Programme Specification

UNIVERSITY OF WESTMINSTER⌗

Course record information

Name and level of final award	• Bachelor of Engineering with Honours - Software Engineering • Bachelor of Engineering with Honours - BEng Software Engineering with Industrial Experience FT • Bachelor of Engineering with Honours - Software Engineering with International Experience The award is Bologna FQ-EHEA first cycle degree or diploma compatible
Name and level of intermediate awards	• Bachelor of Engineering (BEng) - Software Engineering • Diploma of Higher Education (Dip HE) - Software Engineering • Certificate of Higher Education (CertHE) - Software Engineering
Awarding body/institution	University of Westminster
Teaching institution	University of Westminster
Status of awarding body/institution	Recognised Body
Location of delivery	Primary: Central London
Language of delivery and assessment	English
QAA subject benchmarking group(s)	QAA subject benchmark for Computing https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-computing.pdf?sfvrsn=ef2c881_10 British Computer Society guidelines on accreditation
Professional statutory or regulatory body	British Computer Society (BCS); This course is CITP and partial CEng accredited by the BCS.
Westminster course title, mode of attendance and standard length	• BEng Software Engineering FT, Full-time, September start - 3 years standard length with an optional year placement
Valid for cohorts	From 2024/5

Admissions requirements

There are standard minimum entry requirements for all undergraduate courses. Students are advised to check the standard requirements for the most up-to-date information. For most courses a decision will be made on the basis of your application form alone. However, for some courses the selection process may include an interview to demonstrate your strengths in addition to any formal entry requirements. More information can be found here: https://www.westminster.ac.uk/study/undergraduate/how-to-apply

Recognition of Prior Learning

Applicants with prior certificated or experiential learning at the same level of the qualification for which they wish to apply are advised to visit the following page for further information:

https://www.westminster.ac.uk/current-students/guides-and-policies/student-matters/recognition-of-prior-learning

Aims of the programme

A software engineer is responsible for creating and maintaining secure and robust software applications. This involves applying a wide range of technologies and skills to formally design, develop and test software to ensure that it satisfies the client's or stake holders' requirements. Students completing the course will have sufficient expertise to enter the highly dynamic and rapidly developing software industry productively, with a minimum of training. They will be able to operate effectively in a professional environment; they will learn quickly and will be ready to use new technologies. Moreover, they will be creative and based on the software engineering practice, will be able to produce ideas and solutions to make existing technologies more efficient, or to develop new technologies. These are only a few, but fundamental, features of the exciting modern software industry which, to a large extent, drives our society and which you, as a graduate from BEng Software Engineering, will enter.

The BEng Software Engineering has been designed to:

- provide students with knowledge and understanding of the fundamental principles and technologies of software engineering and general computer science;

- give students practical skills in the application of existing tools and techniques for the design and development of software;

- give students substantial experience of applying a systematic approach to software development and evaluation individually, or as members of a software team;

- make students aware of professional, ethical and legal issues that might arise in a software development environment;

- enable students to develop as independent and self-critical problem solvers;

- prepare students for continued study at an advanced level, either in formal postgraduate study or as continued professional development.

Employment and further study opportunities

University of Westminster graduates will be able to demonstrate the following five Graduate Attributes:

- Critical and creative thinkers
- Literate and effective communicator
- Entrepreneurial
- Global in outlook and engaged in communities
- Social, ethically and environmentally aware

University of Westminster courses capitalise on the benefits that London as a global city and as a major creative, intellectual and technology hub has to offer for the learning environment and experience of our students.

The course offers a short-term work-based learning experience by providing you with an opportunity to work on a real-life problem which is normally set by an external organisation as a small-scale project.

This project forms a part of the assessment in a designated module called 5COSC021W Software Development Group Project. This module provides the structure for your learning and receiving support from the module team. You will work on the project on your own and/or as part of a small team within and outside the class. During this time, you may also get a chance to interact with the organisation that has set the project. The quality of the work that you produce for the project get assessed as part of the module's assessment.

This experience will allow you to put theory into practice by applying your knowledge and skills gained from various modules to address a real-life situation, usually within the context of a business-related problem. Furthermore, this experience will help you develop subject-specific technical skills as well as certain employability skills such as leadership, organisation and commercial awareness.

In addition. this course gives you with the opportunity to take a year in industry (work placement) after completing the second year of your study and gain work experience, increasing your chances of employability after graduation. You will be offered help and support to find and secure placement opportunities through various workshops and events organised by the Career Development Centre and the course team. Typically, you will be assigned into roles involving tasks related to software engineering.

The BEng Software Engineering course aims to create high quality graduates who have a strong focus on solving real-world problems, will have adaptability and maturity, and have a strong foundation of knowledge and the technical capability to be able to immediately contribute to their workplace environment. Graduates of the course will have been taught and utilised industrial tools and techniques and will be versed in all aspects of software engineering. As well as having a solid background in software development, graduates from the course shall also have multiple specialism in various areas of software engineering related fields during their early years as a computing professional. Graduates shall be independent thinkers, lifelong learners and be able to analyse, critically reflect, and be able to confidently and effectively communicate.

Upon completion of the course you will be expected to gain an industrial software engineering role. Due to the complexity of the contemporary software, much of software engineering work relies on the teamwork of multidisciplinary groups. To reflect this, a range of design, implementation and management modules is embedded across the course.

Graduating from this accredited course where professional skills and practice are embedded, the BEng Software Engineering graduates shall be able to meet the required professional and ethical standards expected in the sophisticated modern workplace. Graduates shall also be capable and prepared for the broadening their knowledge by undertaking further study towards Masters and PhD levels.

Graduates would typically be part of a software development team designing, implementing and or maintaining sophisticated applications, very likely to be distributed. The actual role within the team may be to grow to the role of a senior or lead software engineer, software designer, advanced programmer, systems administrator or systems analyst. Other types of roles possible are in a wider computer science research in a commercial company or academic institution. Being equipped with the knowledge and skills relevant to emerging areas such as AI, our graduates will be highly competitive in the contemporary job market.

What will you be expected to achieve?

Learning outcomes are statements on what successful students have achieved as the result of learning. These are threshold statements of achievement the learning outcomes broadly fall into four categories:

- The overall knowledge and understanding you will gain from your course (KU)

- Graduate attributes are characteristics that you will have developed during the duration of your course (GA)
- Professional and personal practice learning outcomes are specific skills that you will be expected to have gained on successful completion of the course (PPP)
- Key transferable skills that you will be expected to have gained on successful completion of the course. (KTS)

Level 4 course learning outcomes: upon completion of Level 4 you will be able to:

- L4.01 Use appropriately the client-server architecture with respect to client design and security implications (KU)
- L4.02 Apply core mathematical elements to solve algorithmic problem (KU)
- L4.03 Describe the structure of a computing system, the design of its basic components and explain the interactions of hardware and software components (KU)
- L4.04 Analyse small scale problems and design their solutions by applying algorithmic and mathematical techniques (PPP)
- L4.05 Methodically capture user requirements and create a specification that meets them (PPP)
- L4.06 Describe, create and manipulate simple data collections through their underlying representation (PPP)
- L4.07 Apply programming principles and constructs to implement solutions to small scale problems (PPP)
- L4.08 Recognise and mitigate risk and critically explain behaviour constraints of a professional code of conduct towards third parties in a dynamic, diverse and inclusive (EDI) computing ecosystem. (KTS)
- L4.09 Following guidance, review literature in Computer Science and present in written and oral form own work and learning, critically comparing, contrasting and evaluating the findings (KTS)

Level 5 course learning outcomes: upon completion of Level 5 you will be able to:

- L5.01 Demonstrate competency in object-oriented design and algorithmic and mathematical approaches to solve medium scale problems (PPP)
- L5.02 Analyse algorithms and their complexity and apply relevant strategies in designing and re-using algorithms (KU)
- L5.03 Utilise, compare and contrast software frameworks and architectures and implement solutions using object-oriented programming (PPP)
- L5.04 Demonstrate how information is modelled, persistently stored, manipulated and retrieved, as data, to serve scalable solutions to medium-scale object-oriented problems (KU)
- L5.05 Employ a standard modelling language for the design, representation and formal specification of software (PPP)
- L5.06 Explain the basic principles of modern operating systems and how they serve operational needs (KU)
- L5.07 Identify and explain security risks and their implications for computer systems (KU)
- L5.08 Identify, evaluate, and improve on interface issues between human users and computer systems using multiple platforms (KTS)
- L5.09 Demonstrate professional responsibility, including ethical and EDI considerations, in the development of quality software engineering solutions in a global context, and the presentation and defence of these in multiple communication forms, supported by methodical research (PPP)

Additional Year course learning outcomes: upon completion of Additional Year you will be able to:

- 1EY.1 Enable personal development by devising a programme of international study that complements the content of the home degree programme and/or develops other interests. (GA PPP KTS)
- 1EY.2 Appreciate the challenges and opportunities of studying/ working in an international context. (GA PPP KTS)
- 1EY.3 Demonstrate an understanding of, and respect for, the cultural norms and differences of the host country at a societal level as part of an inclusive, global outlook. (GA PPP KTS)
- 1PY.1 Experience commercial application of engineering knowhow and identify the factors affecting products and services in IT industry. (KU GA PPP KTS)
- 1PY.2 Demonstrate the acquisition of a range of professional, practical, and key-transferrable skills relevant to the fields of computing. (KU GA PPP KTS)

- 1PY.3 Take personal responsibility for directing your own learning and future career making the best use of the opportunities, experiences and people that were available to you during your placement year. (GA PPP KTS)

- 1PY.4 Draw upon the diverse approaches, perspectives, knowledge and experience of a diverse workforce, treating all individuals with respect and recognising their contribution to the host organisation. (KU GA PPP KTS)

Level 6 course learning outcomes: upon completion of Level 6 you will be able to:

- L6.01 Methodically and independently develop requirements to a solution for a large scale software problem using appropriate languages and tools (PPP)

- L6.02 Design large scale data systems to discover hidden relationships and automate and/or inform decision making (PPP)

- L6.03 Identify and appraise the main threats to computer systems and networks security and integrity (KU)

- L6.04 Demonstrate complete handling of the full life-cycle of a software engineering project, underpinned by an entrepreneurial approach and a focus on the needs of real clients and the wider society, whilst ensuring that Sustainability, Equity, Diversity and Inclusion (EDI) are considered (KTS)

- L6.05 Apply appropriate methodologies in carrying out independent research in software engineering and produce a report demonstrating evidence of critical thinking (KU)

How will you learn?

Learning methods

The BEng Software Engineering course uses a variety of teaching and assessment methods, to ensure that every student on the course is empowered to fulfil their full potential and achieve the best outcome they possibly can. A principal aim of the course is to equip you for professional life, or higher study, relevant to your current programme of study.

To this end the course is organised into a collection of learning opportunities (modules) at various levels which are directly related to the aims and learning outcomes of the course. These modules are the building blocks of your course. Each module consists of learning activities which are delivered over a number of weeks. These learning activities are designed to help you achieve the knowledge and skills related to your subject area of business information systems.

A fundamental principle underlying the learning process and teaching methods used on this course is "learning-through-practice". That is, to learn and understand the business skills and techniques required, students need to acquire skills through doing. This approach applies to both practical skills, which you will learn through project and laboratory work as well as to analytical skills, which you will learn by applying taught principles to problem-solving tasks. Much of the learning is achieved through active participation in taught interactive practical sessions. For example, practical sessions typically form formative assessment components where you will be given support to complete the tasks described. At the end of these formative sessions you will be given written, verbal, qualitative feedback or a mixture of these to help you understand how well you have performed the task and how to improve it. These formative sessions are used as part of a teaching delivery framework aimed at developing your confidence and abilities to undertake the final summative assessment components for a given module. In general lecturers will provide written and/or verbal feedback on students' work throughout the course and feedback maybe given individually or to the class collectively.

In order to develop general and transferable skills you will undertake a number of different activities such as group work that will help develop team working, collaborative and interpersonal skills and time management, You will be required to present and defend your work which will allow you to critically reflect on your learning and also allow you to develop your ability to concisely and clearly present your work.

How is Equality, Diversity, and Inclusivity (EDI) addressed in your course

The principles of Equality, Diversity and Inclusivity lay at the heart of the BEng Software Engineering course. The course design ensures that you will have a learning experience that is flexible, respects diversity, encourages active participation and considers students varying needs. For example, the course will encourage and enable you to tailor your learning according to your career ambitions, cultural identity and individual aspirations by allowing you to choose a final year project specialisation within the broad area of software engineering, express your own unique evidenced based views of various societal and ethical issues, develop your own practical solutions to a given problem set and select option modules that will enable you to specialise or gain greater confidence in various application areas of software engineering. Through this myriad of opportunities and choices the course will equip you with the technical and employability skills required to work in a changing and diverse world.

Above all you should be reassured that the course team aims to eliminate all arbitrary barriers to your learning and to

work with you to achieve your best outcome.

The learning methods employed by the BEng Software Engineering course are underpinned by three key principles.

These are:

- Provision of a learning environment, both physical and digital, that is equitable, diverse and inclusive and which allows you to learn flexibly with materials that will be available to you in a number of learning context and at anytime such as mobile and home environments;

- Provision of a supportive and safe learning environment, based on mutual trust and respect, where students are empowered to act as partners in their transformative learning experiences;

- Provision of a forward-looking course curriculum that is work-place relevant, current and authentic.

Practically, you will see this working in the following ways, for example:

- Teaching materials are, where possible, designed to be inclusive for all.

- The active development of mutual trust and respect between students and between staff and students;

- The celebration and encouragement of diversity through the core delivery of the course and extra-curricular activities;

- Emphasis on skill-based learning using a learn-by-practise approach; use of current and industry standard tools chains and methodologies; industry supported projects such as the WBL project;

- The teaching of broader concerns, concepts and skills such as the environment and project management that values inclusivity and diversity;

- A curriculum that is current, global in outlook and targeted at application areas that address real-world challenges.

In your first year of study (called **Level 4**) you will make the full transition into Higher Education. You will develop the key core skills for Software Engineering complemented with the foundations of your specific course or pathway. To help this transition your course has additional classes and support sessions at this level that you will need to fully engage with so you can prepare for the advanced study that follows.

Your second year of study (**Level 5**) will help you develop some autonomy. At this level you will develop detailed knowledge in Software Engineering and will be able to deal with more areas by yourself and in teams, reflecting on your own strengths and identifying areas to specialise in. Following that level you may choose to have a year in industry (a placement year) to strengthen your understanding of industry needs through direct application of your evolving skills.

Your third year of study (**Level 6**) you will have learned to work autonomously with your lecturers increasingly being there to support you and challenge your thinking; this is the level that completes your preparation for going into industry and further study, with an ability to handle the complexity of large-scale systems and environments and with full control of your further development needs.

Throughout all levels of your course you will also develop necessary, distinct, attributes that will help you compete effectively in a global changing environment.

Teaching methods

We tailor our teaching methods to both the diversity of the subject matter as well as the diversity of our students' to ensure that we maximise the effectiveness of our teaching. We aim to make our students ready for employment by exposing them to tools and techniques relevant and practised by industry.
The range of teaching methods you will experience will include:

- Lectures, seminars, and workshop sessions

- Projects (small groups, large groups and individual)

- Laboratories and computer-aided engineering

- Formative assessment including online quizzes

- Problem sheets, investigations, and design problems

- Individual supervision

- Online learning material

Lectures are used to support your learning. Within the lecture sessions you will be introduced to fundamentals, concepts

and development methodologies and strategies. Lectures also have the advantage of showing you how different topics and facts interrelate with each other. Within lectures there will be interactive and participatory work to help monitor and encourage active engagement.

Seminars are used to provide a firm grounding in the theory, methods and tools used for a given module. Within these seminars you will be encouraged to collaborate and/or work in groups. Typically, these seminars will be practical in nature and will help you develop skills and understanding of how to apply knowledge covered in lectures to solve real problems. During the seminars the tutors will monitor your progress and provide feedback and guidance on your work.

Practical workshops maybe led by or informed by industry experts (alongside academic staff), these maybe on-site or online. In these sessions you will work alone or in groups, undertaking industry focused work or will be guided on how to complete a given milestone for a more long-term element of work such as a group project.

To further support remote learning some modules will employ the use of online quizzes to test your understanding and provide automatic feedback. The key purpose of such online quizzes is to allow you to practise knowledge at home and to provide you with an understanding of how successful your learning has been. It also allows tutors to diagnostically verify your understanding and tailor teaching in order to address any gaps. Through this feedback you can identify where to focus your learning effort. Throughout the course, authentic assessment is used to help you practise skills required by industry. This includes investigative research-based problems and more practical project led problems. Within the course you will be asked to produce solutions and artefacts based on the requirements of typical real-world scenarios and products.

The final year project module is designed to unify and integrate skills and knowledge gained in the taught learning modules. The final project module provides the opportunity to put into practise and extend what has been learnt to solve a broader more complex and significant engineering problem. To support you in successfully completing the project, you will be allocated a supervisor who is a member of academic staff.

To increase accessibility of the learning material and ensure that a diverse range of learners can participate on the course each module will provide the following online support: access to teaching materials, online reading lists, discussion boards, virtual study rooms for students to collaborate and where applicable, space for individual and group online meetings. Individual support for each module will be available from the modules teaching staff.

At key stages in your academic studies, the decisions you will need to make such as choice of option modules and choice of individual project will be guided when required by your personal tutor. Students will also be academically supported by module leaders and the course leader during their studies.

The teaching methods described above are more effective when coupled with independent study time where you take more control of your own learning. To help enable you to maximise the benefits of self-study we introduce, explain to you, and develop your understanding of concepts and skill sets required for continual professional development (CPD). This is achieved using group-based activities, a framework of taught content, extracurricular events and assessment styles that encourage the planning and reporting of material that is self-learned.

Assessment methods

Assessments and feedback are an integral part of the learning process and enable you to gauge your progress in relation to learning outcomes, reflect on what you have learnt, identify areas in which you are strong and areas in which you need to improve and help you make informed decisions on the pace and focus of your own independent learning.

The guiding principles of assessment design and its associated feedback within the BEng Software Engineering course are Purpose, Progression and Personalisation.

Purpose:

- assessment is authentic, meaning that it provides the chance to apply knowledge and competencies required within industry to solve real-world problems;
- the assessment method(s) used are clearly relevant to the module's learning outcomes; consideration is given to the amount of effort and time required to complete the task(s) and to maintain a balanced assessment load.

Progression:

- the choice of assessment method(s) employed provides an opportunity for new learning and contributes to the learning process;
- assessments are clearly related to the overall pattern of the course, they are developmental and not unnecessarily repetitive;
- less familiar types of assessments are prepared for using formative work such as practise laboratories.

Personalisation:

- you are able to make the assessment you own through design and implementation choices;
- timely feedback is given for all assessments;
- guidance on how you can improve your performance in the future is given, either individually or as part of a group.

As well as ensuring that students have met the learning outcomes per module, assessment will, where possible and appropriate, be:

- **demonstrative** (helping students to learn – evaluation of current knowledge);
- **rigorous** (for correct and efficient solutions);
- **challenging** (requiring deep understanding and analytical ability);
- **workplace relevant** (tasks directly relating to industry and skills valued by employers);

On the BEng Software Engineering course all assessments and feedback mechanisms are designed to form part of the learning experience and will take a variety of forms. The complexity and style of assessment for example will range from small tasks that might be completed within a seminar session to more complex and larger tasks which might be completed over an entire semester within a group. Some assessments are designed to be completed individually whereas other assessments may require students to work as part of a team, emulating as closely as possible the environment students will face in a professional setting.

Each module has both formative and summative assessment types. Formative assessment does not contribute to your overall grades. Formative assessment helps you establish where you are in your learning journey, what you have learnt so far, and where you may have to improve. Formative assessment can be used diagnostically by tutors to enable them to dynamically target their teaching to address any gaps in knowledge. Formative assessment can take the form of a test, quiz, reflective session or group activity.

All summative assessments that contribute to final grades will be assessed against clear assessment criteria stated in module descriptors. These assessment criteria are directly linked to the modules learning outcomes, and they will be used to evaluate the submitted work and to produce written feedback. The BEng Software Engineering course provides inclusive, engaging and authentic assessment and feedback strategies to help provide equal opportunities, cater for different learning styles and to best support the student to successfully complete the course.

Example of Summative assessments used in the course	
Practical Coursework / Practical based portfolio	You will be expected to complete lab tasks following lab guidelines, demonstrate competency in the safe, secure and ethical use of tools and either answer specific questions about the labs (Coursework) or analyse your results based on a given scenario (Portfolio). This type of assessment is used to assess the technical skills you acquired during the term and your ability to apply your knowledge gained in the correct context following the correct procedures and standards.
Group Presentation with/without Group Coursework	You will be working in a group, typically of 3 to 4 members, investigating a specific problem, implementing a product or researching a specific topic. You will be expected to give a presentation to demonstrate your group work. This is usually followed by a brief discussion and questions and answers with your peers and instructor. Generally, you will need to discuss in detail what the group has achieved, and how, and also how the work and the team member responsibilities were distributed. You will also in some cases be expected to write a technical design report. This type of authentic assessment is used to assess your ability to work in teams in a context that closely matches typical teamwork activities found in industry. This demonstrate that you are able to be productive and complete your given tasks in a timely manner. This assessment generally has both a group and an individual mark component.

ICT (exam conditions)	You will be expected to sit an in-class test under timed conditions. Typically, these in-class tests can be a closed-book or open-book where you will have access to certain materials. This assessment is used to assess understanding of fundamental concepts, ability to apply theory to a range of problems and to substantiate ownership of work. Tests help ensure you can demonstrate that you have developed a deep understanding of the subject which enables you to cope with complex problems that require deep insight in order to provide secure and optimal solutions. This time-constrained assessment is authentic in that it verifies that you will have sufficient depth and coverage of knowledge in order to successfully solve typical time-critical engineering problems. It also helps you prepare for other professional exams and training.
Lab test	You will be expected to complete a specific lab task in the lab. This will be in most cases a timed activity where you are given instructions and a set of tasks to complete. This type of assessment is used to assess and evaluate your technical skills and/or ownership of work submitted.
Coursework Case study	You will be required to work on a scenario that illustrates a specific problem. You will have to study this problem and assess it and take decisions or make recommendations. This will require research and analysis and potentially implementation in order for you to produce an assessment and recommendation. This type of assessment is used to assess your understanding of topics related to your module and how you can apply your knowledge to a given scenario. This type of assessment usually requires you to evaluate your given solution or method and justify your answers.
Research essay	You will be expected to conduct in-depth research on a specific topic. This involves examining various resources, concepts and ideas about the topic you are researching. This type of assessment is used to assess your ability to critically evaluate research material and concisely summarise, formulating your own recommendations and suggestions depending on the context.
Oral Assessment and/or Individual Presentation	You will be expected to present in a form of either a presentation or discussion on a given topic. This could also be a part of your dissertation where you will be expected to sit a viva voce assessment to defend your work. This type of assessment is used to assess the authenticity of your work and give you an opportunity to explain the reasoning of the choices, methods and principles used in your work. This assesses a wide range of practical, analytical, and interpretative skills that demonstrate your understanding of the topic and your refection.
Artefact	You will be expected to produce a product such as a robotic device, electronic circuit, code implementation or a document containing a set of recommendation and guidelines that demonstrate your ability to innovate to provide solutions to a given problem. This assessment is used to assess your ability to produce quality artefacts as this is an essential requirement in the workplace.
Report	You will be expected to produce a document that outlines activities you have undertaken. This can be for lab work that you have completed, a work experience and work placement that you undertook, your reflective comments about a specific topic or a description of the design processes used for a given artefact. This type of assessment is used to evaluate how you can convey technical matters about activities you have conducted in an academic, concise, and justified manner.
Dissertation	This will probably be the biggest document you will have to produce for your entire studies. You will be expected to produce an extended piece of written work, that contains substantial evidence of research, investigations, and possibly implementation, all related to a specific problem you have chosen. Dissertations are the result of your independent work, carried out under the guidance of a supervisor. This type of assessment is used to verify that you have developed a sound understanding of the course material and are able to utilise the skills and knowledge gained in order to produce an independent and substantial project that successfully meets the given requirements.

Graduate Attribute	Evident in Course Outcomes
Critical and creative thinker	1PY.1, 1PY.3, L4.02, L4.04, L4.05, L4.06, L4.07, L5.01, L5.02, L5.03, L5.04, L5.05, L6.01, L6.02
Literate and effective communicator	1EY.1, L4.09, L5.09, L6.05
Entrepreneurial	1PY.1, 1PY.2, 1PY.3, L6.04
Global in outlook and engaged in communities	1EY.1, 1EY.2, 1EY.3, 1PY.4, L4.01, L4.03, L5.06, L5.07, L5.08, L6.03
Socially, ethically and environmentally aware	1EY.2, 1EY.3, 1PY.4, L4.01, L4.03, L4.08, L5.06, L5.07, L5.08, L5.09, L6.03, L6.04

Course Structure

This section shows the core and option modules available as part of the course and their credit value. Full-time Undergraduate students study 120 credits per year. Course structures can be subject to change each academic year following feedback from a variety of sources.

Modules are described as:

- **Core** modules are compulsory and must be undertaken by all students on the course.
- **Option** modules give you a choice of modules and are normally related to your subject area.
- **Electives**: are modules from across the either the whole University or your College. Such modules allow you to broaden your academic experience. For example, where electives are indicated you may choose to commence the study of a foreign language alongside your course modules (and take this through to the final year), thereby adding further value to your degree.
- Additional information may also be included above each level for example where you must choose one of two specific modules.

Modules

Level 4

Module Code	Module Title	Status	UK credit	ECTS
4COSC004W	Computer Systems Fundamentals	Core	20	10
4COSC002W	Mathematics for Computing	Core	20	10
4COSC001W	Software Development I	Core	20	10
4COSC005W	Software Development II	Core	20	10
4COSC003W	Trends in Computer Science	Core	20	10
4COSC011W	Web Design and Development	Core	20	10

Level 5

Module Code	Module Title	Status	UK credit	ECTS
5SENG003W	Algorithms: Theory, Design and Implementation	Core	20	10
5COSC020W	Database Systems	Core	20	10
5COSC019W	Object Oriented Programming	Core	20	10
5COSC021W	Software Development Group Project	Core	20	10
5SENG007W	Software Engineering Principles and Practice	Core	20	10
5DATA002W	Machine Learning and Data Mining	Option	20	10
5COSC023W	Mobile Application Development	Option	20	10

Module Code	Module Title	Status	UK credit	ECTS
5ELEN016W	Operating Systems	Option	20	10
5ELEN018W	Robotic Principles	Option	20	10
5COSC024W	Server-Side Web Development	Option	20	10

Additional Year

Students who undertake the 4 year course must pass module 5COSC028W to achieve the award "with Industrial Experience" or pass module 5COSC027W to achieve the award "with International Experience" .

Module Code	Module Title	Status	UK credit	ECTS
5COSC028W	Computer Science and Engineering Industrial Placement	Core	120	60
5COSC027W	Computer Science and Engineering International Year	Core	120	60

Level 6

Module Code	Module Title	Status	UK credit	ECTS
6COSC023W	Computer Science Final Project	Core	40	20
6SENG006W	Concurrent Programming	Core	20	10
6COSC019W	Cyber Security	Core	20	10
6SENG005W	Formal Methods	Core	20	10
6COSC022W	Advanced Server-Side Web Programming	Option	20	10
6ELEN018W	Applied Robotics	Option	20	10
6NTCM009W	Internet of Things	Option	20	10
6COSC021W	Mobile Native Application Development	Option	20	10
6DATA005W	Operational Research and Optimisation	Option	20	10
		Elective	20	10

Please note: Not all option modules will necessarily be offered in any one year. In addition, timetabling and limited spaces may mean you cannot register for your first choice of option modules.

Professional body accreditation or other external references

Reference points for the course

The British Computer Society (BCS) professional accreditation ensures independent validation that the course meets high standards set by the profession. It also benchmarks the course against those of other institutions both nationally and internationally and supports the continued improvement of the course, highlighting areas of best practice across institutions. Being a student on an accredited course provides a pathway to professional registrations such as Chartered IT Professional (CITP), Chartered or Incorporated Engineer (CEng/IEng) and Registered IT Technician (RITTech).

BEng (Honours) Software Engineering fulfils the educational requirements of BCS for the CITP and partial CEng accreditation.

Internally
University Teaching and Learning policy statements,
University Quality Assurance Handbook and Modular Frameworks, staff research.

Externally
QAA Subject Benchmark statements,
Professional, Statutory, Regulatory Body requirements/guidance,
University and SEEC (credit consortium) level descriptors.

Professional body accreditation
British Computer Society (BCS) Criteria.

Course management

The BEng (Honours) Software Engineering course is under the School of Computer Science and Engineering and the management structure supporting the course is as follows:

- The Course Leader is responsible for day to day running and overall management of the course and development of the curriculum.

- The Head of School, holds academic responsibility for the course and other courses within the School Professor.

- The Pro Vice-Chancellor and Head of the College of Design, Creative and Digital Industries, holds overall responsibility for the course, and for the other courses run by the College.

Academic regulations

The current Handbook of Academic Regulations is available at westminster.ac.uk/academic-regulations.

Course specific regulations apply to some courses.

Academic Support

Upon arrival, an induction programme will introduce you to the staff responsible for the course, the campus on which you will be studying, the Library and IT facilities, additional support available and to your Campus Registry. You will be provided with the Course Handbook, which provides detailed information about the course. Each course has a course leader or Director of Studies. All students enrolled on a full-time course and part time students registered for more than 60 credits a year have a personal tutor, who provides advice and guidance on academic matters. The University uses a Virtual Learning Environment called Blackboard where students access their course materials, and can communicate and collaborate with staff and other students. Further information on Blackboard can be found at https://www.westminster.ac.uk/current-students/studies/your-student-journey/when-you-arrive/blackboard

The Academic Learning Development Centre supports students in developing the skills required for higher education. As well as online resources in Blackboard, students have the opportunity to attend Study Skills workshops and one to one appointments. Further information on the Academic Learning Development Centre can be found at westminster.ac.uk/academic-learning-development.

Learning support includes four libraries, each holding a collection of resources related to the subjects taught at that site. Students1 can search the entire library collection online through the Library Search service to find and reserve printed books, and access electronic resources (databases, e-journals, e-books). Students can choose to study in the libraries, which have areas for silent and group study, desktop computers, laptops for loan, photocopying and printing services. They can also choose from several computer rooms at each campus where desktop computers are available with the general and specialist software that supports the courses taught in their College. Students can also securely connect their

own laptops and mobile devices to the University wireless network.

Support Services

The University of Westminster Student and Academic Services department provide advice and guidance on accommodation, financial and legal matters, personal counselling, health and disability issues, careers, specialist advice for international students and the chaplaincy providing multi-faith guidance. Further information on the advice available to students can be found at https://www.westminster.ac.uk/student-advice

The University of Westminster Students' Union also provides a range of facilities to support students during their time at the University. Further information on UWSU can be found at https://www.westminster.ac.uk/students-union

How do we ensure the quality of our courses and continuous improvement?

The course was initially approved by a University Validation Panel. University Panels normally include internal peers from the University, academic(s) from another university. a representative from industry and a Student Advisor.

The course is also monitored each year by the College to ensure it is running effectively and that issues which might affect the student experience have been appropriately addressed. Staff will consider evidence about the course, including the evidence of student surveys, student progression and achievement and reports from external examiners, in order to evaluate the effectiveness of the course and make changes where necessary.

A Course revalidation takes place periodically to ensure that the curriculum is up-to-date and that the skills gained on the course continue to be relevant to employers. Students meet with revalidation panels to provide feedback on their experiences. Student feedback from previous years is also part of the evidence used to assess how the course has been running.

How do we act on student feedback?

Student feedback is important to the University and student views are taken seriously. Student feedback is gathered in a variety of ways.

- Through student engagement activities at Course/Module level, students have the opportunity to express their voice in the running of their course. Course representatives are elected to expressly represent the views of their peers. The University and the Students' Union work together to provide a full induction to the role of the course representatives.
- There are also School Representatives appointed jointly by the University and the Students' Union who meet with senior School staff to discuss wider issues affecting student experience across the School. Student representatives are also represented on key College and University committees.;
- All students are invited to complete a questionnaire before the end of each module. The feedback from this will inform the module leader on the effectiveness of the module and highlight areas that could be enhanced.
- Final year Undergraduate students will be asked to complete the National Student Survey which helps to inform the national university league tables.

This programme specification provides a concise summary of the main features of the course and the learning outcomes that a student might reasonably be expected to achieve and demonstrate, if they take full advantage of the learning opportunities that are provided. This specification is supplemented by the Course Handbook, Module proforma and Module Handbooks provided to students. Copyright in this document belongs to the University of Westminster. All rights are reserved. This document is for personal use only and may not be reproduced or used for any other purpose, either in whole or in part, without the prior written consent of the University of Westminster. All copies of this document must incorporate this Copyright Notice – 2022©