

Course record information

Name and level of final award	<ul style="list-style-type: none"> • Bachelor of Engineering with Honours - Software Engineering with Electronics • Bachelor of Engineering with Honours - Software Engineering with Electronics with Industrial Experience • Bachelor of Engineering with Honours - Software Engineering with Electronics with International Experience <p>The award is Bologna FQ-EHEA first cycle degree or diploma compatible</p>
Name and level of intermediate awards	<ul style="list-style-type: none"> • Bachelor of Engineering (BEng) - Software Engineering with Electronics • Diploma of Higher Education (Dip HE) - Software Engineering with Electronics • Certificate of Higher Education (CertHE) - Software Engineering with Electronics
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)	Computing
Professional statutory or regulatory body	British Computer Society (BCS) (Pending: Please see page 12 for further information)
Westminster course title, mode of attendance and standard length	<ul style="list-style-type: none"> • Software Engineering with Electronics, Full-time, September start - 3 years standard length with an optional year abroad or placement
Valid for cohorts	From 2026/7 Level 4 entrants from 2026-7

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

The BEng Software Engineering with Electronics course prepares you to work at the intersection of software and electronic systems, where modern intelligent products and infrastructures are designed, built and maintained. The course reflects the growing industry demand for engineers who can understand how electronic systems behave, how software interacts with them, and how these combined systems can be designed to operate safely, efficiently and sustainably in real-world environments.

You will develop a blend of hands-on hardware skills and robust software engineering capabilities, learning how to prototype circuits, work with microcontrollers, design embedded systems, and develop software that responds reliably to time-critical events. The course places strong emphasis on low-power design, sustainability, and the integration of hardware and software into secure, connected and intelligent systems such as IoT devices, robotics, smart homes, autonomous platforms and industrial control applications.

Alongside technical competence, the course enables you to build the professional, communication and teamwork skills that employers expect from modern engineers. You will work on practical laboratory activities, project-based learning, industry-informed challenges and collaborative group work that mirror real engineering practice and encourage problem solving, creativity and responsibility.

The programme aims to:

- Provide you with practical knowledge of hardware, software and systems engineering so you can design, build and code reliable, secure and energy-efficient solutions that integrate both components effectively.
- Develop your understanding of professional, ethical and legal responsibilities, including environmental sustainability and broader societal considerations relevant to engineering practice.
- Strengthen your AI literacy, enabling you to use AI tools responsibly and effectively to support analysis, design and innovation in software and electronic systems.
- Create an environment where you can develop a broad range of employability skills, including project management, risk assessment, teamwork, leadership, entrepreneurship, and written and oral communication.
- Ensure an industry-relevant learning experience, embedding current tools, technologies and professional practices across lectures, laboratories, projects and extracurricular activities.
- Support your development of wider professional behaviours, such as effective communication, collaborative working, reflective practice and inclusive ways of thinking and designing.
- Provide a motivating and rewarding learning experience that gives you a strong foundation for a professional engineering career and prepares you for future technological developments.

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.

You develop the technical skills required for computer systems engineering through extensive hands-on work in laboratories, workshops, practical classes and group projects. All modules include a strong practical element where foundational knowledge is applied directly in laboratory settings. Project work features throughout the course, including the Microcontroller Project (Year 1), the work-based Embedded Systems Project (Year 2) and the Individual Project (Year 3). The Year 2 work-based project is particularly valuable, giving you the chance to work in a small team on a challenge informed by real industrial practice. These project-based modules help you put theory into practice while strengthening transferable skills such as project and risk management, quality assurance, leadership, communication, time-planning and teamwork.

After completing your second year, you also have the option to take a year in industry, where you apply your knowledge directly in a professional environment, or an International Experience Year, which allows you to study or work abroad and develop global awareness, intercultural competence, and independence. The Careers Development Centre and the course team support you in finding and securing both types of placements, offering guidance on applications, CV preparation, and employer engagement.

Depending on your academic performance and availability, you may also undertake an industry-linked final-year project, giving you the opportunity to receive mentoring from industry specialists and, in some cases, engage directly with potential employers.

Upon successful completion of the course, and depending on your option choices, you will be prepared for roles such as computer systems engineer, embedded systems engineer, firmware engineer, embedded software engineer, robotics engineer, systems

integration engineer, electronic systems engineer, real-time systems engineer or Internet of Things (IoT) development engineer, along with many other technology-focused roles.

Specific roles include:

- **Embedded Software Engineer**
Develops, tests and evaluates software for devices and machines that operate outside traditional computing platforms. Typically writes low-level, high-performance code for microcontrollers using languages such as C or C++.
- **Embedded Hardware Engineer**
Designs, prototypes and tests electronic circuits, boards and hardware interfaces for sensors, actuators and control units used in embedded and connected systems.
- **Systems Engineer**
Monitors and optimises the performance of complex systems, ensuring smooth operation across all stages of a process. Works in sectors ranging from robotics and automation to manufacturing, computing and industrial control.
- **Software Engineer**
Develops software at the application or systems level, using platforms such as Android, Windows or Unix. May also create software that interfaces with embedded systems or specialised hardware.
- **Internet of Things (IoT) Engineer**
Designs secure connected devices and sensor networks, addressing issues of cybersecurity, data handling and interoperability within large-scale IoT ecosystems.
- **Real-Time Systems Engineer**
Designs, implements and maintains systems that must meet strict timing and reliability constraints, often working with real-time operating systems (RTOS) and specialised hardware.
- **Automotive Embedded Engineer**
Develops embedded control systems for vehicles, including engine management, driver assistance features, infotainment, sensor integration and battery or power management systems.
- **Firmware Engineer / Robotics Engineer**
Develops, debugs and tests low-level software that directly controls hardware. Often works with custom operating systems, microcontrollers, sensors and actuators, producing reliable control software for robotic or embedded platforms.

Industry sectors where the skills developed in this course are highly sought after include Formula 1, manufacturing, aerospace, medical, transport, robotics, logistics, and smart cities. Whether you aspire to design cutting-edge engine management systems for a Formula 1 team, develop innovative delivery drones, build intelligent robots, or create the next generation of smart and assistive devices, this course will equip you with the practical and technical expertise required to work in these exciting industries.

Alternatively, you may wish to carry on to further study at Masters or Doctorate level. We offer many Master courses in computer science and data security. As a graduate of this course, you shall be capable and prepared for continuing your education at postgraduate level. We can offer you advice on this once you have completed your studies.

What will you be expected to achieve?

Learning outcomes are statements of what successful students have achieved as a 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)
- Cognitive Skills, are learning outcomes that help build a conceptual understanding that is necessary to devise and sustain arguments, and/or to solve problems and comment on research.

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

- LO4.1 Select and apply knowledge, principles, tools and methodologies to use computer systems or design, implement, model and evaluate software, hardware and embedded system solutions. (KU GA KTS)
- LO4.2 Implement, debug and test, simple programs and hardware using high-level or low-level languages and tools given prescribed methods. (KU GA)
- LO4.3 Represent in words, mathematics and diagrams electronic, software and mathematical concepts, and use these in the description and analysis of simple systems (KU KTS)
- LO4.4 Gather and evaluate the suitability and accuracy of information sourced from large language models LLMs and other sources, with some guidance, and apply appropriately. (GA KTS)
- LO4.5 Plan work , adhere to set deadlines and reflect on self-learning required for structured individual and group tasks, given

direction and guidance. (GA KTS)

- LO4.6 Demonstrate, through practice and discussion, an understanding of the responsibilities of a professional engineer to adhere to good practice as outlined by professional bodies. (GA PPP KTS)
- LO4.7 Show awareness, through written discussion and use of technical terminology, issues related to equality, diversity and inclusion within the topic area of engineering. (GA PPP)
- LO4.8 Identify and discuss sustainable engineering practice in the context of electronic circuits and systems. (GA PPP KTS)

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

- LO5.1 Select and apply computational techniques and engineering processes to specify, analyse, test, model and/or select computer system interfaces, programming methodologies or algorithmic solutions; recognising their limitations. (KU GA PPP)
- LO5.2 Put into practice the use of systems architecture, systems programming and algorithmic solutions including the use of data structures or the underlying principles of operating systems. (KU GA)
- LO5.3 Use a rapid prototyping platform and software tool to develop, simulate and validate a solution that will monitor sensory input data and/or efficiently control hardware. (KU GA KTS SS)
- LO5.4 Adopt an integrated or systems approach to a complex engineering problem considering technical and broader requirements as appropriate and selecting well-defined methods in the modelling, design, implementation, debugging and/or testing of systems (KU GA PPP)
- LO5.5 Work on structured group or individual tasks and adopt a holistic, collaborative and inclusive approach to these tasks that mitigate security risks, recognising and taking on different roles within group based activities including leadership as and when appropriate. (GA PPP KTS)
- LO5.6 Discuss and apply knowledge of the commercial context of engineering, intellectual property rights, project management, compliance and risk in the context of a complex problem. (GA PPP KTS)
- LO5.7 Evaluate the environmental and societal impact of engineering solutions and where possible engineer or suggest solutions that minimise adverse impact and meet sustainable goals; identify and analyse ethical concerns, make reasoned ethical choices, adhere to professional codes of conduct. (KU GA PPP KTS)
- LO5.8 Demonstrate good coding ability and practice in the C programming language and the use of object orientated programming languages and tools , including the use of sockets. (KU GA SS)
- LO5.9 Communicate and document the design and testing of complex engineering solutions and/or matters effectively. (GA KTS)

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 (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:

- LO6.1 Apply advanced analytical methods to model engineering problems and evaluate the cost, performance and effectiveness of alternative solutions. (KU GA)
- LO6.2 Critically analyse solutions with reference to industry codes of practice, commercial considerations, legal requirements and ethical responsibilities, identifying opportunities for improvement and minimising negative impacts. (GA PPP KTS)
- LO6.3 Apply a strong understanding of information security principles, mechanisms and system design to select, configure and implement secure and ethical computer system solutions. (KU GA PPP KTS SS)
- LO6.4 Design and develop software and select appropriate hardware platforms for real-time or embedded systems, critically evaluating the performance and suitability of the resulting solution. (KU GA KTS SS)
- LO6.5 Critically assess published material and other technical sources, including outputs from large language models, formulate well-reasoned arguments, and communicate complex ideas clearly through presentations, reports, diagrams and

discussion. (GA PPP KTS)

- LO6.6 Apply engineering and computing skills with fluency, integrating theory, practical experience and professional standards to tackle complex technical problems. (GA PPP KTS)
- LO6.7 Document independent and creative thinking, gathering, evaluating and synthesising information from practical work and other relevant sources. (GA KTS)
- LO6.8 Recognise and evaluate risks associated with technical solutions, including those related to sustainability, security, safety, regulation and environmental impact, and propose appropriate mitigation strategies. (GA PPP)
- LO6.9 Write and evaluate system-level programs in a low-level language, taking account of available resources, tooling and concurrency or synchronisation requirements. (KU GA KTS SS)

How will you learn?

Learning methods

The BEng Software Engineering with Electronics course uses a variety of teaching and assessment methods to support your learning and help you achieve your full potential. A central aim of the course is to prepare you for professional engineering practice or further study. To achieve this, the programme is organised into a structured set of modules at each level, with learning activities designed to help you develop both the software and electronic engineering skills required in modern computing systems.

A key principle of the course is learning through practice. You develop understanding by working directly with programming tools, electronic components, microcontrollers and embedded systems. This includes hands-on work such as prototyping circuits, testing hardware behaviour, writing and debugging software for real-time systems, and integrating hardware and software into functioning solutions. You also develop analytical and problem-solving skills by applying the concepts taught to technical challenges drawn from real-world engineering scenarios.

Much of your learning takes place through active participation in practical laboratories. These sessions give you the chance to experiment, build, code, measure and test systems in a supervised environment. Laboratory tasks often form part of formative assessment, where you receive written, verbal or qualitative feedback to support your progress. These activities help you build confidence and prepare effectively for the summative assessments in each module. Throughout the course, lecturers provide regular feedback, both individual and in groups.

To develop broader professional and transferable skills, you engage in activities such as group design projects, hardware-software integration tasks, code reviews, project demonstrations and collaborative problem-solving exercises. These experiences help you develop teamwork, communication, planning and time-management skills. You will also be encouraged to present and defend your work, enabling you to reflect critically on your decisions and articulate your ideas clearly and professionally.

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

Equality, Diversity and Inclusivity are embedded throughout the programme. You learn in an environment that is supportive, respectful and accessible, with teaching methods and learning resources designed to meet a wide range of needs and backgrounds. You are encouraged to work in ways that reflect your interests, strengths and career ambitions, and you will have opportunities to shape your learning through your project choices and optional modules.

You study in a community built on mutual trust and respect, where collaboration and open discussion are central to the learning experience. Teaching materials are designed to be as inclusive as possible, and staff work with you to identify and remove barriers to learning. A range of assessment types is used across the course to give you different ways to demonstrate your abilities.

You benefit from an inclusive physical and digital learning environment, access to specialist support where required, and exposure to a diverse set of perspectives through guest speakers, group work and extracurricular activities such as game jams. The course team is committed to ensuring that you can participate fully, develop confidence, and succeed in a diverse and changing industry.

Sustainability

This programme aligns with the University's commitment to the UN Sustainable Development Goals and the *Being Westminster* values by embedding sustainability thinking across all levels of study. You will be encouraged to consider the environmental and economic impacts of technology and practice as part of your learning, with each level of the course integrating domain-relevant sustainability principles. This ensures that, as you progress, you develop both the technical expertise and the responsible mindset expected of modern computing and engineering professionals.

Teaching methods

We use a range of teaching methods to support your learning and prepare you for professional engineering practice. Throughout the course you work with industry-relevant tools, development environments and laboratory equipment to build confidence in both software and electronic systems.

You learn through a combination of lectures, practical laboratories, project work, individual supervision and guided online materials. Lectures introduce key principles, methods and design strategies, helping you understand how hardware, software and embedded systems interact. These sessions include interactive elements to support active engagement and problem-solving.

Practical classes and laboratory sessions give you hands-on experience with programming, circuit prototyping, microcontrollers, sensors, real-time systems and hardware–software integration. You will configure devices, debug code running on physical hardware, test system behaviour and analyse performance using specialist tools. You are encouraged to collaborate with others as you apply ideas from lectures to real engineering scenarios. Workshops, sometimes delivered with input from industry practitioners, support progress towards project milestones and help you develop skills aligned with professional practice.

Some modules make use of online quizzes and interactive activities to support remote learning. These provide immediate feedback to help you monitor your understanding, while enabling tutors to identify areas where additional support may be beneficial.

Authentic assessment is embedded across the course so you can practise skills used in industry. You will engage with investigative engineering tasks, applied technical problems and project-based assignments where you produce working software, prototypes, test data or hardware–software artefacts that reflect real engineering contexts.

Your final-year individual project brings together the knowledge and skills gained across the programme. You will design and deliver a substantial piece of work—software, embedded system, hardware prototype or integrated solution—supported by an academic supervisor who guides you through the process.

To ensure flexibility and accessibility, each module provides online support such as access to learning materials, reading lists, discussion spaces and virtual study rooms. You will also receive guidance from module leaders, your personal tutor and the course team at key decision points, such as selecting option modules or choosing your final-year project.

Independent study is an essential part of the course. We help you develop the habits and skills needed for continual professional development (CPD) through group activities, taught frameworks, extracurricular engagement and assessment formats that encourage planning, reflection and self-directed learning.

Assessment methods

Assessment and feedback are central to your learning. They help you understand your progress, reflect on what you have achieved, identify areas for improvement and make informed decisions about your independent study. Assessment on the BEng Software Engineering with Electronics course is guided by the principles of Purpose, Progression and Personalisation.

Purpose

Assessments are designed to be authentic, giving you opportunities to apply your computing knowledge and professional skills to real-world problems using industry-relevant tools and techniques. Each assessment method is clearly aligned with the module learning outcomes, and the workload is balanced so that you can manage your time effectively across the course.

Progression

Assessments are structured to support your development over time. You encounter a variety of assessment types that encourage new learning rather than unnecessary repetition. Less familiar formats are introduced gradually, supported by formative activities such as practice labs, workshops, or targeted exercises that help you prepare for summative tasks.

Personalisation

You are encouraged to make assessments your own through your design choices, implementation approaches and reflective work. You receive timely feedback on all assessments, with clear guidance on how to improve your performance in future tasks.

Across the programme, assessment is designed to be:

- demonstrative, allowing you to test and consolidate your understanding;
- rigorous, requiring correct, efficient and well-reasoned solutions;
- challenging, encouraging deep analysis and problem-solving;
- workplace relevant, reflecting the expectations and practices of the computing profession.

You complete a range of assessment types, from small technical tasks carried out in practical sessions to larger individual and group projects developed over a full semester. Some assessments require independent work, while others involve teamwork that mirrors professional environments.

Each module includes formative assessment, which does not count toward your final grade but helps you identify your strengths, diagnose gaps in your understanding and receive feedback that guides your progress. Formative activities may include quizzes, short tests, reflective tasks or group-based problem-solving exercises. Summative assessments contribute to your module grade and are always assessed against clear criteria linked directly to the module learning outcomes.

The course provides inclusive, engaging and authentic assessment and feedback strategies designed to give you equal opportunities to demonstrate your abilities and to support your development as a competent and confident embedded engineer professional.

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 reflection.
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.
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Graduate Attribute	Evident in Course Outcomes
Critical and creative thinker	LO4.1, LO4.2, LO4.3, LO4.4, LO4.5, LO4.7, LO4.8, LO5.1, LO5.2, LO5.3, LO5.4, LO5.5, LO5.6, LO5.7, LO5.8, LO6.1, LO6.2, LO6.3, LO6.4, LO6.5, LO6.6, LO6.7, LO6.8, LO6.9
Literate and effective communicator	LO4.3, LO4.4, LO4.6, LO4.7, LO4.8, LO5.9, LO6.5
Entrepreneurial	1EY.2, 1PY.1, 1PY.2, 1PY.3, LO4.5, LO5.4, LO5.5, LO5.6, LO6.2, LO6.7, LO6.8
Global in outlook and engaged in communities	1EY.1, 1EY.2, 1EY.3, LO4.7, LO5.7, LO6.2
Socially, ethically and environmentally aware	1PY.4, LO4.6, LO4.7, LO4.8, LO5.4, LO5.5, LO5.7, LO6.2, LO6.3, LO6.8

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
4ELEN010W	Applied Mathematics	Core	20	10
4ELEN002W	Digital Systems Design	Core	20	10
4COSC003W	Foundations of Professional Computing	Core	20	10
4ELEN007W	Microcontroller Project	Core	20	10
4ELEN011W	Principles and Fundamentals of Electronics	Core	20	10
4NTCM004W	Programming Methodology	Core	20	10

Level 5

Module Code	Module Title	Status	UK credit	ECTS
5SENG003W	Data Structures and Algorithms	Core	20	10
5ELEN020W	Embedded Systems Project (WBL)	Core	20	10

Module Code	Module Title	Status	UK credit	ECTS
5SENG006W	Object Oriented Programming (C++)	Core	20	10
5ELEN016W	Operating Systems	Core	20	10
5ELEN021W	Sensors and Signals	Core	20	10
5COSC037W	Applied Deep Learning	Option	20	10
5COSC024W	Back-end Web Development	Option	20	10
5COSC023W	Mobile Application Development	Option	20	10
5DATA002W	Practical Machine Learning	Option	20	10
5ELEN018W	Robotic Principles	Option	20	10
		Elective	20	10

Additional Year

When the Computer Science and Engineering (CS&E) Industrial Placement Year is taken the award of BEng (Honours) Software Engineering with Electronics with Industrial Experience is available. When the CS&E International Study Year is taken the award of BEng (Honours) Software Engineering with Electronics with International Experience is available.

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

Level 6

Module Code	Module Title	Status	UK credit	ECTS
6COSC019W	Cyber Security	Core	20	10
6ELEN017W	Operating Systems and Systems Programming	Core	20	10
6ELEN015W	Real-Time Embedded Systems	Core	20	10
6ELEN012W	Software Engineering with Electronics Final Project	Core	40	20
6COSC020W	Applied AI	Option	20	10
6ELEN018W	Applied Robotics	Option	20	10
6ELEN019W	Field Programmable Gate Array (FPGA) Design Project	Option	20	10
6NTCM009W	Internet of Things	Option	20	10
6COSC034W	Secure Scalable AI and Cloud Computing	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

The course has been designed with reference to:

- QAASubject Benchmark for Computing
- Engineering Council Accreditation of Higher Education Programmes (AHEP), fourth edition
- QAAGuidelines for Preparing Programme Specifications
- SEECcredit Level Descriptors for Further and Higher Education

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. For you as a student being 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 with Electronics is intended to fulfil the educational requirements of BCS for the CITP and partial CEng. Due to the 5-year accreditation timeline the course will be considered for the accreditation in 2027. The accreditation will be backdated to include the first intake from September 2023. On successful completion of this process your course will become accredited in 2027.

Course management

The BEng Software Engineering with Electronics 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;
- the 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](https://www.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 and additional support available. You will be provided with a Course Handbook, which provides detailed information about the course. Each course has a course leader or equivalent. 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 utilises 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. In addition to online resources in Blackboard, students can also attend Study Skills workshops and schedule one-to-one appointments. Further information on the Academic Learning Development Centre can be found at [westminster.ac.uk/academic-learning-development](https://www.westminster.ac.uk/academic-learning-development).

Learning support includes our libraries, each of which holds a collection of resources related to the subjects taught at that site. Students 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.

Support Services

The University of Westminster's Student and Academic Services department provides a range of advice and 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 annually by the College to ensure it is running effectively and that any issues that might affect the student experience have been appropriately addressed. Staff will consider evidence from various sources, including student surveys, student progression and achievement, and reports from external examiners, to evaluate the effectiveness of the course and make necessary changes.

Periodic reviews are also conducted to ensure that the curriculum remains up-to-date and that the skills acquired on the course continue to be relevant to employers. Representative students meet with a panel to provide feedback on their experiences. Student feedback from previous years is also part of the evidence used to assess the course's performance.

How do we act on student feedback?

Student feedback is important to the University, and student views are taken seriously. Student feedback is collected in various ways.

- Through student engagement activities at the course and 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 for each module. The feedback from this will inform the module leader on the effectiveness of the module and highlight areas that could be improved.
- Final-year undergraduate students will be asked to complete the National Student Survey, which helps inform the national university league tables. Postgraduate students will be asked to complete the Postgraduate Taught Survey (PTES).

This programme specification provides a concise summary of the main features of the course and the learning outcomes that a student may reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities 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 – 2025©