STUDENT AND ACADEMIC SERVICES

PROGRAMME SPECIFICATION

Part 1: Basic Data	
Awarding Institution	University of the West of England, Bristol
Teaching Institution	University of the West of England levels 1, 2 and 3
Delivery Location	Frenchay Campus, University of the West of England
Study abroad / Exchange / Credit recognition	
Faculty responsible for programme	Environment and Technology
Department responsible for programme	Computer Science and Creative Technologies
Modular Scheme Title	FET
Professional Statutory or Regulatory Body Links	Confirmation of accreditation for this integrated programme is being sought
Highest Award Title	BSc(Hons) Computing
Default Award Title	
Fall-back Award Title	BSc(Hons) Computer Studies
Interim Award Titles	BSc Computing Dip HE Computing Cert HE Computing
UWE Progression Route	
Mode(s) of Delivery	Full-time and Sandwich with Foundation year
Codes	**UCAS: I10F** **JACS:** **ISIS2: G401** **HESA:** **I10F (SW), I10F13 (FT)**
Relevant QAA Subject Benchmark Statements	Computing
First CAP Approval Date	4 June 2015 Valid from September 2015
Revision CAP Approval Date	31 Jan 2017 Valid September 2017 16 Jan 2018 v3 from September 2018 v3
Version	3
Review Date	2019

Part 2: Educational Aims of the Programme

The BSc in Computing has the following general aims:

1. To prepare students for entry into the computing profession and the more general challenges of professional and personal life.
2. To inculcate in students problem-solving and other transferable skills that will be valuable to them in any career.
3. To continue the development of those general study skills that will enable students to become independent, lifelong learners.

Part 2: Educational Aims of the Programme

The BSc in Computing has the following specific aims:

1. To provide a broad-based treatment of the fundamental aspects of computing, the development of computer systems, software engineering, and the application of computing to practical problems;
2. To develop sufficient experience, knowledge and understanding to enable students to analyse, model and develop applications in a diverse application areas such as internet systems, database applications and modern component-based construction;
3. To prepare students for computing careers in business, industry, and commerce, or in organisations with a significant in-house IT management culture.

Programme requirements for the purposes of the Higher Education Achievement Record (HEAR)

Graduates of this programme will be technically competent software designers and developers, fluent in a number of programming languages. They will understand the need to control the software development process and will be able to use software engineering methods to achieve this. They will also have knowledge of the relationship between business requirements and IT and have a sufficient knowledge of computer and network hardware to be able to operate effectively in a new computing environment.

A successful graduate will be   ready to enter IT, web development, network, database, or any other computing related professions.

Part 3: Learning Outcomes of the Programme

The focus of the foundation year (level 0) is on the acquisition both of appropriate academic skills and relevant subject knowledge to allow students to develop and progress through levels 1, 2 and 3 in relation to knowledge and understanding, cognitive, subject specific and study skills.

The award route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas:

Learning Outcomes:	Year1				Year 2					Year 3			
	UFCFTK-30-1	UFCFA3-30-1	UFCFB3-30-1	UFCFF6-30-1	UFCFV4-30-2	UFCFVK-15-2	UFCFWK-15-2	UFCFK4-30-2	UFCFK6-30-2	UFCFR4-45-3	UFCFB5-15-5	UFCFM6-15-3	UFCFU3-15-3
A) Knowledge and understanding of:													
Concepts, methods and techniques underpinning the systematic engineering of software		x		x	x	x	x	x	x				
Being professional in a technical environment	x				x				x	x	x	x	
Programming language concepts; syntax and semantics; top-down development; programming to satisfy designs				x				x		x			
Program design concepts, methods, and notations; object-oriented design and other design paradigms; algorithms; design patterns				x				x	x	x			
The concepts of computer science and mathematical tools for computing		x											
The concepts underpinning World-Wide Web technology and web-based application development	x		x		x								
The concepts underpinning distributed systems and networks						x	x						x
IT as a support for business	x		x		x							x	
Object-oriented and relational databases; logical and physical database design; database query languages; data schemas		x											x
(B) Intellectual Skills													
Critical Thinking	x	x	x		x			x	x	x	x	x	x

Part 3: Learning Outcomes of the Programme													
Analysis	x	x	x		x			x	x	x		x	x
Synthesis of different types of information	x		x		x			x	x				x
Evaluation	x	x	x	x	x	x	x	x	x	x		x	x
Problem Solving	x	x	x	x	x	x	x	x	x	x		x	x
Appreciate problem contexts	x	x	x	x	x	x	x		x	x			x
Balance conflicting objective	x	x	x					x	x	x		x	x
Construction of logical arguments	x	x							x	x			
Discussion and debate about technical subjects with peers	x		x					x	x			x	x
(C) Subject/Professional/Practical Skills													
Write programs that conform to requirements and designs		x		x		x	x	x	x	x			
Create high-level and low-level designs that correspond to stated requirements			x		x	x	x	x	x		x		
Design databases to meet application requirements	x		x		x								x
Perform adequate tests on programs			x		x	x	x	x	x				
Know how to use existing components and frameworks to build new applications	x		x		x	x	x		x				
Employ a range of tools and notations to support the activities listed above: e.g. editors, compilers, design workbenches, HTML, CGI, Java etc.	x		x		x				x				
Build web-based programs	x		x		x								
Use tools and methods to elicit requirements	x		x		x			x	x				x
(D) Transferable skills and other attributes													
Communication skills: to communicate orally or in writing.	x	x	x		x	x	x	x	x	x	x	x	x
Self-management skills: to manage one's own time; to meet deadlines; to work with others.	x	x	x	x	x	x	x	x	x	x	x	x	x
IT skills in context: to use software tools in the context of application development.	x		x		x	x	x	x	x				x
Logical reasoning skills: To undertake analysis and interpretation of information in the context of the Computing discipline.	x	x	x	x	x			x	x	x			
Problem formulation: To express problems in appropriate notations.	x	x		x	x			x	x				x
Progression to independent learning: To gain experience of, and to develop skills in, learning independently of structured class work. For example, to develop the ability to use on-line facilities to further self-study.	x	x		x	x	x	x	x					x
Comprehension of professional literature: to read and to use literature sources appropriate to the discipline to support learning activities.	x	x	x	x	x	x	x	x	x	x	x	x	x

Part 4: Student Learning and Student Support

Teaching and learning strategies to enable learning outcomes to be achieved and demonstrated

At UWE, Bristol there is a policy for a minimum average requirement of 12 hours/week contact time over the course of the full undergraduate programme. This contact time encompasses a range of face:face activities as described below. In addition a range of other learning activities will be embedded within the programme which, together with the contact time, will enable learning outcomes to be achieved and demonstrated.

On the BSc Computing programme teaching is a mix of scheduled, independent and placement learning.

Scheduled learning includes lectures, seminars, tutorials, project supervision, demonstration, practical classes; external visits. Scheduled sessions may vary slightly depending on the module choices made.

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc. These sessions constitute an average time per level as indicated in the table below. Scheduled sessions may vary slightly depending on the module choices made.

Placement learning: may include a practice placement. If a student takes a placement year, they may also decide to undertake the level-three module, Professional Experience, while they are undertaking the

Part 4: Student Learning and Student Support

placement

Description of the teaching resources provided for students

Class-based Activities Classes use a range of activities. The particular mode of delivery of a module is determined by its Module Leader, and typically involves a combination of one or more lectures, practical sessions, group activities and group project work. Modules on the programme that require laboratory classes are commonly delivered by means of a combination of lecture and practicals/tutorials.

Academic Support Academic advice and support is the responsibility of the staff delivering the module. Outside of normal timetabled hours, advice and guidance on matters relating to the material being taught and on its assessment can be obtained either by arranging an appointment with academic staff or during published "surgery" hours. Appointments are most commonly arranged by email.

In addition, all students are allocated Academic Personal Tutor (APT) to whom they can turn for general academic advice related to their studies. From time to time students can expect their APT to invite them to meet to discuss their progress.

As a supplement to this formal academic support, all modules at level 1 (i.e. first year modules) include timetabled Peer-Assisted Learning (PAL) sessions. These classes are extra to the sessions timetabled with academics and provide new students with a significant additional resource, over and above the normal 12 hours contact time. PAL sessions are led by trained PAL leaders; second and final year students who are able to use their experience during the first year to help the newer students overcome barriers to success in their studies.

On-line Academic Support Extensive on-line support for this programme is provided through the University portal (myUWE). This provides access to the University's e-library, which allows students to read academic journals and study-skills material. Of particular interest to students of this programme is access to the ACM, IEEE and British Standards Online databases. The portal also gives entry to UWE's Virtual Learning Environment (Blackboard) which is used by academics to make available general information about the module delivery, handbooks, lecture notes and other materials. In addition, the portal publishes individual student timetables, marks and other aspects of the operation of the programme and University life.

Independent Study
All modules require students to carry out independent study, such as preparation for classes. research for projects and completion of assignments. A full range of facilities are available at all sites to help students with these. The philosophy is accordingly to offer students both guided support and opportunities for independent study. Guided support is mainly in the form of timetabled sessions. Students are expected to attend all sessions on their timetable.

The habits and practice of independent study is then developed through the support offered in individual modules. Typically, module leaders will provide a plan for the module indicating the activities to be carried out and the forms of learning to be undertaken during the delivery of the module, with a view to encouraging students to plan ahead and to take responsibility for managing their time and resources.

Computing Facilities In 2012 the Faculty has undertaken a major new build of computing facilities in which it offers a specialised computing facility alongside the general University provisions. There are multiple computing laboratories of 20 plus seats running Windows, Linux and dual-boot systems required for this program. Computers within the specialist laboratories include the standard University build augmented by software resources and hardware equipment necessary for the delivery of the modules. For example, the specialist Forensic and Security laboratory runs virtual machine and industry-standard specialist software.

In addition, one of the most popular areas within the Faculty is the Open Access laboratory. This area is never timetabled and gives students the opportunity to access machines at all times during opening hours.

Description of any Distinctive Features

The foundation year is common with a number of other Computer Science and Creative Technology programmes which allows the flexibility for students to transfer between programmes in this subject area as is most appropriate to their emergent subject and/or their professional interests.

Pastoral Support
Pastoral care is provided through the University-wide Student Advisers, a team of staff who provide

Part 4: Student Learning and Student Support

comprehensive, full-time student support service on a drop-in basis or by appointment. Advisers are trained to provide advice on matters commonly of concern, including regulatory and other matters; the Adviser will, when necessary, advise the student to seek advice to from other professional services including the University's Student Services Department or from members of academic staff.

Field Trips
The CSCT department organises annual field trips which are largely subsidised by University. Trips are not compulsory, but often attract many students. Visiting places like Bletchley Park and the National Museum of Computing stimulates student's interests on computing history and information securities. It helps students to be more motivated on their study. Moreover it also helps to enhance students' experiences.

Part 5: Assessment

Approved to University Regulations and Procedures

It is the Award Board's responsibility to determine whether the student's attainment at level 0 is sufficient to progress to level 1.

Assessment Strategy

Assessment strategy to enable the learning outcomes to be achieved and demonstrated:

1. Assessment are designed to promote academic integrity
2. The range of assessments embrace the development of skills and attributes that emerge from group working, problem solving, and from experience in practical and professional contexts
3. The assessments enable students to be self-reliant, have an enterprising future-facing mind set, and able to make their mark in the world in a responsible manner.

Part 6: Programme Structure

This structure diagram demonstrates the student journey from Entry through to Graduation for a typical **full time student**, including: level and credit requirements, interim award requirements module diet, including compulsory and optional modules

ENTRY

		Compulsory Modules	Optional Modules	
	Year 1 (Level 0)	UFCFQN-30-0 Computational Thinking and Practice UFCFPN-30-0 Information Practitioner Foundations UFCFRN-30-0 Creative Technology Studies UFCFTN-30-0 Web Foundations	None	120 credits at Level 0 Successful completion of all level 0 modules required to permit progression to level 1.
	Year 2 (Level 1)	Compulsory Modules UFCFTK-30-1 Introduction to Databases UFCFB3-30-1 Web Programming UFCFF6-30-1 Programming in C UFCFA3-30-1 Principles of Computing	Optional Modules None	Interim Awards Cert HE in Computing Credit Requirements: 240 credits At least 100 credits at level 1 or above. 120 credits at level 0
	Year 3 (Level 2)	UFCFV4-30-2 Data, Schema and Applications UFCFVK-15-2 Internet of Things UFCFWK-15-2 Operating Systems UFCFK4-30-2 C++ Development UFCFK6-30-2 Software Engineering	Optional Modules None	Interim Awards Dip HE in Computing Credit requirements: 360 credits At least 100 credits at level 2 or above. At least 120 credits at level 1 or above. 120 credits at level 0.

Year Out: Students on the Sandwich route complete a placement year. For students on placement, there is an opportunity to complete a professional experience module or international experience module and be awarded 15 level 3 credits. The professional experience module is shown in the option list for year 3 but is actually completed during the year out.

		Compulsory Modules	Optional Modules	Interim Awards
Year 4 (Level 3)		UFCFR4-45-3 Computing Project	UFCFE6-15-3 Professional Experience OR	BSc Computing
				Credit requirements: 420 credits
		UFCFB5-15-3 Ethical and Professional Issues in Computing and Digital Media	UFCFWJ-15-3 International Experience OR	At least 60 credits at level 3 or above.
			UFCFVJ-15-3 Professional Development	At least 100 credits at level 2 or above.
		UFCFM6-15-3 Requirements Engineering		At least 140 credits at level 1 or above.
			UFCFT4-15-3 Cryptography	120 credits at level 0.
		UFCFU3-15-3 Advanced Databases		
			UFCFX3-15-3 Advanced Topics in Web-development	
				Highest Award
			UFCF7H-15-3 Mobile Applications	BSc(Hons) Computing
				Credit requirements: 480 credits
			UFCF95-15-3 Entrepreneurial Skills	At least 100 credits at level 3 or above.
				At least 100 credits at level 2 or above.
			UFCFD5-15-3 Technical Writing and Editing	At least 140 credits at level 1 or above.
				120 credits at level 0.

GRADUATION

Part 7: Entry Requirements
The University's Standard Entry Requirements apply. Tariff points as appropriate for the year of entry - up to date requirements are available through the courses database.

Part 8: Reference Points and Benchmarks

QAA subject benchmark statements
The QAA Subject Benchmark Statement for Computing was revised in 2007, and is applicable to this proposal. The design team has considered them in drawing up the structure of the degree, and is of the view that it falls clearly within the scope of the benchmarks, as regards curriculum, teaching and learning, and the benchmarking standards themselves.

The benchmarks (para. 2.7) recognise that HEIs are likely to offer a range of programmes in computing. In paragraph 2.8 they refer to programmes, at one extreme, which provide "*a wide range of topics spanning the entire area of computing*" providing great flexibility. At another extreme the benchmarks recognises there will be programmes which "*take one very specific aspect of computing and cover it in great depth*". This degree programme is in the middle of these extremes. Nevertheless it does allow students to recognise the importance of specialty areas, in particular through the choice of a Level 3 module.

The benchmarks (para. 3.1) expects students to develop a wide range of abilities and skills, divided into three broad categories:
1. Computing related cognitive abilities and skills relating to intellectual tasks
2. Computing related practical tasks
3. Transferable skills that may be developed in the context of computing but which are of general value. This proposal extends these categories into extensively defined learning outcomes.

The benchmarks also contain (section 6) statements of the standards expected of graduates at threshold, typical and excellence levels. The team is of the view that graduates of the proposed programme will be able to meet the threshold standards and are given full opportunities to achieve excellence.

Part 8: Reference Points and Benchmarks

This degree programme is fully consistent with University's overarching aims of advancing knowledge, inspiring people and transforming futures. The programme has links with the department's research (see below). It then allows for students to take a placement year after L2, thus helping to maximise their employability and their opportunities for a bright future.

Staff research projects
The Software Engineering and systems development in the programme have been informed and developed by members of staff who are members of the faculty's Software Engineering Research Group and active in the field of software engineering research for example in research automating business process with service oriented architectures and web services.

What methods have been used in the development of this programme to evaluate and improve the quality and standards of learning? This could include consideration of stakeholder feedback from, for example current students, graduates and employers.

Employer interaction and feedback – http://www.youtube.com/watch?v=WolHtzQnh0U This is an impressive video clip filmed by the UWE channel which recorded some brilliant and encouraging feedback from both our student and student's employer.

First CAP Approval Date	4 June 2015			
Revision Approval Date		Version	1	Link to RIA
	31 Jan 2017		2	Link to RIA (ID 4045)
	16 Jan 2018		3	Link to RIA (ID 4402)
Next Periodic Curriculum Review due date				
Date of last Periodic Curriculum Review				