University of the West of England
BRISTOL

ACADEMIC SERVICES

PROGRAMME SPECIFICATION

Part 1: Basic Data	
Awarding Institution	UWE
Teaching Institution	UWE
Delivery Location	UWE
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	British Computer Society
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	FT / SW / PT
ISIS Codes	**ISIS2: G401** G401(SW), G40113(FT), G40143(PT), I102 (Dual)
Relevant QAA Subject Benchmark Statements	Computing

First CAP Approval Date		Valid from	Sept 2013
Revision CAP Approval Date	Feb 2015 v1.1, July 2015 v1.2 Feb 2016 v1.3 Jan 2017 v2 Nov 2017 v3	Valid from	Sept 2018
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.

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

Learning Outcomes:	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	UFCFB5-15-3	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								

Part 3: Learning Outcomes of the Programme

Learning Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13
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
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			
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								
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			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	X	X	X	X	X	X	X	X	X	X	X	X	X

Part 3: Learning Outcomes of the Programme														
to support learning activities.														

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 must complete the level-three module, Professional Experience, while they are undertaking the 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

Part 4: Student Learning and Student Support

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

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

Part 5: Assessment

Approved to University Regulations and Procedures

Assessment Strategy

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

1. Assessment should be designed to promote academic integrity
2. Assessment should embrace the development of skills and attributes that emerge from group working, problem solving, and from experience in practical and professional contexts
3. Assessment should help students to be self-reliance, have an enterprising future-facing mind set,

Part 5: Assessment
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

		Optional Modules	Interim Awards
Year 1	UFCFTK-30-1 Introduction to Databases UFCFB3-30-1 Web Programming UFCFF6-30-1 Programming in C UFCFA3-30-1 Principles of Computing	None	Cert HE in Computing 120 credits, of which not less than 100 are at Level 1 or above.
Year 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	None	Dip HE in Computing 240 credits, of which not less than 100 are at Level 2 or above and a further 120 are at Level 1 or above.

Year Out: Students on the Sandwich route complete a placement year. For students on placement, there is an opportunity to complete a professional practice module and be awarded 15 level 3 credits. The professional practice 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 3	UFCFR4-45-3 Computing Project UFCFB5-15-3 Ethical and Professional Issues in Computing and Digital Media UFCFM6-15-3 Requirements Engineering UFCFU3-15-3 Advanced Databases	UFCFE6-15-3 Professional Experience OR UFCFWJ-15-3 International Experience OR UFCFVJ-15-3 Professional Development UFCFT4-15-3 Cryptography UFCFX3-15-3 Advanced Topics in Web-development UFCF7H-15-3 Mobile Applications UFCF95-15-3 Entrepreneurial Skills UFCFD5-15-3 Technical Writing and Editing	BSc Computing A student passing 300 credits can be awarded a non-honours degree 300 credits with at least 60 credits at level 3, plus a further 100 credits at level 2 or above and a further 120 credits at level 1 or above. Highest Award BSc(Hons) Computing 360 credits, of which at least 100 must be at Level 3 or above, at least a further 100 at Level 2 or above and a further 140 at Level 1 or above.

GRADUATION

Part time:
Part time students can follow the structure above but selecting less modules per year. The number of modules per year can be either one, two, or three. Students are allowed to take the next level modules as long as they have passed at least 80 credits from the current level.

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.

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 CAP Approval Date		Version	1	Link to RIA
	31 Jan 2017		2	Link to RIA (ID 4045)
	6 Nov 2017		3	Link to RIA (ID 4506)
Next Periodic Curriculum Review due date				
Date of last Periodic Curriculum Review				

University of the West of England BRISTOL

CORPORATE AND ACADEMIC SERVICES

PROGRAMME SPECIFICATION

Part 1: Basic Data	
Awarding Institution	University of the West of England and Taylor's University
Teaching Institution	University of West of England Taylor's University
Delivery Location	Frenchay Campus University of the West of England Coldharbour Lane Bristol BS16 1QY, England Taylor's University Taylor's Lakeside Campus No.1, Jalan Taylor's, 47500 Subang Jaya, Selangor, Malaysia
Study abroad / Exchange / Credit recognition	Taylor's University and University of the West of England, Bristol, Dual Awards Framework, Academic Regulatory Framework
Faculty responsible for programme	Environment and Technology
Department responsible for programme	Computer Science and Creative Technologies
Modular Scheme Title	
Professional Statutory or Regulatory Body Links	Malaysian Quality Assurance (MQA) http://apps.emoe.gov.my/qad/main.html

Highest Award Title	UWE: BSc (Hons) Computing (SW)
	     BSc (Hons) Computing (FT)
	  TU: Bachelor of Computer Science (Honours)

Default Award Title	
Fall-back Award Title	
Interim Award Titles	CertHE Computing DipHE Computing
UWE Progression Route	
Mode(s) of Delivery	
Codes	**ISIS2: G401** **I102 (Dual)**
Relevant QAA Subject Benchmark Statements	Computing

CAP Approval Date	4 June 2015 v1.1
Valid from	September 2015
Valid until Date	
Version	1.1

Part 2: Educational Aims of the Programme

(NB Computing/Computer Science refers to the dual award comprising BSc (Hons) Computing at UWE and Bachelor of Computer Science (Honours) at Taylor's University)

BSc (Hons) Computing/Computer Science has the following general aims:
1. To prepare students for entry into the Computer Science 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 prepare students for progression to higher degrees in Computing and in particular Software Engineering.
4. To continue the development of those general study skills that will enable students to become independent, lifelong learners.

BSc Computing/Computer Science has the following specific aims:
1. To impart technical skills including requirements analysis, system specification and design (including human-computer interface and database design), programming, and testing.
2. To impart those skills which will enable a student to manage a software development project; these include: quality management as well as planning, estimating, project monitoring and control.
3. To encourage students to uphold professional, ethical and social standards and to keep up to date with recent technological and theoretical developments.
4. To provide exposure to the body of research that underlies the use of computers and to develop familiarity with some major themes within Computer Science.
5. To develop the students' understanding of the importance of solving complex ill-defined problems in any domain, though with particular reference to the development of software.

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

Graduates in the field of Computing/Computer Science would be expected to have an excellent understanding of the internal operation of computers and operating and file systems and a working knowledge of relevant theories and paradigms of computing. They would be able to use appropriate analysis, design and programming tools, languages and methods to develop efficient solutions to computing problems.

Part 3: Learning Outcomes of the Programme

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

(A) Knowledge and understanding of:
On completion of the programme students will have developed an understanding of a complex body of knowledge, some of it at the current boundaries of the disciplines, in the areas of:

1. Object-oriented programming language concepts; other programming paradigms; syntax and semantics; top-down development; programming to satisfy designs.
2. Program design concepts, methods, and notations; object-oriented design and other design paradigms; algorithms; design patterns
3. Object-oriented and related databases logical and physical database design; database query languages.
4. The concepts underpinning distributed systems and networks.
5. The concepts underpinning World-Wide Web technology and web-based application development.
6. Electronic commerce; architectures and components of commercial applications based upon www technology; technical and management issues.
7. The concepts underlying the reuse of components and framework in software development;

   related research issues.
8. The architecture and main components of computers.
9. The concepts underpinning user interfaces; good design practice; notation issues; user interface evaluation.

(B) Intellectual Skills
On completion of the programme students will be able to demonstrate skills in:
1. Critical Thinking
2. Analysis
3. Synthesis of different types of information
4. Evaluation
5. Problem Solving
6. Appreciate problem contexts
7. Balance conflicting objectives
8. Construction of logical arguments
9. Discussion and debate about technical subjects with peers

(C) Subject/Professional/Practical Skills

On completion of the programme students will be able to*:*
1. Write programs that conform to designs
2. Create high-level and low-level designs that correspond to stated requirements
3. Design databases to meet application requirements
4. Create user interfaces for a variety of applications
5. Perform adequate tests on programs
6. Know how to use existing components and frameworks to build new applications
7. Build web-based systems
8. Employ a range of tools and notations to support the activities listed above: e.g. editors, compilers, design workbenches, HTML, CGI, Java etc..

(D) Transferable skills and other attributes

On completion of the programme students will be able to demonstrate:

1. Communication skills: to communicate orally or in writing.
2. Self-management skills: to manage one's own time; to meet deadlines; to work with others.
3. IT skills in context: to use software tools in the context of application development.
4. Logical reasoning skills: To undertake analysis and interpretation of information in the context of the Computing discipline.
5. Problem formulation: To express problems in appropriate notations.
6. 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.
7. Comprehension of professional literature: to read and to use literature sources appropriate to the discipline to support learning activities.

Refer to Appendix 6 for detailed learning outcome mappings.

Part 4: Student Learning and Student Support

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 to 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 Computing/Computer Science programme teaching is a mix of scheduled learning, independent learning and, possibly, placement learning.

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

Independent learning includes hours engaged with essential reading, technical subject practice, case study preparation, assignment preparation and completion etc. Scheduled sessions may vary slightly depending on the module choices made.

Placement learning: At UWE the placement is optional. At TU all students undertake a 10 week Industrial Training module.

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

This section specifies the features and minimum standards of support that could be expected at UWE and TU.

Class Activities The teaching and learning methods are determined by the Module Leader, and typically involves a combination of one or more lectures, tutorials, 'lectorials', laboratory classes, group activities and individual project work. Modules are often delivered by means of 'lectorials', classes for groups of 20-30 students with no distinction between lectures and tutorials, and this has proved to be an effective mechanism for modules at all levels.
Where modules are common with other programmes, students will typically be taught together (which gives students the opportunity to appreciate the material from the viewpoint of different computing disciplines). However, a specialist flavour may be given to a common module through the provision of discipline specific practical, laboratory or tutorial material supporting a core of common lectures.

Academic Support Academic advice and support is the responsibility of the staff delivering the module in question. Staff are expected to be available outside normal timetabled hours, either by appointment or during published "surgery" hours, in order to offer advice and guidance on matters relating to the material being taught and on its assessment..

Virtual Learning Environment
UWE uses the Blackboard virtual learning environment to support the delivery of modules. All students at UWE have access to Blackboard for all modules on which they are enrolled. For most modules course materials and announcements are provided through Blackboard and for many modules the additional facilities provided by Blackboard are utilised to (e.g.) run formative tests, provide online forums and provide access to provisional coursework marks.

Pastoral Care
At UWE the faculty offers pastoral care through its Student Advisers, a team of staff who provide comprehensive, full-time student support service on a drop-in basis or by appointment. All students on the same route are allocated to the same Adviser, who is 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 UWE's Student Services Department or from members of academic staff.

Progression to Independent Study

Part 4: Student Learning and Student Support

Many modules require students to carry out independent study, such as research for projects and assignments, and 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, mainly in the form of timetabled sessions, takes the form of lectures, tutorials, seminars and practical laboratory sessions. Students are expected to attend all sessions on their timetable, and this is especially important because of the high content of practical work in the programme.

The progression to independent study will also be assisted by the nature of 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.

LEARNING RESOURCES

At both UWE and TU all modules have teaching/learning resource booklets or electronic equivalent and most have set texts in accordance with the UWE's Reading Strategy. Additional support is provided through the library and an extensive student computing network. All undergraduate modules use the institutional Blackboard system to thus provide students with 24/7 access to module information and resources on and off campus.

At TU the Learning and Academic Study Skills Centre (LASC) provides generic study skills workshops and personal assistance for students requiring such support. Workshops in (i) Study Skills include note taking, time management, problem solving techniques, writing skills, referencing, studying for examinations, etc; and (ii) 'Soft' skills include Leadership skills, communications skills, resume writing, interview skills, organizational skills, presentation skills, etc.

STUDENT SUPPORT AND GUIDANCE

At both UWE and TU, student support is provided by academic staff, usually module leaders, for all issues relating to the content and delivery of the module. At UWE, the UWE student advice services provide timely, accurate and confidential advice where necessary on all aspects of the provision including that relating to fees, assessment arrangements, late work and extenuating circumstances procedures, option choice, timetabling, examination and progression counselling and so on, as well as where and how to access the support provided by UWE. Additional support and guidance is provided by Programme Managers who are also responsible for ensuring the collection of and response to student feedback using student representatives and Programme Management Committees.

Further support is provided through the UG administration team, the admissions office, the Students Union, the central University career service and UWE's counselling provision. The UWE placements services provide extensive support for students in preparation for, as well as throughout, their study year abroad and acts both as an intermediary with partner institutions and as a recruitment service for employers.

Students seeking employment opportunities during their studies have access to UWE's Job Shop and are also encouraged to develop valuable skills by volunteering with the Community Volunteer Service. The UWE international office provides support and organises specific activities to assist international students in adapting to life in the UK, such as an additional induction week, and the provision of specific literature to assist with their study. Further student support is provided by FET through the UG administration team, the Placements Office, the Admissions Office.

Part 4: Student Learning and Student Support

All students have a formal induction process to socialise them to university life and to provide them with the means to access the support that they may require during their study at UWE. A student handbook documents this for students. There are a range of central services offered to students. These include: Student Advice and Welfare for advice on finance and UWE's counseling provision; Career Development Unit for careers information; information technology services, student accommodation services, sports facilities, student union services, the Chaplaincy, and the Centre for Performing Arts.

Support to students with disability is offered both at the faculty level under the remit of the Disability Adviser and centrally through UWE's Disability Resource Service. The Disability Adviser coordinates academic support for disabled students in the Faculty. This includes communication of individual student's support requirements to teaching and support staff and advice and recommendations on reasonable adjustments to teaching and assessment. The Disability Adviser also coordinates staff development on disability issues and provides information and advice to academic and support staff and to students in relation to disability issues. Together, these act as a holistic service for disabled students and applicants to UWE and also support the academic and administrative staff members who work with disabled students.

At TU Student Central is responsible for handling matters pertaining to student welfare, counselling, international office and training materials for students. The Counselling Central helps students cope with studies, stress, time management and personal concerns ranging from homesickness to relationship problems. Student Services Department assists students with regards to study loans, scholarships, study grants and other financial assistance during their course of study at TU
.

The International Office promotes understanding, cross-cultural learning and appreciation among students from various nationalities, racial and ethnic backgrounds on campus. It provides a comprehensive range of support services to international students to enable them to adapt to the culture and lifestyle of Malaysia. Services offered include course counselling; application and admission; student visa and pass application; airport pickup; orientation and familiarisation; and Immigration advice.

Formed by students for students, the Student Council represents students' 'voice' at TU. The Council plays a very central role in seeking solutions to problems faced by students in the academic and non-academic areas. They also spearhead the organisation of social activities for students. Members of the council are elected by the student body with representation from each programme. The Council is managed by an Executive Committee and advised by an Officer of TU.

The Divisional Office of the various schools is the nerve centre of the school around which all academic activities and student administration revolve. It handles a broad range of activities which include: timetabling; programme information; subject choice counselling; subject registration; student attendance; subject exemptions; course prerequisites; student withdrawal; Student certification letters for loan application and EPF withdrawal; matters relating to fees; and general academic support.

The Career Centre provides various services and programmes to assist students in analysing their career interests, aptitudes, values and goals. It also assists students in career planning and preparation for job interviews, in addition to providing job placement services for graduating students through our network with industry and potential employers It's services include: career counselling; career talks and workshops; resume writing and grooming seminars; career-related fairs and company trips.

Part 4: Student Learning and Student Support

An orientation programme is organised for all students prior to the start of the programme. It introduces students to the support available within the School and University, via a range of speakers (e.g. representatives from the Divisional Office, Student Services, Library, ICT, etc.). An ICT services orientation will introduce students to the email, blackboard and student portal. International students will receive an induction from the International Office. In addition, the Faculty and Department organize induction and transition to UK learning activities appropriate to the cohort's background and needs.

Description of the teaching resources provided for students

At both UWE and TU all modules have teaching/learning resource booklets or electronic equivalent and most have set texts in accordance with the UWE's Reading Strategy. Additional support is provided through the library and an extensive student computing network. All undergraduate modules use the institutional Blackboard system to thus provide students with 24/7 access to module information and resources on and off campus.

At TU the Learning and Academic Study Skills Centre (LASC) provides generic study skills workshops and personal assistance for students requiring such support. Workshops in (i) Study Skills include note taking, time management, problem solving techniques, writing skills, referencing, studying for examinations, etc; and (ii) 'Soft' skills include Leadership skills, communications skills, resume writing, interview skills, organizational skills, presentation skills, etc.

Part 5: Assessment

A: Approved to [University Regulations and Procedures](#)

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

Assessment strategies for Computer Science/Computing focus on ensuring a strong technical knowledge of computing devices, an understanding of the technical underpinnings of computing and the ability to engage with novel computing paradigms.

Assessment Map

The programme encompasses a range of **assessment methods** including; written examinations, individual and group assignments, individual and group presentations, portfolios of work, practical based assignments, projects, posters.. These are detailed in the following assessment map:

Part 5: Assessment

Assessment Map for BSc (Hons) Computing

		Type of Assessment*									
		Unseen Written Exam	Open Book Written Exam	In-class Written Test	Practical Exam	Practical Skills Assessment	Oral assessment and/or presentation	Written Assignment	Report / Project	Dissertation	Portfolio
Compulsory Modules Level 1	UFCF93-30-1			A(50)		B(10)		B(40)			
	UFCFA3-30-1	A(50)			B(25)			B(25)			
	UFCFB3-30-1			B(30)			A(70)				
	UFCFF6-30-1	A(50)						B(50)			
Compulsory Modules Level 2	UFCFV4-30-2	A(50)					B(40)	B(10)			
	UFCFQ4-30-2	A(50)						B(25)			B(25)
	UFCFK4-30-2	A(25)									B(75)
	UFCFK6-30-2	A(50)						B(40)	B(10)		
Compulsory Modules Level 3	UFCFR4-45-3								A(100)		
	UFCFU3-15-3	A(50)							B(50)		
	UFCFB5-15-3						A(25)			B(75)	
	UFCFY3-15-3	A(50)						B(50)			
	UFCFM6-15-3	A(100)									
Optional Modules Level 3	UFCFE6-15-3										A(100)
	UFCFP5-15-3						A(25)				B(75)
	UFCF95-15-3						A(25)				B(75)
	UFCFT4-15-3	A(25)						B(75)			

Part 6: Programme Structure

UWE: BSc (Hons) Computing				Taylor's University: Bachelor of Computer Science (Honours)		
ENTRY ↓ Y E A R 1	**Compulsory modules** **UFCF93-30-1** Computer and Network Systems **UFCFA3-30-1** Principles of Computing **UFCFB3-30-1** Web Programming **UFCFF6-30-1** Programming in C	**Optional modules** No optional modules at level 1	**Interim Awards:** Certificate of Higher Education	**Compulsory modules** ITS60404 Computer Systems ITS60304 C Programming ITS60103 Systems Analysis and Design MTH60104 Mathematics for Computing 1 COM60303 Communication Practice for IT Professionals ITS61104 Web Systems and Technologies ITS60704 Fundamentals of Software Engineering MPU3143/ MPU3123 Bahasa Melayu Komunikasi 2/ Tamadun Islam dan Tamadun Asia MPU3173/ MPU3113 Malaysian Studies 3 / Hubungan Etnik UCM60503U2/MPU3213 Personal Development/Bahasa Kebangsaan A	**Optional modules** Elective 1 (3 credits)	**Interim Award**

	Compulsory modules	Optional modules	Interim Awards:	Compulsory modules	Optional modules	Interim Award
Y E A R **2**	**UFCFV4-30-2** Data, Schema and Applications **UFCFQ4-30-2** Computer Networks and Operating Systems **UFCFK4-30-2** C++ Development **UFCFK6-30-2** Software Engineering	No optional modules at level 2	Diploma of Higher Education	ITS60603 Software Design ITS60604 Fundamentals of Database Systems ITS60203 Fundamentals of Data Communications ITS60504 Data Structures and Algorithms ITS60804 Introduction to Object-Oriented Programming ITS60503 Operating Systems ITS60403 Computing Theory ITS61804 Object-oriented Programming using C++ ITS60303 User Interface Programming and Graphics ITS61604 Distributed Application Development UCM60102U4 Community Service Initiative UCM60302U3 Malaysian Indigenous Cultures	No optional modules at level 2	

PLACEMENT YEAR *Students at UWE taking the 4-year degree programme will complete a 40 week work placement. UWE placement students may optionally complete* UFCFE6-15-3*whilst on placement* *Students at TU do not have the 40 week work placement option but take the compulsory Industrial Training module* IND60206	
POTENTIAL TRANSFER POINT *(Point at which Year/Level 1 and 2 Learning Outcomes have been satisfied in both institutions)* UWE → TU / TU → UWE	

		Compulsory modules	Optional modules	Awards:	Compulsory modules	Optional modules	Pre-requisite requirements
Y E A R 3		**UFCFR4-45-3** Computing Project **UFCFU3-15-3** Advanced Databases **UFCFB5-15-3** Ethical and Professional Issues in Computing and Digital Media **UFCFY3-15-3** Advances in AI **UFCFM6-15-3** Requirements Engineering	*UWE home students take 15 credits from:* **UFCFE6-15-3** Professional Experience (studied during placement year) **UFCFP5-15-3** Integrated Case Studies **UFCF95-15-3** Entrepreneurial Skills **UFCFT4-15-3** Cryptography *TU transfer students take 15 credits from:* **UFCF95-15-3** Entrepreneurial Skills **UFCFT4-15-3** Cryptography	**Awards:** <u>Target/highest title</u>: BSc (Hons) Computing (SW) BSc (Hons) Computing (FT) *Credit requirements:* 360 UWE credits at the appropriate levels	PRJ60107 Final Year Project ITS61403 Artificial Intelligence ITS61004 Object-Oriented Programming using Java CSC60303 Professional Computing Practice CSC60403 Technopreneurship ITS61704 Windows Applications using .NET Technologies ITS62004 Advanced Database Systems	Elective 2, 3 and 4 *drawn from:* CSC60304 Multimedia Systems ITS60904 Computer Crime and Digital Evidence ITS62404 Web Scripting ITS62104 Introduction to Information Retrieval ITS62204 Mobile Applications Development ITS61304 UNIX Programming ITS62304 Web Database Applications ITS61404 Web Applications Using .NET Technologies ITS61504 Data Mining ITS62504 XML Technologies ITS61703 Enterprise Computing CSC60103 Online Presence Management	**Pre-requisite requirements** 72 TU credits at the appropriate level Awards: Target/highest title: Bachelor of Computer Science (Honours) *Credit requirements:* *120 TU credits at the appropriate levels*

Part 7: Entry Requirements

At UWE

The University's Standard Entry Requirements apply.

At TU

A Levels   : CDD   or 14 points (A=10, B=8, C=6, D=4, E=2)
STPM   : B- C+ C+ or CGPA of 2.44 and above
CPU   : 66% Average (6 subjects)
SAM   : TER 60
UEC   : Aggregate 18 points (6 subjects)
TBF   : Successful Completion (50%)
IB   : 24 points (6 Subjects)
ADP   : 30 Credit Units (minimum CGPA 2.0)

English Language requirement

IELTS   : 6.0 overall
TOEFL   : 213 or better [Computer Based]
             : 550 or better [Paper Based]
A Levels   : Successful Completion
CPU   : 60% in English [4C, 3U or 4U]
SAM   : Successful Completion
TBF   : Successful Completion
UEC   : English B4 or better
MUET   : Band 4
Others   : Successful completion of Pre-University or Diploma which medium of instruction
             is solely English

Part 8: Reference Points and Benchmarks

Reference points/benchmarks (UWE)

The QAA Computing benchmark statements

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

The benchmarks (paragraph 2.1) identify a range of types of degrees in computing. At one extreme is a programme that "covers a wide range of topics spanning the entire area of computing". At the other, programmes that "take one very specific aspect of computing and covers it in great depth". This programme resides in the middle of these two extremes providing relatively detailed coverage of a moderately broad subset of computing topics and embraces the three key ideas:

• Development of computing systems;
• Importance of specialism and position within a broader context;
• Balance between theory and practice.

The benchmarks establish a set of Principles of Course Design (paragraph 3.1). This programme,

whilst first developed prior to the writing of the benchmarks, nevertheless satisfies these design

principles and continues to be revised bearing them in mind.

The benchmarks also contain (section 5) statements of the standards expected of graduates at both modal and threshold levels. The team is of the view that graduates of the programme will be able to meet the required standards, and indeed have done so on earlier versions of

the programme.

This specification provides a concise summary of the main features of the programme and the
learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules are to be found in the module specifications.

Reference points/benchmarks (TU)

Three key influences have informed the design of the international awards within the TU:

1. TU's mission and purpose statements
2. Statutory Requirements
3. International Standards

1. TU's mission and purpose statements

The TU's 10-year mission is to be a university of 20,000 students, renowned for its teaching excellence and the distinctive qualities of its graduates.

The TU's purpose is to educate the youth of the world to take their productive place as leaders in the global community.

The concrete indicators in TU's Mission Statement are substantiated by two existing Taylor's policies:

a. Taylor's Graduate Capabilities
This policy substantiates the following clause in our Mission Statement:
"….. the distinctive qualities of its graduates"

b. Taylor's University Teaching and Learning Framework
This policy substantiates the following clause in our Mission Statement
"…. Renowned for its teaching excellence"

The diagram below illustrates how the Taylor's Graduate Capabilities and Teaching & Learning Framework both support our Mission Statement, which in turn supports our Purpose. All academic and research policies and procedures at Taylor's are to be in accordance with the focus provided by these policies.

Purpose	
Mission	
Graduate Capabilities	Teaching & Learning Framework

Taylor's Graduate Capabilities
The teaching and learning approach at Taylor's University is focused on developing the Taylor's Graduate Capabilities in its students, capabilities that encompass the knowledge, cognitive capabilities and soft skills of our graduates.

A Taylor's graduate has proven ability and is capable in the following areas

Discipline-specific knowledge
Sound understanding of foundational concepts and theories in subject area
Cognitive capabilities
Foundation and skills for lifelong learning
Learns autonomously
Able to acquire and manage information'
Ability to comprehend a wide variety of literature
Awareness of contemporary global issues
Problem solving skills

Defines issues of problems well

Analyses problems comprehensively

Allies knowledge effectively and applies theory to practice

Able to arrive at workable and effective solutions

Soft Skills

Communication skills

Ability to speak and write well

Able to organize, synthesize and present information effectively

Interpersonal skills

Understands team dynamics, power of teams and team work

Works with others in a team

Able to assume leadership in small and/or big groups

Intrapersonal skills

Ability to manage time effectively

Understands the role of personal image and professionalism at work

Works independently in context of tasks to be completed

Cosmopolitan thinking and intercultural competence

Forms opinions and articulates views from a global perspective

Awareness of and sensitivity to cross-cultural differences

Technology savvy

Executive keyboarding

Effective use of ICT and related technologies

The learning environment at Taylor's is further geared towards nurturing the Taylor's Core Values; the personal attributes of excellence, integrity, passion for work, interpersonal respect and care, openness in communication and a healthy balance between professional and personal life.

Through participation in various optional electives, including co-curricular activities, Taylor's students may also develop additional knowledge, cognitive capabilities and soft skills other than those listed. These, as well as the Taylor's graduate capabilities above, are recorded by students in the form of individual student portfolios and verified by Taylor's University against the set of expectations for each subject, program and co-curricular activity.

2. Statutory Requirements

Degree qualifications offered by Malaysian private higher education institutions are required by the government to comply with the internationally benchmarked points of reference below, for the purpose of quality control. Summaries of each of the instruments' relevant requirements, contextualized for TU, are given in the Appendices to this document.

2.1 Malaysian Qualifications Framework, MQF.

2.2 Code of Practice for Programme Accreditation, COPPA.

2.3 Code of Practice for Institutional Audit, COPIA.

2.4 Requirements of Professional Bodies, where applicable.

3. International Standards

For the purpose of international benchmarking, we integrate best practices in quality assurance in higher education from the regions from which Taylor's partner universities are drawn.

To implement the policy of compliance with the benchmark documents identified in this section, collating the information from all sources the scope of the TQM is categorized into 10 distinctive areas.

Scope			Identified from
1	Overview and goals		MQF, COPPA, European Standard
2	Curriculum		MQF, COPPA, COPIA, professional bodies requirements; European, Australian and US Standards
3	Intake		COPPA
4	Assessment		COPPA, European and Australian Standards

Part 8: Reference Points and Benchmarks		
5	Faculty	COPPA, European, Australian and US Standards
6	Resources	COPPA, European, Australian and US Standards
7	Review	COPPA, COPIA, European, Australian and US Standards
8	Public Transparency	European Standard
9	External QA mechanisms	COPPA, COPIA, professional bodies requirements; European, Australian and US Standards
10	Improved mechanisms	COPPA, professional bodies requirements; European, Australian and US Standards

Appendices

Appendix No	Appendix Title
1	Summary of MQF requirements contextualized for TQM
2	Summary of COPPA requirements contextualized for TQM
3	Summary of COPIA requirements contextualized for TQM
4	Regulated professions in Malaysia

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules can be found in module specifications, available on the University's website.

Appendix 1

Summary of MQA[1] requirements contextualized for TQM
1. Identification of programme learning outcomes, developed by TU based on learning outcomes of particular fields of study, covering all components that form the programme leading to its qualification nomenclature[2].
2. Learning outcomes for each field of study must be developed by a committee comprising representatives from all relevant parties for that field of study.
3. Three levels of degrees are Bachelors, Masters and Doctoral. Additionally, TU offers Diploma and Foundation programmes. Each level's programme learning outcomes must show that its graduates are able to:

1. Demonstrate knowledge and comprehension on fundamental principles of a field of study, acquired from advanced text books. 2. Use the knowledge and comprehension through methods that indicate professionalism in employment 3. Argue and solve problems in their field of study 4. Show techniques and capabilities to search and use data to make decisions having considered social, scientific and relevant ethical issues 5. Communicate effectively and convey information, ideas, problems and solution to experts and non-experts 6. Apply team and interpersonal skills which are suitable to employment 7. Possess independent study skills to continue further study with a high degree of autonomy	Bachelors degree holders
1. Demonstrate continuing and additional knowledge and comprehension above that of the bachelors degree and have capabilities to develop or use ideas, usually in the context of research 2. Use the knowledge and comprehension to solve problems related to the field of study in new situations and multi-disciplinary contexts 3. Integrate knowledge and manage complex matters 4. Evaluate and make decisions in the situations without or with limited information by considering social responsibilities and related ethics 5. Deliver clearly the conclusion, knowledge and the rationale to experts and non-experts 6. Demonstrate study skills to continuously progress on their own with a high degree of autonomy to do so	Masters degree holders
1. Show a systematic comprehension and in depth understanding of a discipline and mastery of skills and research methods related to the field of study 2. Show capabilities to generate, design, implement and adopt the integral part of research process with scholarly strength 3. Contribute to the original research that has broadened the boundary of knowledge through an in depth dissertation, which has been presented and defended according to the international standards including writing in internationally refereed publications 4. Make critical analysis, evaluation and synthesis of new and complex ideas 5. Communicate with peers, scholarly community and society at large concerning the field of expertise 6. Promote the technological, social and cultural progress in a knowledge based society in the academic and professional contexts	Doctoral degree holders
1. Use knowledge, comprehension and practical skills at work 2. Assess and decide, taking into account social, scientific and ethical issues with moderate autonomy 3. Be confident and entrepreneurial in pursuing their own careers 4. Be responsible members of society 5. Possess study skills in adapting to ideas, processes and new procedures for career development 6. Acquire team and interpersonal skills that are appropriate to employment 7. Communicate effectively and to transmit information, ideas, problems and	Diploma holders

---

[1] Malaysian Qualifications Agency (MQA). 2007. *Malaysian Qualifications Framework: Point of Reference and Joint Understanding of Higher Education Qualifications in Malaysia*. Petaling Jaya: MQA, Ministry of Higher Education Malaysia

[2] Table showing MQF Programme Nomenclature

Programme with:	Nomenclature	Example
One main area only	Named according to its area	Bachelor of Nursing
At least 25% specialization in main field	Specialisation indicated in brackets	Bachelor of Computer Science (Programming)
Fundamentals of two main fields in 50:50 percentage (double major)	Named using the connecter AND	Bachelor of Economics and Political Science
At least 25% component in other than main field of study (major-minor)	Named using WITH	Bachelor of Economics with Mathematics

resolutions cogently to experts and non-experts	
1. Use knowledge, comprehension and practical skills at work 2. Assess and decide, taking into account social, scientific and ethical issues with moderate autonomy 3. Be confident and entrepreneurial in pursuing their own careers 4. Be responsible members of society 5. Possess study skills in adapting to ideas, processes and new procedures for career development 6. Acquire team and interpersonal skills that are appropriate to employment 7. Communicate effectively and to transmit information, ideas, problems and resolutions cogently to experts and non-experts 8. Identify problems in their field of study	Advanced Diploma holders
1. Show knowledge and comprehension in the field of study that is continued from secondary school as indicated in advanced test books 2. Use knowledge and comprehension to identify and use data in response to concrete and complex problems 3. Communicate and clarify understanding and skills to peers and supervisors 4. Demonstrate skills for purposes of pursuing higher education	Foundation graduates

4. One credit is equal to 40 hours of notional students learning time. This includes lectures, tutorials, seminars, practicals, self-study, information retrieval, research, fieldwork, and preparing for as well as sitting for examinations. The minimum credit requirement for the different levels of study at university level are

Bachelors degree	120
Postgraduate certificate*	20
Postgraduate diploma*	30
Fully taught or partly taught Masters degree	40
Masters degree by research	No given credit value
Doctoral degree	No given credit value

* qualifications with competencies in Masters level but are more practitioner/professional than academic in nature

5. MQF emphasizes eight domains of learning outcomes. TU curricula are focused on developing the Taylor's Graduate Capabilities. TU's programme learning outcomes are therefore in harmony with the eight MQF areas, as shown in the table below.

MQF learning outcome domain	TGC-focused TU curriculum learning outcomes
1. Knowledge	Discipline-specific knowledge Sound understanding of foundational concepts and theories in subject area

2. Practical skills	Technology savvy
	  Executive keyboarding
	  Effective use of ICT and related technologies

3. Social skills and responsibilities	Foundations and skills for lifelong learning
	  Awareness of contemporary global issues
	Cosmopolitan thinking and intercultural competence
	  Awareness of and sensitivity to cross-cultural differences

4. Values, attitudes and professionalism	Intrapersonal skills
	  Ability to manage time effectively
	  Understands the role of personal image and professionalism at work
	The learning environment at Taylor's is further geared towards nurturing the Taylor's Core Values; the personal attributes of excellence, integrity, passion for work, interpersonal respect and care, openness in communication and a healthy balance between professional and personal life.

5. Communication, leadership and team skills	Communication skills
	  Ability to speak and write well
	  Able to organize, synthesize and present information effectively
	Interpersonal skills
	  Understands team dynamics, power of teams and teamwork
	  Works with others in a team
	  Able to assume leadership in small and/or big groups

6. Problem solving and scientific skills	Problem-solving skills

		Defines issues or problems well
		Analyses problems comprehensively
		Applies knowledge effectively and applies theory to practice
		Able to arrive at workable and effective solutions
7. Information management and lifelong learning skills	Foundations and skills for lifelong learning	
	Learns autonomously	
	Able to acquire and manage information	
	Ability to comprehend a wide variety of literature	
8. Management and entrepreneurial skills	Interpersonal skills	
	Understands team dynamics, power of teams and teamwork	
	Works with others in a team	
	Able to assume leadership in small and/or big groups	
	Intrapersonal skills	
	Works independently in context of tasks to be completed	
	Cosmopolitan thinking and intercultural competence	
	Forms opinions and articulates views from a global perspective	
	Foundations and skills for lifelong learning	
	Able to acquire and manage information	

Appendix 2

Summary of COPPA[3] requirements contextualized for TQM
1. All qualifications offered in Malaysia must establish their level vis-à-vis the MQF.
2. Quality assurance is via accreditation of progammes and qualifications and audit of institutions. COPPA refers specifically to description, content and delivery of a particular programme.
3. Provisional accreditation means the programme has fulfilled minimum requirements to be offered and is seeking approval by MOHE. Full accreditation denotes that a programme has met all the criteria and standards set for that purpose and in compliance with the MQF. The quality evaluation process covers the nine areas listed below, each with its own quality standards and two levels of criteria: benchmarked standards and enhanced standards.
   1. Vision, mission , educational goals and learning outcomes;
   2. Curriculum design and delivery;
   3. Assessment of students;
   4. Student selection and support services;
   5. Academic staff;
   6. Educational resources;
   7. Programme monitoring and review;
   8. Leadership, governance and administration; and
   9. Continual quality improvement.
4. Evaluation for Provisional Accreditation is conducted by MQA's Panel of Assessors (POA) who assess the nine areas above and may conduct an optional site visit. Their report is used by the Higher Education Provider (in our case TU) to seek approval from the MOHE to offer the programme, and, on obtaining it, to commence the programme.
5. Evaluation for Full Accreditation is by MQA's POA through external and independent assessment of the Programme Information and Self-Review Report submitted by TU, and includes a site visit to validate and verify the information provided. 3-yearly Programme Maintenance Audits ensure the maintenance and enhancement of programmes that have been accredited.
6. Programmes are accredited when they are fully compliant with MQA's benchmarked standards. Enhanced standards are provided for continual improvement. (COPPA, p12-37). The documentation required is described in COPPA, p39ff and relevant process flowcharts are in COPPA p134-140.

---

[3] Malaysian Qualifications Agency (MQA). 2008. *Code of Practice for Programme Accrediation.* Petaling Jaya: MQA, Ministry of Higher Education Malaysia

Appendix 3

Summary of COPIA[4] requirements contextualized for TQM

1. COPIA utilises the same nine areas of evaluation for quality assurance as COPPA, but from the perspective of institutional policies, processes and practices across the institution. Its benchmarked and enhanced standards are given in COPIA p8-27.
2. Institutions are required to conduct their own internal quality audit, known as self-review. Guidelines for this are given in COPIA p29-44.
3. The MQA will conduct an external institutional audit. Guidelines are in COPIA p45-54.
4. All relevant process flowcharts are in COPIA p80-84.

---

[4] Malaysian Qualifications Agency (MQA). 2008. *Code of Practice for Institutional Audit.* Petaling Jaya: MQA, Ministry of Higher Education Malaysia

Appendix 4

Regulated Professions in Malaysia

The professions below are regulated by Acts of Parliament (more professions may be added in future Acts). Degree programmes offered by TU in any of these fields must therefore be in compliance with the requirements of the respective licencing bodies if graduates aspire to gain employment within Malaysia in their field of study.

Profession	Licensing Body	Relevant Parliamentary Act
Accountant	Malaysian Institute of Accountants	Accountants Act 1967
Architect	Board of Architects Malaysia	Architect Act 1967
Building Draughtsman	Board of Architects Malaysia	Architect Act 1967
Chemist	Institut Kimia Malaysia	Chemists Act 1975
Engineer	Board of Engineers Malaysia	Registration of Engineers Act 1967
Doctor	Malaysian Medical Council	Medical Act 1971
Dentist	Malaysian Dental Council	Dental Act 1971
Interior Designer	Board of Architects Malaysia	Architect Act 1967 (Amendment 2007)
Land Surveyor	Land Surveyors Board	Licensed Surveyors Act 1958
Lawyer	Malaysian Bar Council	Legal Profession Act 1976
Nurse	Malaysian Nursing Board	Nurses Act, 1950
Optician or Optometrist	Malaysian Optical Council	Optical Act 1991
Pharmacist	Pharmacy Board of Malaysia	Registration of Pharmacists Act 1951
Professional Counsellor	Lembaga Kaunselor Malaysia	Counsellors Act 1998
Quantity Surveyor	Board of Quantity Surveyors Malaysia	Registration of Quantity Surveyors Act 1967
Teacher	Malaysian Ministry of Education	Education Act 1996
Town Planner	Board of Town Planners, Malaysia	Town Planners Act 1995
Valuer, Appraiser or Estate Agent	Board of Valuers, Appraisers and Estate Agents Malaysia	Valuers, Appraisers and Estate Agent Act 1981
Veterinarian	Malaysian Veterinary Council	Veterinary Surgeons Act 1974

Appendix 5: Structure and Mapping diagram:

BSc (Hons) Computing / Bachelor of Computer Science (Hons)

N.B. This table shows UWE modules and programme structure and indicates the mapping of TU modules to UWE modules. It does not show all TU modules (e.g. MQA compulsory modules).

Year 1

UWE	**UFCF93-30-1** Computer and Network Systems	**UFCFA3-30-1** Principles of Computing	**UFCFB3-30-1** Web Programming	**UFCFF6-30-1** Programming in C
TU	ITS60404 Computer Systems	MTH60104 Mathematics for Computing 1	ITS60704 Fundamentals of Software Engineering	ITS60304 C Programming
		ITS60403 Computing Theory	ITS61104 Web Systems and Technologies	ITS60103 Systems Analysis and Design

Year 2

UWE	**UFCFV4-30-2** Data, Schemas and Applications	**UFCFQ4-30-2** Computer Networks and Operating Systems	**UFCFK4-30-2** C++ Development	**UFCFK6-30-2** Software Engineering
TU	ITS60604 Fundamentals of Database Systems	ITS60203 Fundamentals of Data Communications	ITS60804 Introduction to Object-Oriented Programming	ITS60603 Software Design
	ITS60504 Data Structures and Algorithms	ITS60503 Operating Systems	ITS61804 Object-oriented Programming using C++	ITS60303 User Interface Programming and Graphics

Year 3

UWE	**UFCFR4-45-3** Computing Project	**UFCFU3-15-3** Advanced Databases	**UFCFB5-15-3** Ethical and Professional Issues in Computing and Digital Media	**UFCFY3-15-3** Advances in AI	**UFCFM6-15-3** Requirements Engineering	**Option slot 1** *UWE home students take 15 credits from:* **UFCFE6-15-3** Professional Experience (studied during placement year) **UFCFP5-15-3** Integrated Case Studies **UFCF95-15-3** Entrepreneurial Skills **UFCFT4-15-3** Cryptography *TU transfer students take 15 credits from:* **UFCF95-15-3** Entrepreneurial Skills **UFCFT4-15-3** Cryptography
TU	PRJ60107 Final Year Project	ITS62004 Advanced Database Systems	CSC60303 Professional Computing Practice	ITS61403 Artificial Intelligence	TU Elective Slot 2 (see option list below)	TU Elective Slot 3
			CSC60403 Technopreneurship			TU Elective Slot 4

TU Elective Slots 2, 3, and 4
Students studying at TU choose three electives in Year 3 from the following list:

CSC60304	Multimedia Systems	ITS62304	Web Database Applications
ITS60904	Computer Crime and Digital Evidence	ITS61404	Web Applications Using .NET Technologies
ITS62404	Web Scripting	ITS61504	Data Mining
ITS62104	Introduction to Information Retrieval	ITS62504	XML Technologies
ITS62204	Mobile Applications Development	ITS61703	Enterprise Computing
ITS61304	UNIX Programming	CSC60103	Online Presence Management

Appendix 6: Learning Outcomes: BSc (Hons) Computing / Bachelor of Computer Science (Hons)

LEARNING OUTCOMES — SECTION A: KNOWLEDGE AND UNDERSTANDING	Compulsory Modules Level 1 UFCF93-30-1 / ITS60404	UFCFA3-30-1 / MTH60104	ITS60403	UFCFB3-30-1 / ITS60704	ITS61104	UFCFF6-30-1 / ITS60304	ITS60103	Compulsory Modules Level 2 UFCFV4-30-2 / ITS60604	ITS60504	UFCFQ4-30-2 / ITS60203	ITS60503	UFCFK4-30-2 / ITS60804	ITS61804	UFCFK6-30-2 / ITS60603	ITS60303	Compulsory Modules Level 3 UFCFR4-45-3 / PRJ60107	UFCFU3-15-3 / ITS62004	UFCFB5-15-3 / CSC60303	CSC60403	UFCFY3-15-3 / ITS61403
Programming language paradigms				✓		✓		✓				✓				✓	✓			✓
				✓		✓		✓				✓	✓			✓	✓			✓
Program design concepts		✓		✓		✓						✓		✓						✓
		✓	✓	✓		✓	✓					✓	✓	✓						✓
Database concepts and design				✓				✓										✓		✓
				✓				✓	✓									✓		✓
Distributed network concepts	✓	✓		✓		✓		✓										✓		
	✓	✓	✓	✓				✓		✓								✓		
WWW technology				✓				✓		✓										
					✓															
E-Commerce and commercial applications				✓				✓		✓								✓		
					✓			✓	✓	✓								✓	✓	
Software reuse concepts				✓		✓		✓				✓		✓		✓				✓
				✓		✓		✓				✓	✓	✓		✓				✓
Computer architecture	✓							✓												
	✓							✓	✓											
User interface concepts and design				✓				✓				✓		✓		✓				
				✓								✓	✓		✓	✓				

LEARNING OUTCOMES	Compulsory Modules Level 1							Compulsory Modules Level 2								Compulsory Modules Lev[...]				
SECTION B: UWE modules	UFCF93-30-1	UFCFA3-30-1		UFCFB3-30-1		UFCFF6-30-1		UFCFV4-30-2		UFCFQ4-30-2		UFCFK4-30-2		UFCFK6-30-2		UFCFR4-45-3	UFCFU3-15-3	UFCFB5-15-3		UFCFY3-15-3
INTELLECTUAL SKILLS TU modules	ITS60404	MTH60104	ITS60403	ITS60704	ITS61104	ITS60304	ITS60103	ITS60604	ITS60504	ITS60203	ITS60503	ITS60804	ITS61804	ITS60603	ITS60303	PRJ60107	ITS62004	CSC60303	CSC60403	ITS61403
Critical Thinking	✓	✓		✓		✓		✓		✓		✓		✓		✓	✓	✓		✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analysis				✓		✓		✓		✓		✓		✓		✓	✓			✓
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
Synthesis of different types of Information				✓				✓		✓				✓		✓	✓	✓		✓
				✓	✓			✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Evaluation		✓		✓		✓		✓		✓		✓		✓		✓	✓	✓		✓
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Problem Solving	✓	✓		✓				✓		✓		✓		✓		✓	✓	✓		
	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Appreciate problem contexts		✓		✓		✓		✓		✓		✓		✓		✓	✓	✓		✓
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Balance conflicting objectives	✓							✓		✓				✓		✓	✓	✓		✓
	✓							✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Construction of logical arguments		✓												✓		✓		✓		
		✓	✓											✓		✓		✓	✓	
Discussion and debate about technical subjects with peers	✓			✓		✓								✓				✓		
	✓			✓	✓	✓	✓							✓	✓			✓	✓	

LEARNING OUTCOMES		Compulsory Modules Level 1							Compulsory Modules Level 2								Compulsory Modules Lev				
SECTION C: **SUBJECT PROFESSIONAL PRACTICAL SKILLS**	**UWE modules**	UFCF93-30-1	UFCFA3-30-1		UFCFB3-30-1		UFCFF6-30-1		UFCFV4-30-2		UFCFQ4-30-2		UFCFK4-30-2		UFCFK6-30-2		UFCFR4-45-3	UFCFU3-15-3	UFCFB5-15-3		UFCFY3-15-3
	TU modules	ITS60404	MTH60104	ITS60403	ITS60704	ITS61104	ITS60304	ITS60103	ITS60604	ITS60504	ITS60203	ITS60503	ITS60804	ITS61804	ITS60603	ITS60303	PRJ60107	ITS62004	CSC60303	CSC60403	ITS61403
Write programs that conform to designs					✓		✓		✓				✓				✓				✓
					✓	✓	✓		✓				✓	✓			✓				✓
Create high-level and low-level designs					✓		✓		✓				✓		✓		✓	✓			✓
					✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓			
Design databases to meet application requirements					✓				✓								✓	✓			
					✓	✓			✓	✓							✓	✓			
Create user interfaces for a variety of applications					✓		✓		✓				✓		✓		✓				
					✓	✓	✓	✓	✓				✓	✓		✓	✓				
Perform adequate tests on programs					✓		✓		✓				✓		✓		✓				
					✓	✓	✓	✓	✓				✓	✓	✓		✓				
Know how to use existing components and frameworks					✓		✓		✓				✓				✓	✓			✓
					✓	✓	✓	✓	✓	✓			✓	✓			✓	✓			✓
Build web-based systems					✓				✓								✓				
						✓			✓								✓				
Employ a range of tools and notations to support the activities listed above:		✓	✓		✓				✓		✓				✓		✓	✓			✓
		✓	✓	✓	✓				✓		✓	✓			✓		✓	✓			✓

LEARNING OUTCOMES	Compulsory Modules Level 1							Compulsory Modules Level 2								Compulsory Modules Level 3				
SECTION D: TRANSFERABLE SKILLS AND OTHER ATTRIBUTES: (UWE modules)	UFCF93-30-1	UFCFA3-30-1		UFCFB3-30-1		UFCFF6-30-1		UFCFV4-30-2	UFCFQ4-30-2			UFCFK4-30-2		UFCFK6-30-2		UFCFR4-45-3	UFCFU3-15-3	UFCFB5-15-3		UFCFY3-15-3
(TU modules)	ITS60404	MTH60104	ITS60403	ITS60704	ITS61104	ITS60304	ITS60103	ITS60604	ITS60504	ITS60203	ITS60503	ITS60804	ITS61804	ITS60603	ITS60303	PRJ60107	ITS62004	CSC60303	CSC60403	ITS61403
Communication skills				✓										✓		✓		✓		
				✓	✓									✓	✓	✓		✓	✓	
Self-management skills				✓				✓		✓				✓		✓	✓			
				✓	✓			✓	✓	✓	✓			✓	✓	✓	✓			
IT skills in context	✓			✓		✓		✓		✓		✓		✓		✓	✓			✓
	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
Logical reasoning skills		✓						✓		✓				✓		✓	✓	✓		✓
		✓	✓					✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Problem formulation		✓		✓		✓		✓		✓		✓		✓		✓	✓			✓
		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
Progression to independent learning	✓	✓		✓		✓		✓		✓		✓		✓		✓	✓	✓		✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Comprehension of professional literature	✓	✓		✓		✓		✓		✓		✓		✓		✓	✓	✓		✓
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓