Programme Specification

Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS} [UCS]

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Contents

Section 1: Key Programme Details

Part A: Programme Information

Programme title: Electrical, Electronic and Control Engineering with Nuclear {Apprenticeship-UCS} [UCS]

Highest award: BEng (Hons) Electrical, Electronic and Control Engineering with Nuclear

Interim award: BEng Electrical, Electronic and Control Engineering with Nuclear

Interim award: DipHE Electrical, Electronic and Control Engineering with Nuclear

Interim award: CertHE Electrical, Electronic and Control Engineering with 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

Apprenticeship: ST0289

Modes of delivery: Full-time

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

For implementation from: 01 September 2026

Programme code: H69042

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The BEng Electrical, Electronic and Control Engineering programme provides the knowledge qualification for a degree apprenticeship under the level 6 Nuclear Science/Engineer standard. The degree covers a range of disciplines such as nuclear science, electromechanical systems, power generation and transmission, fluid dynamics, heat transfer, instrumentation and control and is designed to produce graduate engineers that are able to make an immediate contribution to employment within the nuclear sector.

The degree meets priorities identified by the UK Government, local and regional priorities which encompasses Nuclear New Build, SMR's, Decommissioning, Generation and Defence 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 the sector. A modular block week delivery model has been developed to provide access to work-based learners. This programme maybe delivered over a 4 or 5 year delivery duration depending on the apprentices employer requirements and agreed within the tripartit agreement. In alignment with apprenticeship standards and associated regulatory requirements, this programme also forms part of the apprenticeship tripartite agreement.

Features of the programme:

Educational Aims: The graduate shall maintain and manage applications of current and developing technology, undertake engineering design, development, construction and operation within the specialism of Electrical, Electronic and Control Engineering.

On completion the graduate will be able to use the knowledge, skills and behaviours developed to enable systems and equipment to operate safely, efficiently and in an environmentally sustainable way, meeting the requirements set out by the sector and those of the Professional Body Institutions. They will have a fundamental and core knowledge of engineering / science principles and practices and will be able to demonstrate knowledge and skills that typically will include design, plant performance enhancements, operational management, project management and maintenance of safety standards utilising analytical thinking to provide innovative solutions to meet today's challenges and those in the future we don't yet know. They will also demonstrate good communication and team skills and the ability to communicate in a variety of forms to all levels within an organisation.

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 and be able to use advanced techniques of analysis, synthesis and simulation, and implementation 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 be capable of analysis of the behaviour of complex systems within a 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. Be able to work in a largely unsupervised way to undertake an individual research project and present the findings in a professional manner.

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 learner's learning of applying engineering principles in a commercial setting.

PO9. Demonstrate knowledge of the industry and the business, political and community environment in which organisations operate, ethical practice and codes of conduct.

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.

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.

The Nuclear Scientist and Engineer Apprenticeship Standard define the mandatory qualification requirements which all apprentices must achieve in order to complete an apprenticeship. Alongside the development of foundation and development competencies, apprentices must achieve a BEng(Hons) which will be stipulated by the employer, in this case the employer has stipulated the BEng(Hons) Electrical, Electronic and Control Engineering with Nuclear.

The 40-credit level 6 project module is the individual dissertation module for the

degree and also forms the synoptic assessment for the degree apprenticeship. The work carried out in the project module directly feeds into the end point assessment of the degree apprenticeship.

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

Students on the 4 year programme must take 120 credits from the modules in Year 1.

Students on the 5 year programme must take 60 credits from the modules in Year 1.

Year 1 Compulsory Modules (4 Year)

Students on the 4 year programme must take 120 credits from the modules in Compulsory Modules (4 Year).

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 1 Compulsory Modules (5 Year)

Students on the 5 year programme must take 60 credits from the modules in Compulsory Modules (5 Year).

Module Code	Module Title	Credit
UFMFRP-30-1	Nuclear Science, Materials and Design 2026-27	30
UFMFSP-30-1	Solid Mechanics 2026-27	30

Year 2
Students on the 4 year programme must take 90 credits from the modules in Year 1.

Students on the 5 year programme must take 60 credits from the modules in Year 1.

Year 2 Compulsory Modules (4 Year)
Students on the 4 year programme must take 90 credits from the modules in Compulsory Modules (4 Year).

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

Year 2 Compulsory Modules (5 Year)
Students on the 5 year programme must take 60 credits from the modules in Compulsory Modules (5 Year).

Module Code	Module Title	Credit
UFMFQP-30-1	Electromechanical Systems Engineering 2027-28	30
UFMFTP-30-1	Thermofluidic Dynamics 2027-28	30

Year 3
Students on the 4 year programme must take 90 credits from the modules in Year 1.

Students on the 5 year programme must take 90 credits from the modules in Year 1.

Year 3 Compulsory Modules (4 Year)
Students on the 4 year programme must take 90 credits from the modules in Compulsory Modules (4 Year).

Module Code	Module Title	Credit

UFMFYP-30-2	Advanced Nuclear Science and Project Management 2028-29	30
UFMF8Q-30-3	Electronic Control Systems Design 2028-29	30
UFMF7Q-30-3	Electronic Systems 2028-29	30

Year 3 Compulsory Modules (5 Year)
Students on the 5 year programme must take 90 credits from the modules in Compulsory Modules (5 Year).

Module Code	Module Title	Credit
UFMFUP-30-2	Electrical Supply and Machines 2028-29	30
UFMFWP-30-2	Electromechanical Systems Analysis 2028-29	30
UFMFVP-30-2	Electromechanical Systems and Design 2028-29	30

Year 4
Students on the 4 year programme must take 60 credits from the modules in Year 4.

Students on the 5 year programme must take 90 credits from the modules in Year 4.

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

Module Code	Module Title	Credit
UFMFBQ-20-3	Industrial Nuclear Science and Technology 2029-30	20
UFMFXL-40-3	Nuclear Apprenticeship Project 2029-30	40

Year 4 Compulsory Modules (5 Year)
Students on the 5 year programme must take 90 credits from the modules in Compulsory Modules (5 Year).

Module Code	Module Title	Credit

UFMFYP-30-2	Advanced Nuclear Science and Project Management 2029-30	30
UFMF8Q-30-3	Electronic Control Systems Design 2029-30	30
UFMF7Q-30-3	Electronic Systems 2029-30	30

Year 5
Students on the 5 year programme must take 60 credits from the modules in Year 5.

Year 5 Compulsory Modules (5 Year)
Students on the 5 year programme must take 60 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFBQ-20-3	Industrial Nuclear Science and Technology 2030-31	20
UFMFXL-40-3	Nuclear Apprenticeship Project 2030-31	40

Part C: Higher Education Achievement Record (HEAR) Synopsis
The degree provides graduates with 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 and is 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)
The IET Handbook of Learning Outcomes for BEng and MEng Programmes
Nuclear Scientist and Nuclear Engineer Apprenticeship Standard as approved (Sept 2015). https://www.instituteforapprenticeships.org/apprenticeship-standards/nuclear-scientist-and-nuclear-engineer-degree/

Part E: Regulations

Approved to University Regulations and Procedures.