Programme Specification

Electronics and Telecommunication Engineering [GCET]

Version: 2025-26, v2.0, Validated

Contents

Section 1: Key Programme Details

Part A: Programme Information

Programme title: Electronics and Telecommunication Engineering [GCET]

Highest award: MSc Electronics and Telecommunication Engineering

Interim award: PGCert Electronics and Telecommunication Engineering

Interim award: PGDip Electronics and Telecommunication Engineering

Awarding institution: UWE Bristol

Affiliated institutions: Global College of Engineering and Technology (GCET)

Teaching institutions: Global College of Engineering and Technology (GCET)

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: No

School responsible for the programme: CATE School of Engineering, College of Arts, Technology and Environment

Professional, statutory or regulatory bodies: Not applicable

Modes of delivery: Full-time

Entry requirements: For current entry requirements, see the UWE public website

For implementation from: 01 October 2025

Programme code: H64B12

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The curriculum is designed for students seeking an engineering education closely aligned to engineering practice. Technical knowledge, engineering practice, business awareness and sustainability are integrated through projects and revisited to produce confident graduates able to apply their skills to novel situations and create engineering solutions that benefit society.

Professional development is placed at the heart of the curriculum. Students will identify, develop and demonstrate competencies expected of a professional engineer in the workplace. Projects and activities, embedded throughout the curriculum, are designed to develop the engineering habits of mind such as: Problem-finding, Problem-solving, Visualising, Systems Thinking, Improving, and Adapting. Foundation principles of engineering science, skills and practice are integrated throughout all years of study.

Electronics and Telecommunication engineers are employed throughout the engineering sector in the creation, maintenance and improvement of engineering operations and designs. Consequently Electronics engineering graduates need to be able to integrate engineering knowledge skills from across engineering and be able to be an effective member of a multidisciplinary team. Electronics engineering technical areas covered by taught modules include advanced control, embedded computing, embedded real time control, wireless sensor networks, digital signal processing, safety critical embedded system and wireless/mobile communications. You will apply your learning within areas including robotics, mobile and cellular communication engineering, advanced vision and audio processing, intelligent control systems and medical technologies.

The ability to work in multidisciplinary teams on projects that require a broader view of the role of engineering in industry and society is developed through the core programme using group work to bring students together in problem finding and solution spaces where students are able to interact with each other, academics and external practitioners.

The MSc programme involves students working on a multidisciplinary group project that requires the demonstration of technical and business understanding of an engineering problem. The final project/ dissertation module accounts for 60 credits of the level 7 and requires the application of innovative problem solving and project management skills.

The integration of knowledge, skills and practice allows the tacking of real engineering challenges and encourage students to engage with the wider role that electronics and telecommunication engineers and specifically engineering habits of mind can play in tackling global challenges. This is an accessible and modern engineering curriculum designed to attract students from diverse backgrounds able to see the future role of engineering in industry and society.

Features of the programme: Project-based learning.
Industry informed curriculum
Project type modules plus 60 credits dissertation
Professional and personal development embedded throughout all levels of the programme.
Interdisciplinary projects
Real engineering problems in core curriculum where students can explore industrial, environmental and societal impact of discipline.
Mathematics skills aligned taught in engineering context

Educational Aims: The aim of the MSc programmes is to respond to the need for effective engineering practitioners by offering programmes that are an intellectually challenging mix of taught engineering science and experiential learning. The practitioner approach is intended to produce engineers with a strong orientation towards problem solving, underpinned by theoretical knowledge. The educational aims of this taught postgraduate programme is:
To provide an intellectual experience of advanced study of electronic communication engineering, underpinned by staff expertise, research and experience

To enable the students to further and deepen their knowledge, understanding and analytical abilities in a stimulating and challenging academic environment

To prepare the students for further professional development in their chosen field

To develop the students' ability to conduct research in their chosen field

To offer postgraduate opportunities for students with working commitments in employment.

The MSc programme has been designed to fulfil these needs and its prime goal is to produce effective practitioners. It aims to provide an educational framework by which graduates of electronic communication engineering, systems engineering and those with a vocational qualification coupled with considerable industrial experience can develop, deepen or update their skills and knowledge of advanced electronic technologies, not only in industrially-relevant areas of embedded systems, but also within a cutting edge research field. There is a strong underlying view that these technologies must be developed further and applied in a systems environment.

Programme Learning Outcomes:

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

Programme Learning Outcomes

PO1. Design and apply practical engineering skills in developing and implementing electronic systems and wireless technologies, grounded in strong theoretical foundations.

PO2. Critically evaluate developments in electronic technologies and their integration into embedded systems to determine optimal solutions.

PO3. Design and analyse electronic systems and wireless networks using advanced tools and techniques, demonstrating mastery of relevant methodologies.

PO4. Design, model, and implement original solutions to complex electronic communication problems in accordance with industry standards and codes of practice.

PO5. Conduct well-defined empirical research and communicate practical and analytical findings effectively to professional audiences.

PO6. Communicate effectively in both individual and collaborative engineering contexts, demonstrating leadership and interpersonal skills.

PO7. Independently investigate unfamiliar and novel engineering concepts to propose and implement change.

PO8. Critically assess and make informed decisions on complex engineering problems under conditions of uncertainty.

PO9. Apply strategic management and leadership skills within a broader engineering context that exceeds undergraduate competencies.

Assessment strategy: The assessment strategy for the Masters Programme is designed to connect topics and levels within the curriculum and to enable students to reflect upon their development. The assessment methods on the programme are aligned to the requirements of the Institution of Engineering and Technology (IET) who place high importance on the demonstration of authentic and verifiable learning outcomes for each individual student. This consideration can lead to a reliance on written examinations and limit the scope for project or group work activities. We have therefore widened the range of activities within our examinations to include more open book examinations, questions based on pre-seen scenarios, questions that build on practical laboratory-based activities and computer-based examinations where students demonstrate the use of software to solve engineering problems.

The assessment strategies of the other core level 7 modules each designed to make sure that the content covered is connected. Embedded Real time Control systems is a strong example of the design as students are assessed on key technical material during or at the end of the first semester, then moving to safety embedded critical systems is with multiple exercises where the knowledge and skill is assessed in the context of an engineering design problem and then with a controlled assessment at the end of the module. The written examination references and builds upon design activities undertaken during the module and provides an efficient vehicle for integrating the different module elements and assessing individual knowledge. The assessment strategy is programmatic and connects the two immersive project weeks

with the task from the first feeding into the second where a more technical treatment is considered bringing the content from these two modules together.

The level 7 module Group Project challenge feeds into the project-based learning activity. The assessment at level 7 should create the culture required for students to embrace active learning styles.

The assessment strategies for the core Level 7 modules are designed to ensure cohesion and integration of the content covered. For example, the module on Wireless and Mobile Communication is structured to assess students on fundamental technical material either during or at the end of the first semester. This is followed by the Wireless Sensors Network module, where students engage in multiple exercises that assess their knowledge and skills within the context of an engineering design problem, culminating in a controlled assessment at the module's conclusion.

The written examination in this module builds upon and references design activities completed earlier, facilitating an effective integration of module content and assessing individual knowledge comprehensively.

The immersive project weeks are used by the project orientated modules Group Project challenge and Dissertation.

The module Group Project Challenge takes over from the level 7 version and is a module that relies on the importance and creation of the team with key roles allocated and the dynamics of the team monitored through a regular peer assessment process. The problem to be tackled and forms the vehicle for the assessment is designed to be motivational and accessible and is assessed through group presentation.

Dissertation is designed to have a significant impact on our operation. Students work individually to scope out research ideas. They then work with technical and academic staff to develop a project proposal that will pitched as an individual presentation that will feed forward to an individual written proposal i.e., Dissertation.

The Group Project Challenge is an exciting new development that brings mechanical, automotive, electronic engineers and roboticists together on projects that are electro-mechanical in nature. Typical problem fields could involve projects in communication systems, wireless sensor networking and Signal processing & Modelling, Networking Protocols . Projects from these areas would each have the potential to demonstrate modern developments and impact of engineering. The assessment for this module replicates a professional environment with group design review meetings forming part of the assessment.

The effectiveness of these assessment approaches is ensured through regular review and alignment with industry standards and academic research. Feedback from industry partners and academic evaluations helps refine assessment methods and ensures they capture the program's goals. By using a diverse range of assessment types, the program can comprehensively evaluate both theoretical knowledge and practical skills, ensuring that graduates are well-prepared for their professional careers.

Student support:

GCET Math Support Centre intended to develop Mathematics skills aligned taught in engineering context.

Personality and professional strengths finding activity at start of programme.

EEE Technical Students Support.

Development of group work skills and attributes.

Academic mentors to provide continuity of support to students.

Academic personal tutors.

Video capture of course content delivery.

E-assessments for rapid feedback.

Students can explore industrial, environmental and societal impact of discipline.

Part B: Programme Structure

Year 1
Full time students must take 180 credits from the modules in Year 1.

Year 1 Compulsory Modules
Full time students must take 180 credits from Compulsory Modules.

Module Code	Module Title	Credit
UFMFTF-60-M	Dissertation (Masters) 2025-26	60
UFMF3E-15-M	Wireless Sensor Networks 2025-26	15
UFME7F-15-M	Advanced Control and Dynamics 2025-26	15
UFMFTC-15-M	Embedded Real Time Control Systems 2025-26	15
UFMFEQ-30-M	Group Project Challenge 2025-26	30
UFMF7D-15-M	Safety Critical Embedded Systems 2025-26	15
UFME7G-15-M	System Design Using HDLs 2025-26	15
UFMF9D-15-M	Wireless and Mobile Communications 2025-26	15

Part C: Higher Education Achievement Record (HEAR) Synopsis

Graduates of this program will have a deep understanding of advanced electronics and telecommunication systems, showcasing expertise in digital and analogue circuit design, Advance Control systems & signal processing, and network management.

They will be skilled in deploying and overseeing complex systems, utilizing modern engineering tools and techniques. With strong problem-solving abilities and a collaborative approach, they are well-prepared to innovate and lead in both academic and professional environments. Their proficiency with emerging technologies ensures they are capable of addressing current challenges in the field.

Part D: External Reference Points and Benchmarks

Description of how the following reference points and benchmarks have been used in the design of the programme:

QAA UK Quality Code for HE (October 2019)

Framework for higher education qualifications (FHEQ)

Subject benchmark statement for Higher Education qualifications in engineering (October 2019)

Strategy 2030

University policies

Staff research projects

IET requirements: AHEP4

Industrial Advisory Board

The learning outcomes required by the Engineering Council UK are mandatory for accredited engineering programmes. The specific outcomes are derived from the requirements for electronic engineering described in the IET Learning Outcomes Handbook for BEng programmes. There are constraints from IET that have been taken into account, for example, that a minimum of 40% written examinations across the programme is considered an acceptable form of controlled assessment. Whilst this provides a constraint on the style of assessments, it does not inhibit our

integrated learning approach.

The modules have been designed to ensure adequate and appropriate coverage of these outcomes across the levels of study.

SEEC level descriptors have informed the design of the assessment of the learning outcomes.

University strategies and policies: This programme is a refreshed and updated version of a programme that has run for many years. It has a long tradition of accepting students from diverse backgrounds and a wide range of entry qualifications. Modules within the programme are also delivered within partner institutions regionally and globally. Foundation degrees and higher apprenticeship schemes have been developed in conjunction with academic and industrial partners as feeders into this programme.

The new curriculum has been designed to take the best practice from the previous structure along with the introduction of the integrated learning framework. This, when combined with the new laboratories, will provide enhanced student experience.

Employer interaction and feedback: The School of Engineering works with a number of industrial partners through two consortia and a newly formed industrial liaison panel. Feedback from employers during visits to placement students has also has also helped inform this revised programme. This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules can be found in module specifications, available on the University's website.

Part E: Regulations

Approved to University Regulations and Procedures.