Programme Specification

Electromechanical Engineering (Nuclear) [UCS]

Version: 2026-27, v2.0, Validated

Contents

Section 1: Key Programme Details

Part A: Programme Information

Programme title: Electromechanical Engineering (Nuclear) [UCS]

Highest award: FdSc Electromechanical Engineering (Nuclear)

Interim award: CertHE Electromechanical Engineering (Nuclear)

Awarding institution: UWE Bristol

Affiliated institutions: University Centre Somerset

Teaching institutions: University Centre Somerset

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: Part-time

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

For implementation from: 01 September 2026

Programme code: H36B42

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The FdSc Electromechanical Engineering (Nuclear) covers a range of disciplines namely; nuclear science, electromechanical systems, power generation and transmission, fluid dynamics and heat transfer, instrumentation and control and is designed to produce engineers that are able to make an immediate contribution to employment within the nuclear sector. The degree provides a direct entry route into Level 6 of related undergraduate engineering degree programmes. The Foundation degree is part of a suite of programmes developed for the nuclear sector and has been requested as being available by employers.

The Foundation degree meets priorities identified by the UK Government, local and regional priorities and will be delivered at the National College for Nuclear located at Bridgwater and Taunton College. The National College for Nuclear has a mission to create a new generation of graduate nuclear engineers to satisfy the demand created by rapid technological advances in new nuclear builds, operation, decommissioning and defence. The curriculum and delivery model has been created in partnership with employers to provide a higher vocational pathway for the UK nuclear industry that satisfies the current and future demands of sector. A block week delivery model has been developed to provide flexible access to study.

Features of the programme:

Educational Aims: The specific aims are that the graduate shall:

A Graduate will have a good technical understanding of processes and procedures for the day-to-day operational requirements in nuclear facilities and will use the knowledge, skills and behaviours developed to carry out a broad range of technical, scientific and engineering tasks to operate systems and equipment safely, efficiently and in an environmentally sustainable way, meeting the requirements set out by the employer and industry regulators.

They will be able to work as part of a multi-disciplinary team, taking responsibility for the quality of work that is undertaken, demonstrating good team working skills and the ability to communicate in a variety of forms to all levels.

Graduates will be a task focussed role and will typically follow direction and instructions of the professional level. Preparation of technical reports and information to assist managers in decision making including:

Utilise problem solving techniques to identify technical improvements

Sampling, testing, measuring, recording and interpretation of results to present to senior colleagues

Carrying out routine tasks accurately and following strict methodologies

Setting up, maintaining and operating equipment

Using computers and performing mathematical calculations for the preparation of data

Keeping up to date with technical developments, especially those which can save time and improve reliability and performance

They will have a fundamental and core knowledge of engineering / science principles and practices and will be able to demonstrate discipline skills, project management skills including: engineering theory, practices and applications in the field of nuclear engineering, electromechanical systems, instrumentation and control.

Furthermore, shall have the academic underpinning to successfully progress to Level 6 programmes in engineering.

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

Programme Learning Outcomes

PO1. Knowledge and understanding of concepts, principles and theories of engineering science relevant to the interdisciplinary fields of nuclear engineering including: heat transfer and power generation, electromechanical systems, instrumentation and control.

PO2. Engineering discipline knowledge to support the development of operation, maintenance and progression of technologies. Apply engineering design, systems and management concepts within the nuclear sector and have the basis for systems analysis within a nuclear engineering context.

PO3. Engage with and support the successful outcome of nuclear projects, implement methods of determining the root cause of problems and demonstrating knowledge of learning from experience.

PO4. How to analyse and apply the results of research and information gathering to evaluate and to propose solutions to a particular nuclear technology application.

PO5. Provide solutions to today's industry problems that deepen the students' learning of applying engineering principles in a commercial setting.

PO6. Demonstrate awareness and competence with respect to professional and safety requirements and be conversant with the regulatory framework that governs operations within the nuclear sector.

PO7. The nuclear industry (past, present and future) and the business, political and community environment in which the company operates including personal role within the organisation, ethical practice and codes of conduct.

PO8. The technology, safety, environmental and economics for a variety of nuclear scenarios for example the nuclear fuels, the nuclear fuel cycle.

Assessment strategy: The assessment strategy has been designed to test the programme learning outcomes through a range of coursework, projects, vivas and exams.

The assessments and guidance is designed to also provide the scaffolding for students to adapt and succeed as they travel through the levels and types of assessment.

Furthermore, the assessment sets out to cover outcomes aligned to the occupational standards for a Level 5 Nuclear Technician.

Group work is used throughout to develop teamwork and collaboration and to support learning. A variety of assessment methods are used to ensure that students can demonstrate their knowledge and understanding across all levels and for assessors to be confident of the authenticity and standard of learning outcomes.

Student support: A dedicated team works across the University Centre to support and advise students with additional needs. Students with physical disabilities, specific learning difficulties, emotional difficulties, medical problems or mental health difficulties have access to a range of support mechanisms. Our aim is for all students with additional support needs to have equal access to the curriculum and to work towards meeting their full potential.

Students benefit from access to specialist resources which include:

Independent living facilities.

Access to cross-college curriculum and subjects.

A dedicated team to support learners with Autistic Spectrum disorder

Specialist Specific Learning Difficulties Support (Dyslexia, Dyspraxia and Dyscalculia)

Assistive technology

Work placement support

Speech and language therapy

Deaf or hard of hearing support

Visual impairment support

Support for social, emotional and behavioural difficulties

Counselling support

Part B: Programme Structure

Year 1
The student must take 120 credits from the modules in Year 1.

Year 1 Compulsory Modules
The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFQP-30-1	Electromechanical Systems Engineering 2026-27	30
UFMFRP-30-1	Nuclear Science, Materials and Design 2026-27	30
UFMFSP-30-1	Solid Mechanics 2026-27	30
UFMFTP-30-1	Thermofluidic Dynamics 2026-27	30

Year 2
The student must take 90 credits from the modules in Year 2.

Year 2 Compulsory Modules
The student must take 60 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFWP-30-2	Electromechanical Systems Analysis 2027-28	30
UFMFVP-30-2	Electromechanical Systems and Design 2027-28	30

Year 2 Optional Modules
The student must take a minimum of 30 credits from the modules in Optional Modules.

Module Code	Module Title	Credit
UFMFUP-30-2	Electrical Supply and Machines 2027-28	30
UFMFXP-30-2	Heat Transfer and Power 2027-28	30

Year 3
The student must take 30 credits from the modules in Year 3.

Year 3 Compulsory Modules
The student must take 30 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFYP-30-2	Advanced Nuclear Science and Project Management 2028-29	30

Part C: Higher Education Achievement Record (HEAR) Synopsis

The degree develops the knowledge, skills and capabilities required by the civil and defence nuclear industries for the specification, design and delivery of solutions to problems involving mechanical, electrical and electronic systems.

Work-based learning is embedded in the programme designed to develop individuals who think and communicate effectively, who can conduct inquiry, solve problems, undertake critical analysis and deliver effective systems solutions.

Graduates from this programme are able to be effective and make an early impact on their work environment both prior to and after graduation.

Part D: External Reference Points and Benchmarks

QAA UK Quality Code for HE.
QAA Qualifications Framework for higher education qualifications (FHEQ).

QAA Subject Benchmark Statement: Engineering (Mar 2023).
UWE Bristol 2020 Strategy document.
Guidance on how to meet the Learning Outcome requirements for Accreditation (IET Academic Accreditation).

HM Government, The Ten Point Plan for a Green Industrial Revolution (Nov 2020)

HotSW Local Skills Improvement Plan Report (2023)
Nuclear Technician Apprenticeship Standard as approved: https://www.instituteforapprenticeships.org/apprenticeship-standards/nuclear-technician-v1-0

Part E: Regulations

Approved to University Regulations and Procedures.