



Programme Specification

Electromechanical Engineering (Nuclear) {Apprenticeship-UCS} [UCS]

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Electromechanical Engineering (Nuclear) {Apprenticeship-UCS}
[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

Department responsible for the programme: FET Dept of Engineering Design & Mathematics, Faculty of Environment & Technology

Contributing departments: Not applicable

Professional, statutory or regulatory bodies: Not applicable

Apprenticeship: ST0380

Mode of delivery: Full-time

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

For implementation from: 01 September 2021

Programme code: H36A42

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 in the UK Government Industrial Strategy (2018) for higher education and will be delivered at the National College for Nuclear located at Bridgwater and Taunton College, one of five National Colleges created by the UK Government. 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 access to work-based learners.

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

Have a broad knowledge and understanding of engineering theory, practices and applications in the field of nuclear engineering, electromechanical systems, instrumentation and control;

Apply engineering design, systems and management concepts within the nuclear sector and have the basis for systems analysis within an nuclear engineering context;

Demonstrate a capacity for innovative and creative design and be able to draw on knowledge of fundamental principles and proven systems to further develop solutions which meet required specifications;

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;

Have developed the ability, interest and motivation to conduct independent study and keep abreast of future changes in technology and engineering practices;

Shall have the academic underpinning to successfully progress to Level 6 programmes in engineering;

Be able to communicate clearly, concisely and persuasively with individuals and groups, using a professional standard of English, both orally and in writing.

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

Programme Learning Outcomes:

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

Programme Learning Outcomes

- PO1. Have a broad knowledge and understanding of engineering theory, practices and applications in the field of nuclear engineering, heat transfer and power generation, electromechanical systems, instrumentation and control
- PO2. Apply engineering design, systems and management concepts within the nuclear sector and have the basis for systems analysis within an nuclear engineering context

- PO3. Demonstrate a capacity for innovative and creative design and be able to draw on knowledge of fundamental principles and proven systems to further develop solutions which meet required specifications
- PO4. 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
- PO5. Have developed the ability, interest and motivation to conduct independent study and keep abreast of future changes in technology and engineering practices
- PO6. Shall have the academic underpinning to successfully progress to Level 6 programmes in engineering
- PO7. Be able to communicate clearly, concisely and persuasively with individuals and groups, using a professional standard of English, both orally and in writing
- PO8. Be able to provide solutions to today's industry problems that deepen the students' learning of applying engineering principles in a commercial setting

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 2022-23	30
UFMFRP-30-1	Nuclear Science, Materials and Design 2022-23	30
UFMFSP-30-1	Solid Mechanics 2022-23	30
UFMFTP-30-1	Thermofluidic Dynamics 2022-23	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 2023-24	30
UFMFVP-30-2	Electromechanical Systems and Design 2023-24	30

Year 2 Optional Modules

The student must take 30 credits from the modules in Optional Modules.

Module Code	Module Title	Credit
UFMFUP-30-2	Electrical Supply and Machines 2023-24	30
UFMFXP-30-2	Heat Transfer and Power 2023-24	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 2024-25	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:

Framework for higher education qualifications (FHEQ)

Qualification characteristics for Foundation degrees

UWE Bristol 2020 Strategy document

Guidance on how to meet the Learning Outcome requirements for Accreditation (IET Academic Accreditation)

The IET Handbook of Learning Outcomes for BEng and MEng Programmes

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.