Programme Specification

Electro-mechanical Engineering {Apprenticeship-UCW}[UCW]

Version: 2026-27, v2.0, Validated

Contents

Section 1: Key Programme Details

Part A: Programme Information

Programme title: Electro-mechanical Engineering {Apprenticeship-UCW}[UCW]

Highest award: BEng (Hons) Electro-Mechanical Engineering

Interim award: BEng Electro-mechanical Engineering

Interim award: DipHE Electro-mechanical Engineering

Interim award: CertHE Electro-mechanical Engineering

Awarding institution: UWE Bristol

Affiliated institutions: UCW

Teaching institutions: UCW

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

Apprenticeship: ST0025 and ST0024 (the programme is aligned to both standards, to accommodate different employer preferences)

Modes of delivery: Full-time

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

For implementation from: 01 September 2023

Programme code: H36E00

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The Electromechanical Degree is designed for students who want to combine academic study with real-world engineering practice.
This programme integrates technical knowledge, engineering skills, business understanding, and sustainability through applied projects directly aligned with workplace needs.
Apprentices will graduate as confident and capable engineers, able to apply their learning to solve complex problems and deliver engineering solutions that make a real difference in industry and society.

Professional development is placed at the heart of the curriculum. From the start, apprentices follow a structured pathway from student engineer to qualified graduate engineer, supported by both academic and workplace mentors. Throughout the programme, they will identify, develop, and demonstrate the competencies required of professional engineers, as defined by industry standards and professional bodies.

Electromechanical topics of engineering analysis, design, electrical and electronics, mechanical systems and manufacturing are developed throughout the core and taken to an advanced level. Sufficient electrical and electronic content has been included in the core programme for the study of engineering problems involving electromechanical and mechatronic systems.

Project-based learning is embedded across the curriculum, with a strong emphasis on developing essential Engineering Habits of Mind, including:
- Problem-finding and problem-solving
- Visualising and systems thinking
- Improving and adapting

Electromechanical engineers are employed throughout the engineering sector in the creation, maintenance and improvement of engineering operations. Consequently

Electromechanical 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.
As apprentices work full-time in industry, they continuously apply their academic learning to real engineering tasks, gaining valuable experience in multidisciplinary environments. Dedicated project weeks and collaborative activities provide further opportunities to tackle live engineering problems, working alongside peers, academic staff, and industry professionals.

This integrated approach to learning ensures apprentices not only gain the technical expertise expected of an Electromechanical engineer but also understand the broader role engineering plays in business, industry, and society. It is a modern, inclusive and flexible curriculum designed to prepare a diverse range of learners for the future of engineering.

Features of the programme: Immersive Project Work create student engineer community within curriculum.

Integrated Learning Framework and use of problem-based and project-based learning.

Industry informed curriculum.

Engineering Practice modules to scaffold the journey from student engineer to graduate engineer.

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: As a result of successful completion of this programme, a student will:

Be able to work as an effective graduate Electromechanical engineer across the engineering sector within a multidisciplinary team.

Have acquired the knowledge and understanding of scientific principles and methods necessary to underpin an education in engineering. The programme will provide insight into, and practical skills in, the creation and maintenance of engineering products and will explore the environmental impact of engineering.

Have demonstrated an ability to integrate their knowledge and understanding of core subject material in order to solve a range of engineering problems either individually or as part of a team.

Have developed and demonstrated understanding of the competencies and social responsibilities required by a professional engineer in the workplace and society. Activities to scaffold this development are embedded throughout the core curriculum to develop the engineering habits of mind. As a consequence, students will be able to critically appraise the value and effectiveness of future engineering innovations in the field in terms of business improvement and environmental sustainability.

Programme Learning Outcomes:
On successful completion of this programme graduates will achieve the following learning outcomes.

Programme Learning Outcomes

PO1. Research, apply and analyse concepts to solve engineering problems involving design, operations and manufacture that arise across engineering applications including new and emerging technologies.

PO2. Use systems incorporating digital hardware, software, communication, processing algorithms, interfacing circuits and parameter sensing and actuating devices to solve engineering problems.

PO3. Model Electro-mechanical engineering systems and be able to specify and assess technical designs.

PO4. Understand the financial, environmental and marketing implications of design proposals.

PO5. Use a systems approach to establish rigorous solutions that are fit for purpose and consider all aspects of a problem including production, operation, maintenance, sustainability and disposal.

PO6. Communicate and operate effectively, professionally and ethically either as individuals or as members of a team.

PO7. Pursue independent study, research and investigations to undertake enquiry into novel and unfamiliar concepts and implement change in an engineering environment.

PO8. Apply problem solving techniques and make considered judgements and decisions on complex engineering issues in which not all facts and consequences are accurately known.

Assessment strategy: The assessment strategy for the new curriculum 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 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 strategy is designed to work for large module cohorts, typically associated with this programme (130-300).

The above Factors influence and inform the design of this programme’s assessment strategy.

In year 1 the Professional Practice for Engineers module develops professional attributes and engineering habits of mind through activities and assessments that encourage reflections through a structured portfolio and presentations. As part of the portfolio we have the concept of a “passport” where students demonstrate key professional skills such as workshop skills, library skills and health and safety awareness. This “replicates” part of the experience of an engineering apprentice but for one who is working in an academic environment.

The assessment strategies of the other core level 4 modules each designed to make sure that the content covered is connected. Fundamentals of Engineering Mathematics and Modelling is a strong example of the design as learners are assessed on key technical material during or at the end of the first semester, then moving to an exercise where the knowledge and skill is assessed in the context of an engineering design problem and then with a written assignment at the end of the module. The written assignment 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 assessments at level 4 should create the culture required for students to embrace active learning styles.

At level 5 Signal Processing and Control and Engineering Dynamics provide examples of how content and assessment is developed from level 4 to level 5.

The module Engineering Research and Collaborative Project takes over from the level 4 Professional Practice for Engineers 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.
The module is designed to have a significant impact on our operation. Learners receive a series of lectures and seminars introducing them to topics such as effective project planning, academic literature review, ethics, data analysis, technical resources. While these skills are nominally to prepare continuing students for further

individual research at Level 6, these skills are important for appreciating research projects in industry.

Student support: Student Support and Welfare from UCW HEART team
UCW Academic Skills Development team
Espresso Engineering and Espresso Maths drop-in support stations at UWE as well as Maths support drop-in sessions at UCW
Personality and professional strengths finding activities throughout the programme
Mathematics diagnostic testing and follow-up interventions early in year 1
Development of group work skills and attributes
Academic mentors to provide continuity of support to SpLD learners
Academic personal and degree apprentice tutors
Personal degree apprentice training coordinator and assessors
Video capture of course content delivery
E-assessments for rapid feedback

Part B: Programme Structure

Year 1

Students on the four and five year programme must take 120 credits from the modules in Year 1.

Year 1 is delivered at UCW.

Year 1 Compulsory Modules (Four and Five Year Students)

Students on the four and five year programmes must take 120 credits from the modules in Compulsory Modules (Four and Five Year Students).

Module Code	Module Title	Credit
UFME3J-15-1	Fundamentals of Electrical and Electronics Principles 2026-27	15
UFME3L-30-1	Fundamentals of Engineering Mathematics and Modelling 2026-27	30

UFME3K-15-1	Fundamentals of Materials for Manufacturing 2026-27	15
UFME3H-15-1	Fundamentals of Mechanical Principles 2026-27	15
UFME3M-15-1	Principles of Programming for Engineers 2026-27	15
UFME3N-30-1	Professional Practice for Engineers 2026-27	30

Year 2
Four year students must take 90 credits from the modules in Year 2.

Five year students must take 60 credits from the modules in Year 2.

Year 2 is delivered at UCW.

Year 2 Compulsory Modules (Five year students)
Students on the five year programme must take 60 credits from the modules in Compulsory Modules (Five year students).

Module Code	Module Title	Credit
UFME5X-15-2	Engineering Dynamics 2027-28	15
UFME63-30-2	Signal Processing and Control 2027-28	30
UFME7D-15-2	Structural Mechanics and its Applications 2027-28	15

Year 2 Compulsory modules (Four year students)
Students on the four year programme must take 90 credits from the modules in Compulsory modules (Four year students).

Module Code	Module Title	Credit
UFME76-15-2	Electro-mechanical Systems 2027-28	15
UFME5X-15-2	Engineering Dynamics 2027-28	15
UFME63-30-2	Signal Processing and Control 2027-28	30

UFME7D-15-2	Structural Mechanics and its Applications 2027-28	15
UFME79-15-2	Thermodynamics and Fluid Dynamics 2027-28	15

Year 3
Four year students must take 75 credits from the modules in Year 3. In Year 3 Level 5 modules are delivered at UCW and Level 6 modules are delivered at UWE.

Five year students must take 60 credits from the modules in Year 3. Year 3 is delivered at UCW.

Year 3 Compulsory Modules (Five year students)
Students on the five year programme must take 60 credits from the modules in Compulsory Modules (Five year students).

Module Code	Module Title	Credit
UFME76-15-2	Electro-mechanical Systems 2028-29	15
UFME78-30-2	Engineering Research and Collaborative Project 2028-29	30
UFME79-15-2	Thermodynamics and Fluid Dynamics 2028-29	15

Year 3 Compulsory Modules (Four year students)
Students on the four year programme must take 75 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFW7-15-3	Control Systems Design 2028-29	15
UFMEAR-15-3	Professionalism for Engineering Apprentices 2028-29	15
UFME78-30-2	Engineering Research and Collaborative Project 2028-29	30

UFMFSL-15-3	Integrated Electro-Mechanical Systems 2028-29	15

Year 4
Four year students must take 75 credits from the modules in Year 4. Learners must have achieved 330 credits before they can pass through gateway and take the End-Point Assessment module UFMEBH-30- 3 . The End-Point Assessment module UFMEDQ-30-3 will begin in year 4 but it will be completed beyond the end of year 4. The duration of the programme will be 4 years 4 months.

Five year students must take 60 credits from the modules in Year 4.

Year 4 is delivered at UWE.

Year 4 Compulsory Modules (Five year students)
Students on the Five year programme must take 60 credits from the modules in Compulsory Modules (Five year students).

Module Code	Module Title	Credit
UFMFW7-15-3	Control Systems Design 2029-30	15
UFMEAR-15-3	Professionalism for Engineering Apprentices 2029-30	15
UFMFYS-15-3	Advanced Manufacturing Technology 2029-30	15
UFMFSL-15-3	Integrated Electro-Mechanical Systems 2029-30	15

Year 4 Compulsory Modules (Four year students)
Students on the Four year programme must take 75 credits from the modules in Compulsory Modules (Four year students).

Learners must have achieved 330 credits before they can pass through gateway and take the End-Point Assessment module UFMEDQ-30-3.

Module Code	Module Title	Credit
UFMFYS-15-3	Advanced Manufacturing Technology 2029-30	15

UFMFU6-15-3	Composite Engineering 2029-30	15
UFMFD7-15-3	Energy Technologies 2029-30	15
UFMEDQ-30-3	Electro-mechanical Engineering (Integrated) End Point Assessment 2029-30	30

Year 5
Five year students must take 60 credits from the modules in Year 5. Learners must have achieved 330 credits before they can pass through gateway and take the End-Point Assessment module UFMEBH-30- 3 . The End-Point Assessment module UFMEDQ-30-3 will begin in year 5 but it will be completed beyond the end of year 5. The duration of the programme will be 5 years 4 months.

Year 5 is delivered at UWE.

Year 5 Compulsory Modules (Five year students)
Students on the Five year programme must take 60 credits from the modules in Compulsory Modules (Five year students). Learners must have achieved 330 credits before they can pass through gateway and take the End-Point Assessment module UFMEDQ-30-3.

Module Code	Module Title	Credit
UFMFU6-15-3	Composite Engineering 2030-31	15
UFMFD7-15-3	Energy Technologies 2030-31	15
UFMEDQ-30-3	Electro-mechanical Engineering (Integrated) End Point Assessment 2030-31	30

Part C: Higher Education Achievement Record (HEAR) Synopsis

Graduates of this programme will be equipped with a broad understanding of Electro-mechanical analysis and design, combined with knowledge of engineering practice, information technology and project management.

The programme produces graduates with a broad-based ‘systems’ approach to engineering problem solving. Graduates from this programme will be equipped to

work in multi-disciplinary teams, able to critically appraise existing ideas and practice and produce creative solutions to engineering problems.

Part D: External Reference Points and Benchmarks

QAA UK Quality Code for HE

Framework for higher education qualifications (FHEQ)

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

Qualification characteristics for Degree Apprenticeships

Strategy 2030

University policies

Staff research projects

Relevant PSRB requirements: UK Engineering Councils UK Spec

Level 6 Degree Apprenticeship standard ST0025 Manufacturing Engineer
Level 6 Degree Apprenticeship standard ST0024 Electrical and Electronic Engineer

Industrial Advisory Board/Industry Programme Development Collaboration

Part E: Regulations

Approved variants to University Academic Regulations and Procedures.

The following relate to Electro-mechanical Engineering (Integrated) End Point Assessment:

Regulation D5 (Requirements to pass a module):
This module has two assessment tasks, each with a mark expressed as a grade:

Task 1: Project with report, presentation and questioning is graded Pass/Fail
Task 2: Professional discussion underpinned by a portfolio is graded Distinction/Pass/Fail.
The overall module outcome is graded Distinction/Pass/Fail in line with ST0024 and ST0025 apprenticeship standards' assessment plan.

Regulations D6 (Failure of a Module) and D7 (Retaking a Module):
For the purposes of the apprenticeship outcome only, a resit or retake will be capped at a Pass, unless the university determines there are exceptional circumstances requiring a resit or retake. There is no capping of this module for the degree outcome.
The apprentice's employer will need to agree that either a resit or retake is an appropriate course of action.

Regulation D11 (Arrangements for Awards Classifications):
The End-Point Assessment module grade will count towards the overall degree classification.

Additional requirements:
Compensation is not permitted for an End-Point Assessment module.

Approved to University Regulations and Procedures
The PSRB requirements below are permitted within the regulations.

The following requirements apply to awards which have been accredited by a PSRB that comes under the auspices of the Engineering Council UK:
- The permitted maximum compensated credit is 30 credits for a Bachelors or Integrated Masters degree, and a maximum of 20 credits in a Masters degree.
- The awarding of compensated credit may be considered for an overall module mark in the range of 30% to 39% for Levels 4-6 and 40%-49% for Level 7.
- Major individual and group-based project modules must not be compensated.