



Programme Specification

Software Engineering for Business {JEP} [Neusoft]

Version: 2025-26, v1.0, 25 Sep 2024

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Software Engineering for Business {JEP} [Neusoft]

Highest award: BSc (Hons) Software Engineering for Business

Interim award: BSc Software Engineering for Business

Interim award: DipHE Software Engineering for Business

Interim award: CertHE Software Engineering for Business

Awarding institution: UWE Bristol

Affiliated institutions: Neusoft Institute, Guangdong

Teaching institutions: Neusoft Institute, Guangdong, UWE Bristol

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: No

School responsible for the programme: CATE School of Computing and Creative Technologies, College of Arts, Technology and Environment

Professional, statutory or regulatory bodies: Not applicable

Modes of delivery: Full-time

Entry requirements:

For implementation from: 01 September 2021

Programme code: I3NE13

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: Delivered as part of the Joint Educational Programme Software Engineering for Business in partnership with Neusoft Institute, Guangdong.

Central and crucial to the SEfB programme will be an emphasis on partnership, student centred engagement and an appropriate balance of education, training and practice-based experience. Employers actively supporting the programmes include BT, CA Technologies, The Cabinet Office, Capgemini, CGI (was Logica), Cisco, Enternships, General Dynamics, IBM, Kinetic, Ministry of Justice, MOD, NHS Wales and TCS (Tata Consultancy Services). UWE has developed close links with a number of the members of the e-skills UK employers strategy forum e.g. IBM, Capgemini, GSK, and Credit Suisse, who regularly provide placements and internships for our students and who have employed a good number of our graduates.

All partner universities create their own version of a balanced curriculum that engages students in various learning and practical activities. Consistency across all programmes is achieved through an interaction of aims/objectives, assessment techniques, teaching methods and content approved by both the partner employers and the university. Partner universities are expected to design a curriculum that meets all of the requirements of the Learning Outcomes Skills Requirement (LOSR) document and proof of this is a requirement for endorsement.

An employer-led design team, informed by wider employer consultation, has worked in partnership with curriculum experts from partner universities (including UWE) to define the learning outcomes of most value to the sector. Strategies for sustainability and for employer involvement have been designed in, informed by our collective experience of ITMB, including 'guru' lectures, awards, project challenges and business placements for students.

UWE has been a member of the e-skills Programme Development Group since the start of the design process. The goal was to produce the blueprint for a programme which sets high standards re:

Relevance of content.

Effective employer engagement.

Attracting the highest quality students.

Appeal to women as well as men.

Degree completion rates.

Progression into IT careers.

Features of the programme: e-skills UK Employer's Strategy Forum is responsible for setting the overall strategy for the SEfB programme and is committed to maintaining its quality and its relevance to their respective industries. It also plays a key role in the delivery of the programme, by providing hands-on support to SEfB lecturers and students. In this way it helps SEfB students to develop the knowledge and the skills required to enable them to secure management careers in the IT world - particularly within its own member companies. The high level of employer involvement helps to confirm and consolidate the relevance and importance of the topics and subjects covered by the award, to broaden the context of study for the students through exposure to contemporary applications, initiatives and issues and to inspire them to see their education as a powerful force in their personal and professional development.

The support of such a large number of e-skills UK Employer's Strategy Forum member companies has proved both valuable to and popular with ITMB students. As with the ITMB programme, employer involvement will take a number of forms including:

Delivering GURU lectures.

The sponsoring of both inter and intra student competitions.

The hosting of 'all student away day events' .

Mock selection centres/interviews.

Employer 'know-how' is very much key to the undergraduates' experience throughout the SEfB course and the e-skills invited 'Guru Lecture' series is a key element in bridging the academic and business worlds. There will be approximately

12 Guru Lectures throughout the academic year and undergraduates on the SEfB Degree course are strongly encouraged to attend all of them. Lectures are hosted (in turn) by one of the participating universities and broadcast live to the others using web conferencing software. They are intended to inspire and motivate the students and to support their studies by showing the importance of theory to the world of practice. Speakers and topics are arranged in negotiation with the participating universities and span technology, business, project management and personal/interpersonal skills.

Educational Aims: The specific educational aims of the programme are to:

Provide students with a broad background understanding of business operations, procedures and culture, as applicable to a career in an IT environment.

Enable students to recognise the nature, role and importance of information systems within business organisations and the importance of information security.

Develop students' knowledge and practical skills to select and employ appropriate technologies, tools, techniques and methods for understanding and developing information systems in business contexts.

Develop deep technical competence in the software development process as applied in business.

Equip students to play a key role in software project management.

Develop both personal and inter-personal skills to enable the students to work closely and communicate with others in all aspects of the software development process.

Provide students with a set of problem-solving and modelling skills appropriate to IT related business systems development and operations.

Enable the students to play a central role in an IT project; and gain business

experience in a project oriented environment.

Develop the students' critical, evaluative team working and problem-solving abilities that will be valuable to them in any career.

Continue the development of those general study skills that will enable students to become independent, lifelong learners including career and employability awareness.

Programme Learning Outcomes:

On successful completion of this programme graduates will achieve the following learning outcomes.

Knowledge and Understanding

A1. IT in Business

Students will be able to assess the contribution and impact of technology in the global business environment; demonstrate an understanding of basic business functions and organisational structures in different sectors (including an international dimension) and possess a sound understanding of contemporary working practices. Students will understand why a business case is needed and be able to create a business case for a technology-enabled business solution, including an assessment of business benefits, impacts, risks and return on investment and design a small-scale system suitable for business use, adopting open-source software, operating systems, development tools and materials as appropriate.

A2. Custom Software Development Essentials

Students will understand software development processes that support the design and construction of software products, including the transformation of a design into an implementation, the tools used during this process, formal software construction methods and designing for maintainability; Students will understand software design and development methodology (e.g., structured or object-oriented), be able to apply appropriate industry standard design notation, select, with justification, an appropriate set of tools to support the development of software products; explain the potential benefits and drawbacks of using formal specification languages and understand the software development process as aligned to industry practice.

A3. Data and Algorithms.

Students will be able to write programs that use a wide range of data types and data structures; use pseudo code and an appropriate programming language to implement, test, and debug algorithms for solving problems; confidently design and apply algorithms for manipulating data in programming solutions for a variety of computational problems and understand search techniques and memory management.

A4. Software Modelling and Analysis.

Students will understand the role and purpose of modelling and the distinction between analysis and design models; Students will be able to apply a wide variety of industry standard modelling techniques, analyse the problem domain to establish a basis for the creation of a software design and describe what the customer requires through solution design modelling.

A5. Software Architecture.

Students will understand the differences between multi tiered (1/2/3) architectures and layers and their merits, be able to formulate a system according to a multi-tier architecture, so that the presentation, the application processing and the data management can be separated into different logical processes and understand concepts such as separation of concerns, loose coupling and cohesion. Students will understand the role of software architecture in software design.

A6. Software Requirements Management.

Students will understand the requirements development process: elicitation, specification, analysis, and management and the use of tools for managing requirements, and how requirements, design, implementation and verification are linked together to control development and ensure quality.

Students will be able to elicit and negotiate requirements using a variety of techniques, be competent in writing clear and concise functional and non-functional requirements, organize and prioritize and validate requirements according to criteria such as feasibility, clarity, testability and freedom from ambiguity.

A7. Software Design.

Students will be able to discuss the properties of good software design including the nature and the role of associated documentation, appreciating that design increasingly covers use of existing code and 3rd party elements, select and apply appropriate design patterns in the construction of software, understand the different contexts for HCI (mobile devices, consumer devices, business applications, web, business applications, collaboration systems, games, etc.) and be able to define a user-centred design that explicitly recognises the user and is DDA compliant (Disability Discrimination Act), create and specify a software design for a medium-size software product using a software requirement specification, an accepted program design methodology (e.g., structured or object-oriented), and appropriate design notation.

A8. Software Verification and Testing.

Students will be able to describe in detail the purpose of, and distinguish between the different types and levels of verification (analysis, demonstration, test, formal proof, inspection etc.) and testing (unit, integration, systems, and acceptance) including the role and value of test driven development techniques, analyse requirements to determine appropriate testing strategies, create, evaluate, and implement a test plan, develop and execute accurate and clear test scripts, be competent in developing automated tests within the build phase for applications at a transaction and method level.

A9. Software Development Process.

Students will be able to understand the importance of a software process for governing software development both technically, and in terms of cost control, quality, adherence of technical strategy and IPR identification. They will understand the software life cycle, its phases and deliverables, and have a critical awareness of both predictive and adaptive methods and approaches so as to be able to select, with justification software development models and process elements most appropriate for the development and maintenance of a diverse range of software products. Students will have an understanding of distributed development work (e.g. onshore, near shore and offshore) and understand the processes, benefits and drawbacks of each.

A10. Software Development in Context.

Students will understand the fundamental components of technology solutions in a range of typical modern business environments and explain their interactions for applicable target systems – e.g. games console, smart-phone, embedded system understanding the differences that these environments bring. Students will understand the contexts of real time and embedded systems development as well as component software within hardware systems and be able to demonstrate the capability to justify, select, and apply an appropriate set of tools to support the development of a range of software products and to specify and implement user interfaces for a range of different contexts.

A11. Software Configuration and Release Management.

Students will be able to define configuration management processes for use throughout the product development life cycle in storing software deliverables and controlling and tracking changes to software both at component and release level; modify software designs and deliverables following sound change control approaches and change control tools; understand the importance of version control, select and apply configuration management and change control tools for use within software development projects, and be able to apply them.

A12. Software Deployment.

Students will understand the organisational context into which software is deployed and the human and business issues associated with deployment, recognise the challenges of deploying software releases which form part of a software or hardware system, perhaps with other software elements from a 3rd party, and embedded systems, Be able to interact to agree dependencies on interfaces, processing speed, resource utilisation and staged deployment in to maturing prototypes and systems, develop and apply user documentation and training materials as part of software development and deployment activities and design and develop training materials and plan end user training following software deployment.

A13. Software Maintenance.

Students will understand the impact of developing software for systems which need to be maintained for extended operational periods and be aware of the importance of documentation rigour in those circumstances, read and Analyse existing software behaviour in order to improve its efficiency, reliability, and maintainability, maintain and update software as required to ensure continued effectiveness and in response to external factors and understand the role and purpose of refactoring in improving programming solutions efficiency, scalability, maintainability and extensibility.

A14. Legacy Systems.

Students will have an understanding of legacy architectures and technologies (e.g. mainframe/COBOL etc) and be equipped to identify, review and understand legacy system documentation, source code and system data architectures distributed across files with incompatible structures. Students will understand the reasons for, and risks associated with, replacing or keeping and maintaining legacy systems.

A15. Software Quality.

Students will be able to specify, design and build high-quality software components, understanding the differences and interactions between safety and quality, compare and contrast quality methods and techniques and be aware of industry standard static and dynamic code analysis frameworks.

A16. Data Modelling, Database Development and Data Analysis

Students will understand the basic principles of the relational data model and the issues of scale and management of large data or big data; be competent at developing a range of industry standard database models; Students will be able to: create a relational database schema that incorporates key, entity integrity, and referential integrity constraints; implement a database-driven web site, explaining the relevant technologies involved in each tier of the architecture and the accompanying performance tradeoffs; write stored procedure queries; understand the role of data mining, the algorithms developed to address different data mining goals and the application of these algorithms to real-world problems including big data.

A17. Risk and Information Security.

Students will understand the nature of risk to information and information systems; be able to define what cyber security is, and explain its importance when developing software solutions and mitigating risk; appreciate the importance of determining and managing risk for threats and vulnerabilities to information systems on an ongoing basis; understand human aspects of information security including client data protection and the data protection act; understand how to make software more resilient to threats.

A18. Software Project Management.

Students will be able to: interpret and use standards in software project management, including PRINCE2; prepare a project plan for a software project that includes estimates of size and effort, a schedule, resource allocation, configuration control, change management, and project risk identification and management; be able to identify the range of software development resources required and allocate them to a project and demonstrate through involvement in a team project the central elements of team building and team management during software development; manage project progress, productivity and other aspects of software development processes, against plan; apply the concepts of earned value management to IT projects and programs; identify risks to a software project and indicate an approach to managing risk that will help to secure the on-time on-budget on-quality delivery of software; document project progress recording risks, actions, issues and decisions.

A19. Professional Practice

Students will: understand the principles of leadership and be able to work effectively as a member or lead of a small development team and adopt best practices for developing software in teams, recognising challenges and approaches taken to resolve them; understand the challenges of working in a distributed team, and mechanisms to address the challenges; be able to make concise, engaging and well-structured verbal presentations, arguments and explanations, to a range of audiences about technical problems and their solutions, taking into account the audience viewpoint at all times; understand the wide variety of IT professional and managerial roles that exist and understand the role and membership benefits of professional bodies in promoting IT professionalism.

A20. Innovation.

Students will: understand technology innovation, including disruptive technologies and be able to describe current and past examples (e.g., cloud, apps, the hard disk drive, text messaging, GPS, the smart phone, Linux, Social networking); be equipped to explore and describe how businesses innovate through technology, considering a range of organisations in different sectors; be able to assist in the assessment of the commercial viability of new technology based ideas and in transforming research based ideas into feasibility and business plans.

Intellectual Skills**B1. Critical Thinking.****B2. Analysis.**

- B3. Synthesis of different types of information.
- B4. Evaluation .
- B5. Problem Solving.
- B6. Appreciate problem contexts.
- B7. Balance conflicting objectives.

Subject/Professional Practice Skills

- C1. Show competence in software development processes, including the knowledge, skills, and professional competences necessary to begin practice as a software engineer in a business environment.

Students, through learning, regular reinforcement and practice, and exposure to real world software development paradigms need to gain confidence in their ability to perform software development practice. Through a structured program of study, the knowledge, understanding and skills are acquired through a staged approach with increasing levels of competence being achieved as the degree progresses. Graduates need to develop an understanding and appreciation of professional issues in software development related to ethics and professional conduct, economics, and the needs of employers.

- C2. Be able to confidently work as an individual and as part of a team to develop and deliver quality software deliverables.

Students need to develop the ability to perform software development tasks that involve work both as an individual and also working in a team. Developing an appreciation and experience of effective team working is essential to operating effectively in a business environment. The degree programme must include an emphasis on the importance of team working as a disciplined approach, the need to adhere to deadlines, communication, and team as well as individual performance evaluation.

- C3. Design appropriate solutions in a range of application contexts/domains using software development approaches that deliver business value.

Students need to be exposed to a variety of software design contexts, including desktop applications, internet and mobile device software and apps. They need to understand and develop appropriate approaches to software design in the general sense, and to problem solving for specific application domains. They need to be able to understand the strengths and the weaknesses of the various options available and the implications of the selection of appropriate approaches for a given context. They must develop competence in designing solutions within business constraints of time, cost and quality as well as addressing security. Having a thorough understanding of software requirements (including non-functional requirements), how to interpret and prioritise requirements is essential.

- C4. Build and test software solutions for a range of application contexts/domains.

Students need to be able to apply software development to a wide range of contexts and environments. These include operating systems, internet and fixed platforms, apps, games, business solutions etc. They need to be able to understand how to transfer development principles to new and different technologies. They need to be able to assure the functionality of their solutions through testing and embed secure development principles to all stages of development. Students also need to understand that a significant amount of software development work, involves updating, maintaining and refactoring existing solutions. They need to develop and demonstrate confidence in reading and reviewing existing software and the need to increase efficiency through refactoring.

- C5. Reconcile conflicting project objectives, finding acceptable compromises recognising the limitations of capability, capacity, cost, and time.

Students will develop a professional approach to managing their contribution to project deliverables. In the business environment they will need to understand how to estimate activities and balance meeting the specification, but delivering on time and to the right quality level. Students need to understand how to approach conflicting demands and engage in exercises that expose them to conflicting and changing requirements. There will be a strong real world emphasis in the study. Students will appreciate when to question deliverables – e.g. is an activity to fix an error (bug) to achieve the stated quality, or is it an enhancement request that needs to be considered as an additional requirement with impact assessment, planning, resourcing and costing decisions to be made on if and when to consider the additional request. The degree programme will address these issues, with the aim of ensuring high quality requirements and a feasible software design.

- C6. Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for problem identification and analysis, software design, development, implementation, verification, and documentation.

The presence of the Capstone project, an important final activity at the end of a software development program of study, is of considerable importance in this regard. It offers students the opportunity to tackle a major project and demonstrate their ability to bring together topics from a variety of courses and apply them effectively. This mechanism allows students to demonstrate their appreciation of the broad range of software development topics and their ability to apply their skills to genuine effect. This will also include the ability to offer reflections on their achievements.

- C7. Demonstrate an understanding and appreciation for the importance of negotiation, effective work habits, leadership, and good communication with stakeholders in a typical software development business environment.

It is important that students gain an insight and understanding of range of professional interpersonal skills required to be effective in business when producing a solution for a problem domain (requirements, design, solution development etc). Software engineers must recognise that effective software development is achieved as a result of a dynamic and interactive team based approach. Employer visits, guest lectures from practicing software engineers etc will aid students in better comprehending the business team environment, and the importance of professionalism.

- C8. Learn new models, techniques, and technologies as they emerge and appreciate the necessity of such continuing professional development.

On graduating, students will clearly demonstrate that they are self-motivated life-long learners. They will understand the continuous nature of emerging technologies, and how and when is best to harness and exploit their benefits for business gain. Students will be capable of identifying, selecting and applying new technologies, tools and methods and be able to assess their contribution to software development. The final year project allows students to apply critical thinking and use context driven software development to plan and complete a significant project (not simply a software deliverable).

C9. Embedding security in the software development life cycle.

Security has become a widespread and significant issue in the development and ongoing safeguarding of software systems. Students will have a robust understanding of software security issues, and the principle models of security in relation to information systems. They will understand the nature of risk, threats and vulnerabilities and be able to incorporate preventative measures into software design. They will be aware of current approaches to safeguarding the systems that they are involved in developing, including security testing. Throughout the degree they will be thinking about security implications and adopt secure architecture, design and development practices.

Transferable Skills and other attributes**D1. Communication skills: to communicate orally or in writing, including, for instance, the results of technical investigations, to peers and/or to “problem owners”.**

Developed through a variety of methods and strategies including the following:

Participation in tutorials and other discussion forums
Negotiation of work plans and requirements with team members and clients.
Presentation of work to peers, staff, and clients.
Writing essays, reports, and examination answers.
Students participate in electronic conferences, workshops, and group work sessions.

D2. Self-management skills: to manage one’s own time; to meet deadlines; to work with others having gained insights into the problems of team based systems development.

Developed through a variety of methods and strategies including the following:

Self-managed practical work.
Effective participation in tutorial and laboratory sessions.
Methodical execution of analysis and design tasks.
Synchronising with others in team work.
Scheduling assignment work and revision.
Scheduling and attending meetings with clients.

- D3. IT Skills in Context (to use software in the context of problem-solving investigations, and to interpret findings).

Developed widely throughout the programme including:

Use of range of system development tools, methods and packages.
Regular involvement in systems analysis and design activity.
Cumulative mastery of tools and methods.
Use of online teaching materials.
Sustained use of the Internet.
Emphasis on user-centred and accessible systems design work.
Building systems to a user-focused specification.

- D4. Problem formulation: To investigate and express problems in appropriate forms.

Developed through a variety of methods and strategies including the following:

Students develop problem solving systems.
Students practice systems design and development using a variety of tools and methods.

- D5. 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.

Developed through a variety of methods and strategies including the following:

Students are encouraged to research relevant topics in order to complete tutorial task and project based work.

Students are encouraged to use online facilities to discover information.

- D6. Comprehension of professional literature: to read and to use literature sources appropriate to the discipline to support learning activities.

Developed through a variety of methods and strategies including the following:

Students are encouraged to access online material.

- D7. Working with Others: to be able to work as a member of a team; to be aware of the benefits and problems which teamwork can bring. Developed through a variety of methods and strategies including the group work undertaken in The Information Practitioner modules.

Assessment strategy: A UWE Bristol module is made up of one or more JEP course units. To pass a UWE module, a student must achieve a mark of 40% for each of the JEP course units and a mark of 40% overall.

Until a student has passed all of the JEP course units that make up a UWE module, they will not pass the UWE module.

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The approach to assessment has been guided by the QAA Code of Practice for the assurance of academic quality and standards in Higher Education (2006) (Section 6: Assessment of students) and UWE University Assessment Guidelines.

Students will be bound by the general assessment regulations of the University. The University regulations provide a framework for the assessment of students' competence, knowledge and understanding, and the grading of students for progression and the conferring of awards. It allows, and expects, staff to give feedback to students and to evaluate the effectiveness of their own teaching.

Assessment is part of the process of helping students to learn and is intended to support them in developing knowledge and understanding as set out in sections three and four of this document. In addition, assessment aids the development of a range of cognitive and intellectual skills, and techniques. Forms of assessment are varied and include exams, essays, group and individual projects, presentations, reflective writing and practical work.

The process of reflection is explicit in many assessments and implicit in them all; alongside feedback from assessments, it is integral to the development of independent learning and student skills of self-assessment. Additionally, feedback is an important means of motivating students to further learning. Assessment is also an important vehicle for the development of a range of transferable skills.

Moderation and verification of assessments at a programme level provides information on overall levels of attainment and ensures that standards are maintained, and is a useful indicator of any areas where extra scrutiny may be

needed.

The procedures of assessment involve a number of mechanisms to ensure validity and reliability. These include the moderation of all assessments and their marking schemes and assessment criteria, by a peer and by the External Examiner.

As they progress, students are increasingly expected to undertake independent study and research activities, in particular when completing the Practice and Project elements of the course. The Project will be facilitated by a traditional summative assessment approach at the culmination of the work, however, there will be extensive use of formative feedback, milestones, and guidance from staff during the project (and other, independent-study and research-based assessment undertaken by students); the practice based modules are assessed iteratively, by portfolio.

Students will receive feedback, particularly during the practical and self-study elements of the programme to ensure they can keep track of their progress and development. This will also be a key factor in ensuring student engagement and retention on the programme of study. Where possible and practical, verbal, face-to-face feedback will be the preferred method of delivery; this is particularly appropriate where students are expected to present and defend their work.

All of the skills are demonstrated in varying degrees in all assessments with the exception of teamwork, which is required in important elements of the coursework, and IT skills, needed for most of the coursework. It would be impossible to progress to completion on the award without demonstrating a basic competence in all of these skills. These skills are demonstrated in a variety of contexts including:

Examination.

Poster presentations.

Individual and group projects.

Practical assignments.

Portfolio of exercises.

Student support: Some extra sessions will run specifically for the benefit of second-year students, with the focus on employability, representatives from members of the e-skills UK employer community will run a series of workshops here at UWE at which they can tell students about their approach to graduate training and career development and about placement opportunities and internships. Recent graduates will attend (and in some cases, lead) these sessions in order to provide students with an insight into the nature of their employer's graduate development scheme and to tell students what their day-to-day working life is like.

Twice each year, SEfB students will have the opportunity to practice their skills in front of executives from the e-skills partner companies at e-skills organised regional 'All Student Events'. At these events students from the various universities offering the award will take part in a variety of inter-university first-year competitions, get help and advice from representatives of up to 50 different employers and listen to a number of keynote speakers. An important part of the event will be an inter-university competition in which student teams present and defend their views on an employer defined 'business challenge'.

Participation in these competitions will help students to develop personal and interpersonal and project management core skills as well as enhancing their knowledge and understanding of emerging areas of importance. It will also help to instil a strong sense of self-worth in both the participating students and the wider cohort, and help students to understand that academic achievement is only one part of the skills mix required for success in life.

BSc SEfB students will be offered one or more 'Mock Interview' days held at the head office of one of the SEfB partner companies. These days are run just as a professional interview/selection day would be, with the additional benefit of feedback and advice from members of the e-skills UK Employer's Forum.

Part B: Programme Structure

JEP Course Units

Year 2

Full time students will study Neusoft course units, not mapped to UWE credit:

GE6265Mao ZeDong Thought and Introduction to Theoretical System of Socialism with Chinese Characteristics(2.5)

GE6308Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era (2.5)

GE6275Basic Principles of Marxism(2.5)

GE6245 Innovation & Entrepreneurship Practice (1)

IN3351 Professional Ability Training (4)

IN3313 Technical English (4) - mapped to UWE non-credit bearing course
Technical English

Students will study Neusoft course units, mapped to 120 UWE credits as detailed below:

Mapped to UFCFFS-30-1 Foundations of Computing:

IN3328Foundations of Theoretical Computing(4)

IN3230Discrete Mathematics(4)

Mapped to UFCFC3-30-1 Introduction to OO Systems Development:

IN3330Object Oriented Programming (Java)(2)

IN3329Software Testing(4)

Mapped to UFCF9F-30-1 Information Systems Development 1:

IN3331Introduction to Information Systems Development(4)

IN3332Introduction to Data Modelling(2)

IN3333Introduction to Web Development(2)

Mapped to UFCF83-30-1 IT Practice: Skills, Models and Methods:

IN3334Research and Academic Skills(4)

IN3335Business and Professional Skills (4)

Year 2 Compulsory JEP course units mapped to UWE credit

JEP students must take 30 Neusoft credits from the modules in Compulsory JEP course units mapped to UWE credit.

Module Code	Module Title	Credit
IN3335	Business and Professional Skills 2026-27	4
IN3230	Discrete Mathematics 2026-27	4
IN3328	Foundations of Theoretical Computing 2026-27	4
IN3332	Introduction to Data Modelling 2026-27	2
IN3331	Introduction to Information Systems Development 2026-27	4
IN3333	Introduction to Web Development 2026-27	2
IN3330	Object Oriented Programming (Java) 2026- 27	2
IN3334	Research and Academic Skills 2026-27	4
IN3329	Software Testing 2026-27	4

Year 3

Full time students will study Neusoft course units not mapped to UWE credit:

IN3352 Comprehensive Ability Training (4)

Full time students will study Neusoft course units, mapped to 120 UWE credits as detailed below:

Mapped to UFCFN6-30-2 IT Practice: Collaborative Project:

IN3056 System Analysis and Design(4)

IN3218 IT Project Management (2)

Mapped to UFCFB6-30-2 Object-Oriented Systems Development:

IN3336 Object Oriented Analysis and Design(2)

IN3337 Software and Architectural Design Patterns(2)

IN3338 Object Oriented Development(4)

Mapped to UFCFV4-30-2 Data, Schemas and Applications:

IN3339 Data Schemas(2)

IN3340 Advanced Data Modelling(2)

IN3341 Web Data Applications(4)

Mapped to UFCFW4-30-2 Design and Analysis of Data Structures and Algorithms:

IN3342 Advanced Algorithms(4)

IN3343 Operating Systems(4)

Year 3 Compulsory Neusoft course units mapped to UWE credit

JEP students must take 30 Neusoft credits from the modules in Compulsory JEP course units mapped to UWE credit.

Module Code	Module Title	Credit
IN3342	Advanced Algorithms 2027-28	4
IN3340	Advanced Data Modelling 2027-28	2
IN3339	Data Schemas 2027-28	2
IN3218	IT Project Management 2027-28	2
IN3338	Object Oriented Development 2027-28	4

IN3336	Object-Oriented Analysis and Design 2027-28	2
IN3343	Operating Systems 2027-28	4
IN3337	Software and Architectural Design patterns 2027-28	2
IN3056	System Analysis and Design 2027-28	4
IN3341	Web Data Applications 2027-28	4

Year 4

Full time students will either:

study Neusoft course units, mapped to 120 UWE credits as detailed below:

Mapped to UFCFP6-30-3 IT Practice: Consultancy Project:
IN3307 Graduate Internship (8)

Mapped to UFCFFF-30-3 Software Development Project:
IN3308 Graduate Project (Thesis) (8)

Mapped to UFCFU3-15-3 Advanced Databases:
IN3346 Advanced Database(8)

Mapped to UFCFB5-15-3 Ethical and Professional Issues in Computing and Digital Media:
IN3349 Human - Computer Interaction (4)

Mapped to UFCF95-15-3 Entrepreneurial Skills:
IN3353 Entrepreneurial Skills (4)

Mapped to UFCFA5-15-3 Information, Networks and Society
IN3348 Mobile Platform Development Technology (4)

Mapped to UFCFVJ-15-3 Professional Development
IN3347 Big Data Processing (4)

Mapped to UFCFD5-15-3 Technical Writing and Editing
IN3354 Technical Writing and Editing (4)

OR

Study 120 credits of UWE modules at UWE.

Year 4 Compulsory Neusoft course units mapped to UWE credit

JEP students must take 40 Neusoft credits from the modules in CompulsoryJ EP course units mapped to UWE credit.

Module Code	Module Title	Credit
IN3242	Advanced Database 2028-29	4

IN3345	Advanced Information Systems Development 2028-29	4
IN3347	Big Data Processing Technology 2028-29	4
IN3344	Business Process Modelling and Enterprise Architecture 2028-29	4
IN3307	Graduate Internship 2028-29	8
IN3308	Graduate Project (Thesis) 2028-29	8
IN3346	Human-Computer Interaction Software Engineering Method 2028-29	4
IN3348	Mobile Platform Development Technology 2028-29	4

UWE Modules

Year 1

Full time students will study Neusoft course units, not mapped to UWE credit:

- GE6219 Military Theory + Military Skills(4)
- GE6187 Physical Education (I-VI)(4)
- GE6175 Policy and Political Situation Analysis (I - VIII)(2)
- GE6267 Morality and Self Purification and Law Basics(2.5)
- GE6274 Sinicization of Marxism and Mission of Young Students(1)
- GE6273 Outline of Chinese Modern History (2.5)
- GE6023 Mental Health Education for College Students(2)
- IN3305 IELTS I and II (8)
- IN3225 Advanced Mathematics I and II (Science and Technology) (10)
- GE6246 Physics (4)
- IN3317 Linear Algebra(4)
- IN3318 Probability and Mathematical Statistics(4)
- IN3303 Introduction to Software Engineering(2)
- IN3306 Program Design Basics (Python)(4)
- IN3269 Computer Network(4)
- IN3350 Basic Ability Training (4)
- GE6339 Ideological and Political Practice (2.5)
- GE6436 National Security Education (1)
- IN3304 English for Academic Purposes (I - IV)(16) mapped to UWE non-credit bearing course English for Academic Purposes

Year 1 Compulsory UWE mapped modules

Students must take IN3304 English for Academic Purposes (I - IV)(16) which is mapped to UWE non-credit bearing course English for Academic Purposes

Module Code	Module Title	Credit
IN3304	English for Academic Purposes 2025-26	0

Year 2

Full time students will study Neusoft course units, not mapped to UWE credit:

GE6265Mao ZeDong Thought and Introduction to Theoretical System of Socialism with Chinese Characteristics(2.5)

GE6308Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era (2.5)

GE6275Basic Principles of Marxism(2.5)

GE6245 Innovation & Entrepreneurship Practice (1)

IN3351 Professional Ability Training (4)

IN3313 Technical English (4) - mapped to UWE non-credit bearing course
Technical English

Students will study Neusoft course units, mapped to 120 UWE credits as detailed below:

Mapped to UFCFFS-30-1 Foundations of Computing:

IN3328Foundations of Theoretical Computing(4)

IN3230Discrete Mathematics(4)

Mapped to UFCFC3-30-1 Introduction to OO Systems Development:

IN3330Object Oriented Programming (Java)(2)

IN3329Software Testing(4)

Mapped to UFCF9F-30-1 Information Systems Development 1:

IN3331Introduction to Information Systems Development(4)

IN3332Introduction to Data Modelling(2)

IN3333Introduction to Web Development(2)

Mapped to UFCF83-30-1 IT Practice: Skills, Models and Methods:

IN3334Research and Academic Skills(4)

IN3335Business and Professional Skills (4)

Year 2 Compulsory UWE mapped modules

120 credits of UWE modules are mapped to the Neusoft compulsory course units taken by JEP students.

Module Code	Module Title	Credit
UFCFFS-30-1	Foundations of Computing 2026-27	30
UFCF9F-30-1	Information Systems Development 1 2026-27	30

UFCFC3-30-1	Introduction to OO Systems Development 2026-27	30
UFCF83-30-1	IT Practice: Skills, Models and Methods 2026-27	30
UWE0002	Technical English 2026-27	0

Year 3

Full time students will study Neusoft course units not mapped to UWE credit:

IN3352 Comprehensive Ability Training (4)

Full time students will study Neusoft course units, mapped to 120 UWE credits as detailed below:

Mapped to UFCFN6-30-2 IT Practice: Collaborative Project:

IN3056 System Analysis and Design(4)

IN3218 IT Project Management (2)

Mapped to UFCFB6-30-2 Object-Oriented Systems Development:

IN3336 Object Oriented Analysis and Design(2)

IN3337 Software and Architectural Design Patterns(2)

IN3338 Object Oriented Development(4)

Mapped to UFCFV4-30-2 Data, Schemas and Applications:

IN3339 Data Schemas(2)

IN3340 Advanced Data Modelling(2)

IN3341 Web Data Applications(4)

Mapped to UFCFW4-30-2 Design and Analysis of Data Structures and Algorithms:

IN3342 Advanced Algorithms(4)

IN3343 Operating Systems(4)

Year 3 Compulsory UWE mapped Modules

120 credits of UWE modules are mapped to the Neusoft compulsory course units taken by JEP students.

Module Code	Module Title	Credit
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UFCFW4-30-2	Design and Analysis of Data Structures and Algorithms 2027-28	30
UFCFV4-30-2	Data, Schemas and Applications 2027-28	30
UFCFN6-30-2	IT Practice: Collaborative Project 2027-28	30
UFCFB6-30-2	Object-Oriented Systems Development 2027-28	30

Year 4

Full time students will either:

study Neusoft course units, mapped to 120 UWE credits as detailed below:

Mapped to UFCFP6-30-3 IT Practice: Consultancy Project:
IN3307 Graduate Internship (8)

Mapped to UFCFFF-30-3 Software Development Project:
IN3308 Graduate Project (Thesis) (8)

Mapped to UFCFU3-15-3 Advanced Databases:
IN3346 Advanced Database(8)

Mapped to UFCFB5-15-3 Ethical and Professional Issues in Computing and Digital Media:
IN3349 Human - Computer Interaction (4)

Mapped to UFCF95-15-3 Entrepreneurial Skills:
IN3353 Entrepreneurial Skills (4)

Mapped to UFCFA5-15-3 Information, Networks and Society
IN3348 Mobile Platform Development Technology (4)

Mapped to UFCFVJ-15-3 Professional Development
IN3347 Big Data Processing (4)

Mapped to UFCFD5-15-3 Technical Writing and Editing
IN3354 Technical Writing and Editing (4)

OR

Study 120 credits of UWE modules at UWE.

Year 4 Compulsory Modules (Studied at Neusoft)

105 credits of UWE modules are mapped to the Neusoft compulsory course units taken by JEP students.

Module Code	Module Title	Credit
UFCFB5-15-3	Ethical and Professional Issues in Computing and Digital Media 2028-29	15

UFCFAF-30-3	Development of Information Systems Projects (disp) 2028-29	30
UFCFP6-30-3	IT Practice: Consultancy Project 2028-29	30
UFCFFF-30-3	Software Development Project 2028-29	30

Year 4 Compulsory Modules (Studied at UWE)

Students must take 105 credits from the modules in Compulsory Modules (Studied at UWE).

Module Code	Module Title	Credit
UFCFFF-30-3	Software Development Project 2028-29	30
UFCFAF-30-3	Development of Information Systems Projects (disp) 2028-29	30
UFCFP6-30-3	IT Practice: Consultancy Project 2028-29	30
UFCFB5-15-3	Ethical and Professional Issues in Computing and Digital Media 2028-29	15

Year 4 Optional Modules (Studied at Neusoft)

15 credits of UWE modules are mapped to the Neusoft compulsory course units taken by JEP students.

Module Code	Module Title	Credit
UFCF95-15-3	Entrepreneurial Skills 2028-29	15
UFCFA5-15-3	Information, Networks and Society 2028-29	15
UFCFVJ-15-3	Professional Development 2028-29	15
UFCFD5-15-3	Technical Writing and Editing 2028-29	15
UFCFU3-15-3	Advanced Databases 2028-29	15

Part C: Higher Education Achievement Record (HEAR) Synopsis

Employer-designed and backed and e-skills UK endorsed, this programme provides graduates with the mix of skills and capabilities required by UK business for the specification, design and delivery of ICT systems, services and solutions in a range of business contexts and application domains.

It develops technically competent individuals who think and communicate effectively and who can conduct inquiry, solve problems, undertake critical analysis and deliver effective software systems solutions in a constantly changing business context.

It provides a solid foundation for lifelong learning, emphasising the development of knowledge, skills and professional values essential to the practice of systems development.

Part D: External Reference Points and Benchmarks

In designing this programme, the Faculty has drawn upon the following external reference points:

QAA UK Quality Code for HE: National qualification framework

QAA Subject benchmark statements for Computing and Business and Management

UWE Bristol Strategy 2020

E-skills UK Endorsement Document for the BSc Information Technology Management for Business

UWE's Technology Enhanced Learning Strategy (2012-2017).

The QAA UK quality code for Higher Education Qualifications describes the attributes and skills expected of Honours graduates. It is our view that the learning outcomes of the programme are fully consistent with the qualification descriptor in the Framework, and hence that graduates are able to demonstrate that they meet the expectations of the Framework.

The curriculum for the programme draws on the QAA Subject Benchmark Statements for Computing and (to a lesser extent) those for Business and Management. The QAA Computing Benchmarking document recognizes that computing awards may be placed on a spectrum, with those covering a broad range of computing topics at one end, and those focusing on specialist areas, e.g. safety-critical systems, at the other. This award lies between the two extremes in that it provides a reasonably broad coverage of the main areas of Information Systems development applicable in the business context. The specified aims, objectives and philosophy lead to an award which conforms to the principles of course design in the benchmark statement. The QAA Business and Management benchmark explicitly recognises the important role of the study of Information Systems in the context of business, and the design of the programme reflects this.

Through its constituent teaching and learning elements, assessment strategies, practical focus and learning outcomes, the programme intends to support the achievement of the workstreams defined in the UWE Bristol Strategy 2020. Specifically, the programme will contribute to the strategic ambitions of outstanding learning (Work-stream 1) and developing ready and able graduates (Work-stream 2).

UWE's Learning and Teaching Strategy has informed the Faculty's policy for the delivery of its programmes and this companion to an already well-established programme (ITMB) is proposed in the light of the recent CSCT curriculum refresh project. It also takes account of the policies and requirements set out in UWE's Technology Enhanced Learning Strategy and the current FET Teaching, Learning and Assessment Strategy. In particular, it seeks to maximise the efficiency of resource utilisation while promoting the achievement of high quality outcomes through, for example:

The utilization of existing core modules from both the computer science and information science clusters (the programme contains one new module at L1 and two at L2)

Consolidation of the existing emphasis on partnership, student-centred engagement

and an appropriate balance of education, training and practice-based experience;

An increased focus on ethical and professional issues relating to computing and digital media.

The ethos, structure and content of the proposed programme has been very much shaped by the success of the ITMB programme, together with input from the e-skills employers strategy forum, feedback from employers of placement students and from graduates of both the ITMB and the BSc Business Information Systems.

The emphasis of the programme is to prepare students with a solid grounding in software engineering so as to enable them to take up a variety of technical positions in industry. The success of the approach has been borne out by the wide variety of organisations in which ITMB students have been placed or employed and by the overwhelmingly positive feedback of their employers.

The development of the programme reflects UWE policies and is fully consistent with the University's commitment to 'make a positive difference to our students, business and society'.

UWE Bristol Strategy 2020, Outstanding Learning:

As previously stated, central and crucial to the SEfB programme will be an emphasis on partnership, student centred engagement and an appropriate balance of education, training and practice-based experience. As with the ITMB, this award is expected to set high standards with respect to:

Relevance of content

Effective employer engagement

Attracting the highest quality students

Appeal to women as well as men

Degree completion rates

Progression into IT careers.

UWE Bristol Strategy 2020, Ready and able graduates:

As part of the program design and consultation exercise the following features of the BSc 'ITMB' were identified as areas of good practice. These are central to and have been built upon for the 'SEfB' programme.

The high level of employer involvement helps to confirm and consolidate the relevance and importance of the topics and subjects covered by the award, to broaden the context of study for the students through exposure to contemporary applications, initiatives and issues and to inspire them to see their education as a powerful force in their personal and professional development.

e-skills UK organize an annual round of inter-university competitions. UWE's first year inter-university competition entries are developed in Peer Assisted Learning (PAL) sessions, under the guidance of the second-year-student PAL tutors. Participation in these competitions helps students to develop personal and interpersonal and project management core skills as well as enhancing their knowledge and understanding of emerging areas of importance. It also helps to instill a strong sense of self-worth in both the participating students and the wider cohort, and helps students to understand that academic achievement is only one part of the skills mix required for success in life.

The second year 'Power up' programme for CSCT students focuses on employability and consists of a mixture of department wide activities, jointly run (employer led) employability workshops and, additionally for ITMB/ SEfB, off-site, employer run mock selection centres and CV clinics.

The 3 level vertically integrated practice theme provides a focus for the integration of academic learning and the practical application of technical, personal and

interpersonal skills. It is of great value in preparing students as reflective practitioners and provides high quality work experience (especially to those students who elect not to undertake a placement year).

Part E: Regulations

Approved variant to University Academic Regulations and Procedures:

Any student who misses more than one-third of the teaching of a JEP course unit, will not be allowed to take the final exam or equivalent final assessment for that JEP course unit. The student can take the final exam or equivalent final assessment at the next resit opportunity.