X	
RESM6004	Research Design					X					X		X	X	X		
COMP6220	Quantitative Methods I					X					X				X		
S2 – most popular options																	
COMP6217	Online Social Networks	X	X	X	X				X	X		X	X	X		X	
COMP6215	Semantic Web	X		X	X		X	X	X				X				
COMP6203	Intelligent Agents		X	X	X		X	X	X					X			
COMP6201	E-Business Strategy		X	X	X		X	X	X					X			X
COMP6214	Open Data Innovation		X	X	X		X	X	X	X		X	X	X	X		X

Module Code	**Module Title**	**Assessment Methods**		
		Coursework 1	**Coursework 2**	**Exam**
Semester 1 - compulsory modules				
COMP6218	Web Architecture	Report 50%	-	2 hours 50%
Semester 2 - compulsory modules				
ELEC6211	Project Preparation	General Literature Review **40%**	Project Plan **30**%, Poster **30%**	-
Part II - core module				
COMP6200	MSc Project	MSc dissertation **100 %**	-	-
Semester 1 – the most popular optional modules				
COMP6205	Web Development	Web Site **40**%	-	2 hours, **60**%
COMP6219	Designing Usable and Accessible Technologies	Report, 70%	Website, 20% Presentation, 10%	-
COMP6230	Implementing Cyber Security	Group Exercise, 20%	Individual Reflection,10%	2 hours, 70%
WEBS6201	Foundations of Web Science			
RESM6004	Research Design			
COMP6220	Quantitative Methods I			

Semester 2 – the most popular optional modules				
COMP6217	Online Social Networks	Group project **40**%		2 hours, **60**%
COMP6215	Semantic Web	Ontology Design Exercise 25%		2 hours 75%
COMP6203	Intelligent Agents	Trading Agent Competition **40**%	-	1.5 hours, **60**%
COMP6201	E-Business Strategy	Business Evaluation 25%	Proposal Presentation 25%	Group report on new business solution 50%
COMP6214	Open Data Innovation	Infographic Evaluation, 20%	Innovation Pitch, 30%	-
		Application, 30%	Report, 20%	

Appendix 2:

Additional Costs

Students are responsible for meeting the cost of essential textbooks, and of producing such essays, assignments, laboratory reports and dissertations as are required to fulfil the academic requirements for each programme of study. In addition to this, students registered for this programme typically also have to pay for the items listed in the table below.

In some cases you'll be able to choose modules (which may have different costs associated with that module) which will change the overall cost of a programme to you. Details of such costs will be listed in the Module Profile. Please also ensure you read the section on additional costs in the University's Fees, Charges and Expenses Regulations in the University Calendar available at www.calendar.soton.ac.uk.

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
Approved Calculators		Candidates may use calculators in the examination room only as specified by the University and as permitted by the rubric of individual examination papers. The University approved models are Casio FX-570 and Casio FX-85GT Plus. These may be purchased from any source and no longer need to carry the University logo.
Stationery		You will be expected to provide your own day-to-day stationary items, e.g. pens, pencils, notebooks, etc). Any specialist stationery items will be specified under the Additional Costs tab of the relevant module profile.
T**extbooks**		Where a module specifies core texts these should generally be available on the reserve list in the library. However due to demand, students may prefer to buy their own copies. These can be purchased from any source. Some modules suggest reading texts as **optional** background reading. The library may hold copies of such texts, or alternatively you may wish to purchase your own copies. Although not essential reading, you may benefit from the additional reading materials for the module.
Equipment and Materials Equipment	Art Equipment and Materials: Drawing paper; painting materials; sketchbooks	
	Art Equipment and Materials: Fabric, Thread, Wool	
	Design equipment and materials:	
	Excavation equipment and materials:	
	Field Equipment and Materials:	
	Laboratory Equipment and Materials:	
	Medical Equipment and Materials: Fobwatch; stethoscopes;	

Main Item	Sub-section	PROGRAMME SPECIFIC COSTS
	Music Equipment and Materials	
	Photography:	
	Recording Equipment:	
IT	Computer Discs	
	Software Licenses	
	Hardware	
Clothing	Lab Coats	
	Protective Clothing: Hard hat; safety boots; hi-viz vest/jackets;	
	Fieldcourse clothing:	
	Wet Suits?	
	Uniforms?	
Printing and Photocopying Costs		In the majority of cases, coursework such as essays; projects; dissertations is likely to be submitted on line. However, there are some items where it is not possible to submit on line and students will be asked to provide a printed copy.
Fieldwork: logistical costs	Accommodation:	
	Insurance	
	Travel costs	
	Immunisation/vaccination costs	
	Other:	
Placements (including Study Abroad Programmes)	Accommodation	
	Insurance	
	Medical Insurance	
	Travel costs	
	Immunisation/vaccination costs	
	Disclosure and Barring Certificates or Clearance	
	Translation of birth certificates	
	Other	
Conference expenses	Accommodation	
	Travel	
Optional Visits (e.g. museums, galleries)		
Professional Exams		
Parking Costs		
Anything else not covered elsewhere		

Revision History

1. Written by Leslie Carr, based on the University template and key exemplars in ECS (9/04/14)
2. Update to Support and Student Learning, IT Services - June 2015
3. Update to Language Requirements - June 2015
4. Approved by ECS Education Committee - 10 June 2015
5. Update to Programme Overview (CMA Changes) – 24 August 2015
6. Update to Programme Overview (CMA Changes) – 14 September 2015
7. 2016-17 FPC Approval – 24 February 2016
8. Optional Module Viability added – 07 December 2016
9. Roll-over to 2017-18; COMP6218 assessment updated – 07 March 2017
10. FPC approval 2017-18 – 08 March 2017
11. FPC approval of optional module size caveat – 08 December 2017