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	N
Professional Statutory or Regulatory Body Links	Malaysian Quality Assurance (MQA) http://apps.emoe.gov.my/qad/main.html
Highest Award Title	UWE: BSc (Hons) Software Engineering TU: Bachelor of Software Engineering (Honours)
Default Award Title	
Fall-back Award Title	
Interim Award Titles	CertHE Software Engineering DipHE Software Engineering BSc Software Engineering
UWE Progression Route	
Mode(s) of Delivery	FT, SW
Codes	**UCAS:G600**	**JACS:**
	ISIS2: G700 (G70013 FT); (G700 SW) (G70E Dual) (G70E13) Northshore	**HESA:**
Relevant QAA Subject Benchmark Statements	Computing
CAP Approval Date	6 November 2017
Valid from	September 2018
Valid until Date	
Version	2

Part 2: Educational Aims of the Programme

BSc (Hons) Software Engineering has the following general aims:
1. To prepare students for entry into the Software Engineering 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 Software Engineering 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 software engineering.
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)

Software Engineering graduates would be expected to have strong technical skills in computer programming, software and database design and web and network--based applications, allied with an understanding of the importance of, and methods for, collaborative working on large-scale projects. They would be expected to have a good understanding of the underlying principles of computing. As software engineering is a fast-developing field they would be expected to understand the need for continual learning after graduation.

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. The modelling of the software development process in an object-oriented paradigm
2. Understanding the importance of data management
3. Underpinning hardware technologies
4. Underpinning mathematical concepts
5. The business contexts of software engineering
6. The overarching professional and ethical responsibilities of software developer

(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 have acquired skills in*:

1. Requirements gathering, analysis, design, implementation and testing using appropriate paradigms models and tools
2. Design and Deployment databases
3. Web based systems implementation
4. User interface design
5. Management of software development projects

(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 skills: 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. Skills in selecting and using information sources appropriate to the discipline to support learning activities.
8. Teamwork skills:: to be able to work as a member of a team; to be aware of the benefits and

Part 3: Learning Outcomes of the Programme
problems which teamwork can bring. ***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. TU students might expect rather more contact time, usually in excess of 20 hours per week.

On the Software Engineering 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, nonetheless, students are strongly encouraged to take up this opportunity. The University and the department provide support in preparation for the placement in a number of ways. For example, during the second year, the department arranges a series of talks from former placement students and industrialists, aimed at illustrating the benefits of the placement year. Support in applying for placements is also provided through CV workshops, advertising of placement vacancies and more general information on careers and employability. They may alternatively take a study year abroad, in which case they take the International Experience module. Students who elect not to do a year-long placement or study abroad year are encouraged to gain work experience in other ways, for example through volunteering, summer internships and entrepreneurial schemes.

If a student opts to take a placement year, they must also undertake the level-three module, Professional Experience, while they are undertaking the placement.

 At TU all students undertake a compulsory 10 week Industrial Training module which they must pass in order to graduate.

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

This section expands on 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. Taylors University also uses a virtual learning environment in a similar manner.

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.

Students at Taylors University have access to similar support services. In addition, Taylors has a system of 'academic probation'. Students who have failed a module are placed in 'academic probation' and are offered counselling to help them towards success.

Progression to Independent Study
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.

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 both UWE and TU , 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.

In addition, BSc (Hons) Software Engineering will students will be encouraged to use social networking (e.g. Facebook) to interact – a strategy that has proven highly valuable on other degrees. The Facebook site fosters social and academic contacts between students on all years of the Programme and acts as an initial portal for applicants and a forum for graduates.

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 through the UG administration team, the Placements Office, the Admissions Office.

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.

Part 4: Student Learning and Student Support

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.

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.

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 Software Engineering require a balance between:
- the assessment of technical knowledge, (by means of examinations and individual assignments),
- the assessment of the ability to work in teams (assessed by group work)
- the assessment of the ability to carry out extended periods of coordinated work (assessed by projects and portfolios of work).

Part 6: Programme Structure						

UWE: BSc (Hons) Software Engineering

Taylor's University: Bachelor of Software Engineering (Honours)

		Compulsory modules	Optional modules	Interim Awards:	Compulsory modules	Optional modules	Interim Award
ENTRY ↓ Y E A R 1		**UFCFC3-30-1** Introduction to OO Systems Development **UFCF93-30-1** Computer and Network Systems **UFCFB3-30-1** Web Programming **UFCFA3-30-1** Principles of Computing	No optional modules at level 1	Certificate of Higher Education Software Engineering	ITS60404 Computer Systems ITS60304 C Programming ITS60103 Systems Analysis and Design MTH60104 Mathematics for Computing 1 ITS60804 Introduction to Object-Oriented Programming MTH60503 Mathematics for Computing 2 ITS60504 Data Structures and Algorithms ITS60704 Fundamentals of Software Engineering COM60303 Communication Practice for IT Professionals UCM60503U2/ MPU3143/ MPU3123 Bahasa Melayu Komunikasi 2/ Tamadun Islam dan Tamadun Asia MPU3173/ MPU3113 Malaysian Studies 3 / Hubungan Etnik MPU3213 Personal Development/Bahasa Kebangsaan A	Elective 1 (3 credits)	

	Compulsory modules	Optional modules	Interim Awards:	Compulsory modules	Optional modules	Interim Award
Y E A R 2	**UFCFV4-30-2** Data, Schemas and Applications **UFCFQ4-30-2** Computer Networks and Operating Systems **UFCFB6-30-2** Object-Oriented Systems Development **UFCFK6-30-2** Software Engineering	No optional modules at level 2	Diploma of Higher Education Software Engineering	ITS61004 Object-Oriented Programming using Java ITS60604 Fundamentals of Database Systems ITS60203 Fundamentals of Data Communications ITS60603 Software Design ITS60703 Software Process ITS60503 Operating Systems ITS60903 Software Quality ITS61003 Software Maintenance CSC60703 Project Management 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 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 (UWE students only) 15 credits from	Interim Award	Compulsory modules	Optional modules	Pre-requisite requirements
Y E A R **3**		**UFCFR4-45-3** Computing Project **UFCFM6-15-3** Requirements Engineering **UFCFU3-15-3** Advanced Databases **UFCF85-30-3** Enterprise Systems Development ~~**UFCFX5-15-3** Mobile Device Development~~ UFCF7H-15-3 Mobile Applications (Taylors students only) → **GRADUATION**	**UFCFE6-15-3** Professional Experience (studied during placement year) OR **UFCFWJ-15-3** International Experience OR **UFCFVJ-15-3** Professional Development **UFCFB5-15-3** Ethical and Professional Issues in Computing and Digital Media	BSc Software Engineering **Target/highest title** BSc (Hons) Software Engineering (SW) BSc (Hons) Software Engineering (FT) *Credit requirements:* 360 UWE credits at the appropriate levels	PRJ61603 Software Engineering Project Part 1 PRJ60304 Software Engineering Project Part 2 ITS60403 Computing Theory ITS61703 Enterprise Computing CSC60303 Professional Computing Practice ITS61403 Artificial Intelligence ITS61504 Data Mining	Elective 2, 3 and 4 CSC60104 E-Commerce CSC60204 Internet Fundamentals ITS61804 OO Programming using C++ STA60304 Probability and Statistical Analysis ITS62004 Advanced Database Systems ITS62104 Introduction to Information Retrieval ITS61704 Windows Applications using .NET Technologies ITS61404 Web Applications using .NET Technologies CSC60403 Technopreneurship CSC60103 Online Presence Management ACC60104 Introduction to Accounting OBM60104 Organizational Behaviour MGT60104 Introduction to Management MKT60104 Principles of Marketing	72 TU credits at the appropriate level Awards: Target/highest title: Bachelor of Software Engineering (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)

1. The QAA Computing benchmark statement is the key influence to have informed the design of the international awards within FET:

2   The QAA Computing benchmark statement

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. UWE'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.

Part 8: Reference Points and Benchmarks

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.

Part 8: Reference Points and Benchmarks

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
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.and on the TU Intranet.

Appendices

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

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[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

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	Diploma 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 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.

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[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.

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

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

Appendix 5: Structure and Mapping diagram:

BSc (Hons) Software Engineering / Bachelor of Software Engineering (Honours)

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	UFCFC3-30-1 Introduction to Object-Oriented Systems Development	UFCF93-30-1 Computer and Network Systems	UFCFB3-30-1 Web Programming	UFCFA3-30-1 Principles of Computing
TU	ITS60804 Introduction to OO Programming	ITS60404 Computer Systems	ITS60103 Systems Analysis and Design	MTH60104 Mathematics for Computing 1
	ITS60704 Fundamentals of Software Engineering	ITS60304 C Programming	COM60303 Communication Practice for IT Professionals	MTH60503 Mathematics for Computing 2
			TU Elective Slot 1 (currently only CSC60403 Technopreneurship offered)	ITS60504 Data Structures and Algorithms

Year 2

UWE	UFCFV4-30-2 Data, Schemas and Applications	UFCFQ4-30-2 Computer Networks and Operating Systems	UFCFB6-30-2 Object-Oriented Systems Development	UFCFK6-30-2 Software Engineering
TU	ITS60604 Fundamentals of Database Systems	ITS60203 Fundamentals of Data Communications	ITS61004 OO Programming using Java	ITS60603 Software Design
		ITS60503 Operating Systems	ITS61604 Distributed Applications Development	ITS60703 Software Process
				ITS60903 Software Quality
				ITS61003 Software Maintenance
				CSC60703 Project Management

Year 3

UWE	**UFCFR4-45-3** Computing Project	**UFCFM6-15-3** Requirements Engineering	**UFCFU3-15-3** Advanced Databases	**UFCF85-30-3** Enterprise Systems Development	**UFCF7H-15-3** Mobile Applications
TU	PRJ61603 Software Engineering Project Part 1	TU Elective 2 Slot (see below)	ITS61504 Data Mining	ITS61703 Enterprise Computing	TU Elective 3 Slot (see below)
	PRJ60304 Software Engineering Project Part 2	ITS60403 Computing Theory	ITS61403 Artificial Intelligence	CSC60303 Professional Computing Practice	TU Elective 4 Slot (see below)
	ITS61604 Distributed Application Development				

TU Elective Slots 2, 3, and 4

Students studying at TU choose three electives in Year 3 from the following list:

CSC60104   E-Commerce

CSC60204   Internet Fundamentals

ITS61804   OO Programming using C++

STA60304   Probability and Statistical Analysis

ITS62004   Advanced Database Systems

ITS62104   Introduction to Information Retrieval

ITS61704   Windows Applications using .NET Technologies

ITS61404   Web Applications using .NET Technologies

CSC60103   Online Presence Management

ACC60104   Introduction to Accounting

OBM60104   Organizational Behaviour

MGT60104   Introduction to Management

MKT60104   Principles of Marketing

NB: TU Elective slots: Elective 1: currently only Technopreneurship is offered in this slot and this module is assumed in the mappings below. Elective 2-4 are shown for information only, as the modules occupying these slots vary and hence it is not possible to rely on specific learning outcomes.

LEARNING OUTCOMES		Compulsory Modules Level 1										Compulsory Modules Level 2										Compulsory Modules Level 3									
SECTION A: KNOWLEDGE AND UNDERSTANDING	**UWE modules**	UFCFC3-30-1		UFCF93-30-1		UFCFB3-30-1			UFCFA3-30-1			UFCFV4-30-2	UFCFQ4-30-2		UFCFB6-30-2		UFCFK6-30-2					UFCER4-45-3		UFCFM6-15-3		UFCFU3-15-3		UFCE85-30-3		UFCF7H-15-3	
	TU modules	ITS60804	ITS60704	ITS60404	ITS60304	ITS60103	COM60303	Elective 1	MTH60104	MTH60503	ITS60504	ITS60604	ITS60203	ITS60503	ITS61004	ITS61604	ITS60603	ITS60703	ITS60903	ITS61003	CSC60703	PR161603	PR160304	Elective 2	ITS60403	ITS61504	ITS61403	ITS61703	CSC60303	Elective 3	Elective 4
Modelling of the software development process	UWE	✓		✓		✓			✓			✓			✓		✓					✓		✓		✓		✓			
	TU		✓	✓		✓			✓	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓		✓	✓		✓			
The importance of data management	UWE	✓				✓			✓			✓	✓		✓		✓					✓		✓		✓		✓		✓	
	TU	✓				✓					✓	✓	✓	✓	✓	✓				✓				✓		✓	✓	✓	✓		
Underpinning hardware technologies	UWE			✓		✓									✓															✓	
	TU			✓	✓								✓	✓																	
Underpinning mathematical concepts	UWE								✓								✓									✓					
	TU								✓	✓							✓	✓								✓					
The business contexts of software engineering	UWE					✓									✓		✓					✓				✓		✓		✓	
	TU		✓				✓	✓									✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
The overarching professional and ethical responsibilities of	UWE	✓				✓											✓					✓				✓		✓			
	TU		✓				✓	✓									✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		

Section B: Intellectual Skills

LEARNING OUTCOMES		Compulsory Modules Level 1										Compulsory Modules Level 2										Compulsory Modules Level 3									
SECTION B: INTELLECTUAL SKILLS	UWE modules	UFCFC3-30-1		UFCF93-30-1		UFCFB3-30-1			UFCFA3-30-1			UFCFV4-30-2	UFCFO4-30-2	UFCFB6-30-2		UFCFK6-30-2						UFCFR4-45-3		UFCFM6-15-3		UFCFU3-15-3		UFCF85-30-3		UFCF7H-15-3	
	TU modules	ITS60804	ITS60704	ITS60404	ITS60304	ITS60103	COM60303	Elective 1	MTH60104	MTH60503	ITS60504	ITS60604	ITS60203	ITS60503	ITS61004	ITS61604	ITS60603	ITS60703	ITS60903	ITS61003	CSC60703	PRJ61603	PRJ60304	Elective 2	ITS60403	ITS61504	ITS61403	ITS61703	CSC60303	Elective 3	Elective 4
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				✓		✓			✓			✓	✓		✓								✓		✓		✓		✓	
				✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓			

Section C: Subject Professional Practical Skills

LEARNING OUTCOMES		Compulsory Modules Level 1										Compulsory Modules Level 2										Compulsory Modules Level 3									
SECTION C: SUBJECT PROFESSIONAL PRACTICAL SKILLS	UWE modules	UFCFC3-30-1		UFCF93-30-1		UFCFB3-30-1			UFCFA3-30-1			UFCFV4-30-2	UFCFO4-30-2	UFCFB6-30-2		UFCFK6-30-2						UFCFR4-45-3		UFCFM6-15-3		UFCFU3-15-3		UFCF85-30-3		UFCF7H-15-3	
	TU modules	ITS60804	ITS60704	ITS60404	ITS60304	ITS60103	COM60303	Elective 1	MTH60104	MTH60503	ITS60504	ITS60604	ITS60203	ITS60503	ITS61004	ITS61604	ITS60603	ITS60703	ITS60903	ITS61003	CSC60703	PRJ61603	PRJ60304	Elective 2	ITS60403	ITS61504	ITS61403	ITS61703	CSC60303	Elective 3	Elective 4
Software		✓		✓		✓			✓			✓	✓	✓		✓						✓		✓				✓		✓	

Category																													
Engineering process	✓	✓	✓		✓	✓				✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			✓		
Design and Deployment databases					✓			✓			✓			✓				✓						✓			✓		
					✓					✓	✓							?	?					✓			✓		
Web based systems implementation					✓											✓					✓			✓			✓		✓
																✓			✓		?	?		✓	✓		✓		
User interface design					✓									✓		✓					✓						✓		✓
														✓		✓					✓	✓					✓		
Management of software development	✓		✓		✓									✓		✓					✓						✓		✓
		✓	✓		✓	✓									✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	

LEARNING OUTCOMES	Compulsory Modules Level 1										Compulsory Modules Level 2										Compulsory Modules Level 3					
UWE modules	UFCFC3-30-1		UFCF93-30-1		UFCFB3-30-1			UFCFA3-30-1			UFCFV4-30-2	UFCFQ4-30-2		UFCFB6-30-2		UFCFK6-30-2					UFCFR4-45-3		UFCFM6-15-3		UFCFU3-15-3	
TU modules	ITS60804	ITS60704	ITS60404	ITS60304	ITS60103	COM60303	Elective 1	MTH60104	MTH60503	ITS60504	ITS60604	ITS60203	ITS60503	ITS61004	ITS61604	ITS60603	ITS60703	ITS60903	ITS61003	CSC60703	PRJ61603	PRJ60304	Elective 2	ITS60403	ITS61504	ITS61403
...nication skills					✓						✓					✓					✓					
					✓	✓	✓				✓					✓	✓	✓	✓	✓	✓	✓				
...agement skills	✓		✓		✓			✓			✓	✓		✓		✓					✓		✓		✓	
	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
...s in context	✓		✓		✓						✓	✓		✓		✓					✓		✓		✓	
	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓			✓				✓		✓	✓	✓
...easoning skills			✓								✓			✓		✓					✓		✓			
			✓	✓							✓			✓		✓	✓	✓	✓		✓			✓		
...ormulation skills	✓		✓		✓						✓			✓		✓					✓		✓		✓	
	✓	✓	✓	✓	✓		✓			✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
...n to independent Learning	✓		✓		✓			✓			✓	✓		✓		✓					✓		✓		✓	
	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
...sing information sources.	✓		✓		✓			✓			✓	✓		✓		✓					✓		✓		✓	
	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
...work skills					✓											✓										
						✓	✓									✓	✓	✓	✓	✓						

PROGRAMME SPECIFICATION

Part 1: Basic Data	
Awarding Institution	University of the West of England
Teaching Institution	University of the West of England Northshore College of Business and Technology, Colombo, Sri Lanka
Delivery Location	University of the West of England Northshore College of Business and Technology, Colombo, Sri Lanka
Study abroad / Exchange / Credit recognition	
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	None
Highest Award Title	BSc (Hons) Software Engineering
Default Award Title	
Fall-back Award Title	
Interim Award Titles	BSc Software Engineering CertHE Software Engineering DipHE Software Engineering
UWE Progression Route	
Mode(s) of Delivery	FT, SW
Codes	**UCAS:G600** **JACS:** **ISIS2: G700** **HESA:**
Relevant QAA Subject Benchmark Statements	Computing

CAP Approval Date	6 November 2017
Valid from	January 2018
Valid until Date	January 2021
Version	2

Part 2: Educational Aims of the Programme

The BSc (Hons) Software Engineering has the following general aims:

1. To prepare students for entry into the Software Engineering 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.

The BSc (Hons) Software Engineering 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 encourage students to uphold professional, ethical and social standards and to keep up to date with recent technological and theoretical developments.

3. To provide exposure to the body of research that underlies the use of computers and to develop familiarity with some major themes within software engineering.

4. 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)

Software Engineering graduates would be expected to have strong technical skills in computer programming, software and database design and web and network--based applications, allied with an understanding of the importance of, and methods for, collaborative working on large-scale projects. They would be expected to have a good understanding of the underlying principles of computing. As software engineering is a fast-developing field they would be expected to understand the need for continual learning after graduation.

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:

Part 3: Learning Outcomes of the Programme

7. The modelling of the software development process in an object-oriented paradigm
8. Understanding the importance of data management
9. Underpinning hardware technologies
10. Underpinning mathematical concepts
11. The business contexts of software engineering
12. The overarching professional and ethical responsibilities of software developer

(B) Intellectual Skills

On completion of the programme students will be able to demonstrate skills in:
10. Critical Thinking
11. Analysis
12. Synthesis of different types of information
13. Evaluation
14. Problem Solving
15. Appreciate problem contexts
16. Balance conflicting objectives
17. Construction of logical arguments
18. Discussion and debate about technical subjects with peers

(C) Subject/Professional/Practical Skills

On completion of the programme students will have acquired skills in*:*

6. Requirements gathering, analysis, design, implementation and testing using appropriate paradigms models and tools
7. Design and Deployment databases
8. Web based systems implementation
9. User interface design
10. Management of software development projects

(D) Transferable skills and other attributes

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

9. Communication skills: to communicate orally or in writing.
10. Self-management skills: to manage one's own time; to meet deadlines; to work with others.
11. IT skills in context: to use software tools in the context of application development.
12. Logical reasoning skills: To undertake analysis and interpretation of information in the context of the Computing discipline.
13. Problem formulation skills: To express problems in appropriate notations.
14. 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.
15. Skills in selecting and using information sources appropriate to the discipline to support learning activities.
16. Teamwork skills:: to be able to work as a member of a team; to be aware of the benefits and problems which teamwork can bring.

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. TU students might expect rather more contact time, usually in excess of 20 hours per week.

On the Software Engineering 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, nonetheless, students are strongly encouraged to take up this opportunity. The University and the department provide support in preparation for the placement in a number of ways. For example, during the second year, the department arranges a series of talks from former placement students and industrialists, aimed at illustrating the benefits of the placement year. Support in applying for placements is also provided through CV workshops, advertising of placement vacancies and more general information on careers and employability. Students who elect not to do a year-long placement are encouraged to gain work experience in other ways, for example through volunteering, summer interships and entrepreneurial schemes.

If a student opts to take a placement year, they must also undertake the level-three module, Professional Experience, while they are undertaking the placement.

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

This section expands on the features and minimum standards of support that could be expected at UWE and Northshore.

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
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.

STUDENT SUPPORT AND GUIDANCE

Student support is provided by academic staff, usually module leaders, for all issues relating to the content and delivery of the module. 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.

In addition, BSc (Hons) Software Engineering will students will be encouraged to use social networking (e.g. Facebook) to interact – a strategy that has proven highly valuable on other degrees. The Facebook site fosters social and academic contacts between students on all years

Part 4: Student Learning and Student Support

of the Programme and acts as an initial portal for applicants and a forum for graduates.

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 through the UG administration team, the Placements Office, the Admissions Office.

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.

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Northshore

With the state-of-the art building of over 12,000 sqm^2 of space within a 3 acre land Northshore College of Business and Technology is geared to provide a comprehensive learning experience along with ample facilities to students. Within Northshore, student learning will be supported in the following distinctive ways:

- through provision of a large Open Access Laboratory containing 40 machines that provide students with access to a wide range of computer-based applications;
- through provision of 5 other, frequently available, computer laboratories that provide similar access;
- through provision of the College System Support Helpdesk that provides a range of support for learning to students including:
- support for a wide range of applications used by the students;
- help in the form of Assistants who are trained to resolve many common student problems;
- and help in the form of a Frequently Asked Questions (FAQs)", that cover a variety of common student requests for information;
- in level-3 modules there is scope for engagement with current leading-edge research undertaken by researchers within the College, UWE and at collaborating institutions.

Description of the teaching resources provided for students

Part 4: Student Learning and Student Support

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.

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 Software Engineering require a balance between:
- the assessment of technical knowledge, (by means of examinations and individual assignments),
- the assessment of the ability to work in teams (assessed by group work)
- the assessment of the ability to carry out extended periods of coordinated work (assessed by projects and portfolios of work).

Part 6: Programme Structure

BSc (Hons) Software Engineering

ENTRY ↓		Compulsory modules	Optional modules	Interim Awards:
		UFCFC3-30-1 Introduction to OO Systems Development	No optional modules at level 1	Certificate of Higher Education Software Engineering
Y E A R 1		**UFCF93-30-1** Computer and Network Systems		120 credits with at least 100 at level 1 or above
		UFCFB3-30-1 Web Programming		
		UFCFA3-30-1 Principles of Computing		

		Compulsory modules	Optional modules	Interim Awards:
Y E A R 2		**UFCFV4-30-2** Data, Schemas and Applications **UFCFQ4-30-2** Computer Networks and Operating Systems **UFCFB6-30-2** Object-Oriented Systems Development **UFCFK6-30-2** Software Engineering	No optional modules at level 2	Diploma of Higher Education Software Engineering 240 credits with at least 100 at level 2 and a further 120 credits at level 1 or above
Optional Placement Year 2P and UFCFE6-15-3 Professional Experience				

		Compulsory modules	Optional modules	
			15 credits from	
Y E A R 3		**UFCFR4-45-3** Computing Project		BSc Software Engineering
			UFCFE6-15-3 Professional Experience (studied during placement year)	300 credits with at 60 credits at level 3, a further 100 credits at level 2 or above and a further 120 at level 1 or above:
		UFCFM6-15-3 Requirements Engineering		
		UFCFU3-15-3 Advanced Databases	**UFCFB5-15-3** Ethical and Professional Issues in Computing and Digital Media	**Highest Award Title**
		UFCF85-30-3 Enterprise Systems Development		BSc Hons) Software Engineering
			UFCF7H-15-3 Mobile Application	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.
		$\rightarrow$ **GRADUATION**		

Part 7: Entry Requirements

The university's minimum requirements for entry to a degree will apply.
In addition entrants will be required to have:
- Mathematics at GCSE Grade C or equivalent.

Part 8: Reference Points and Benchmarks

Reference points/benchmarks

UWE 2020 Strategy

The QAA Computing benchmark statement is the key influence to have informed the design of the international awards within FET.

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 proposed degree, 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 (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 proposal is closer to the second of these extremes. It also allows students to further specialise through the choice of Level 3 modules.

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.

In Sri Lanka discussions between Northshore College of Business and Technology and local employers confirm the need for computing graduates with specific skills sets in computer science and software engineering as well as those with a broad understanding.

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. These are available on the University Intranet.

Appendices

Appendix 1: Learning Outcome Mappings: BSc (Hons) Software Engineering (UWE)

LEARNING OUTCOMES	Compulsory Modules Level 1				Compulsory Modules Level 2				Compulsory Modules Level 3				
SECTION A: **KNOWLEDGE AND UNDERSTANDING**	UFCFC3-30-1	UFCF93-30-1	UFCFB3-30-1	UFCFA3-30-1	UFCFV4-30-2	UFCFQ4-30-2	UFCFB6-30-2	UFCFK6-30-2	UFCFR4-45-3	UFCFM6-15-3	UFCFU3-15-3	UFCF85-30-3	UFCFX5-15-3
Modelling of the software development process	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
The importance of data management	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Underpinning hardware technologies		✓	✓			✓							✓
Underpinning mathematical concepts				✓				✓		✓			
The business contexts of software engineering			✓				✓	✓	✓		✓	✓	✓
The overarching professional and ethical responsibilities of software developer	✓		✓					✓	✓		✓	✓	

LEARNING OUTCOMES	Compulsory Modules Level 1				Compulsory Modules Level 2				Compulsory Modules Level 3				
SECTION B: **INTELLECTUAL SKILLS**	UFCFC3-30-1	UFCF93-30-1	UFCFB3-30-1	UFCFA3-30-1	UFCFV4-30-2	UFCFQ4-30-2	UFCFB6-30-2	UFCFK6-30-2	UFCFR4-45-3	UFCFM6-15-3	UFCFU3-15-3	UFCF85-30-3	UFCFX5-15-3
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 Level 3				
SECTION C: **SUBJECT PROFESSIONAL PRACTICAL SKILLS**	UFCFC3-30-1	UFCF93-30-1	UFCFB3-30-1	UFCFA3-30-1	UFCFV4-30-2	UFCFQ4-30-2	UFCFB6-30-2	UFCFK6-30-2	UFCFR4-45-3	UFCFM6-15-3	UFCFU3-15-3	UFCF85-30-3	UFCFX5-15-3
Software Engineering process	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Design and Deployment databases			✓	✓	✓		✓		✓		✓	✓	
Web based systems implementation			✓					✓	✓		✓	✓	✓
User interface design			✓				✓	✓	✓			✓	✓
Management of software development projects	✓	✓	✓				✓	✓	✓			✓	✓

LEARNING OUTCOMES	Compulsory Modules Level 1				Compulsory Modules Level 2				Compulsory Modules Level 3				
SECTION D: **TRANSFER-ABLE SKILLS AND OTHER ATTRIBUTES**	UFCFC3-30-1	UFCF93-30-1	UFCFB3-30-1	UFCFA3-30-1	UFCFV4-30-2	UFCFQ4-30-2	UFCFB6-30-2	UFCFK6-30-2	UFCFR4-45-3	UFCFM6-15-3	UFCFU3-15-3	UFCF85-30-3	UFCFX5-15-3
Communication skills			✓		✓			✓	✓			✓	✓
Self-management skills	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IT skills in context	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Logical reasoning skills		✓			✓		✓	✓	✓	✓		✓	✓
Problem formulation skills	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
Progression to independent learning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Skills in using information sources.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Teamwork skills			✓					✓				✓	✓

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