SECTION 1: KEY PROGRAMME DETAILS

This section provides students with key details about their programme.

PROGRAMME INFORMATION	
Final Award Title	BEng (Hons) Mechanical Engineering (Nuclear)
Default Award Title (Exit Award)	N/A
Interim Award Titles (Exit Awards)	BEng Mechanical Engineering (Nuclear)
Awarding Institution	UWE Bristol
Teaching Institutions	UWE Bristol
Partner Institutions	None
Delivery Locations	Frenchay Campus
Study Abroad / Exchange / Credit Recognition	N/A
Faculty Responsible For Programme	Environment and Technology
Department Responsible For Programme	Engineering, Design and Mathematics
Professional Statutory or Regulatory Body (PSRB) Links	Institute of Mechanical Engineers (IMechE)
Apprenticeship	Level 6 Nuclear Scientist/Engineer standard
Mode of Delivery	PT
Entry Requirements	The University's Standard Entry Requirements Tariff points as appropriate for the year of entry - up to date requirements are available through the courses database.
For Implementation From	Implementation from September 2020
Programme Codes	FOR QUALITY ENHANCEMENT TEAM TO COMPLETE ISIS: H30N43

PART B: FOR STUDENT AND ACADEMIC SERVICES COMPLETION ONLY	
First UVP Approval Date	**Date of first UVP approval**
Date of Last Revalidation (through Programme Enhancement Review)	**Dates of subsequent PERs and revalidations**
Next Programme Enhancement Review Date	**Academic year in which next Programme Enhancement Review due (6 years from initial approval or last PER)**

SECTION 2: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

This section provides students with an overview of the programme, its aims and its learning outcomes. It sets out what prospective and registered students can expect to know, understand and be able to do on successful completion of the programme.
Please write this section in the first person, addressing your prospective students.

PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

1. (Programme) Overview (c. 400 words)

The curriculum is delivered as a level 6 top-up programme for degree apprenticeship students requiring an engineering education closely aligned to engineering practice with specific relevance to the nuclear sector. Students entering the programme will have successfully completed FdSc Mechanical Engineering which guarantees accredited learning can be awarded to level 4 and level 5 modules. 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. Specialist nuclear knowledge is provided at level 6. The inclusion of a 40 credit level 6 project is a requirement of the Nuclear Scientist/Engineer integrated degree apprenticeship standard and forms part of the end point assessment.

Professional development is placed at the heart of the curriculum. From day one, students are taken on a journey from student engineer to graduate engineer, preparing them for life as an engineering professional. 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.

Mechanical engineers are employed in the nuclear sector in the creation, maintenance and improvement of engineering operations. Consequently mechanical 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. Mechanical engineering topics of engineering analysis, design, structures, stress analysis, dynamics, materials, thermofluids, systems and manufacturing are developed throughout the core and taken to an advanced level in the optional modules. Sufficient electrical and electronic content has been included in the core programme for the study of engineering problems involving electromechanical and mechatronic systems.

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 project weeks to bring students together in problem finding and solution spaces where students are able to interact with each other, academics and external practitioners.

The integration of knowledge, skills and practice allows the tackling of real engineering challenges and encourage students to engage with the wider role that mechanical 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 and is designed to meet the demands of employers and degree apprentices.

PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

2. Educational Aims (c. 4-6 aims)

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

1. be able to work as a graduate mechanical engineer across the engineering sector able to work as an effective member of a multidisciplinary team.

2. have acquired the knowledge and understanding of scientific principles and methods necessary to underpin an education in engineering with specific relevance to the nuclear sector. The programme will provide insight into, and practical skills in, the creation and maintenance of complex engineering products and will explore the environmental impact of engineering.

3. have demonstrated an ability to integrate their knowledge and understanding of core subject material in order to solve a substantial range of engineering problems, including ones of a complex nature either individually or as part of a team.

4. 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.

5. have the requisite academic knowledge, skills and preparation for progression to study for higher degrees in appropriate engineering disciplines.

PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

3. Programme Learning Outcomes (c. 6-8 outcomes)

Programme (Learning) Outcomes (POs)

No.	PO Text
PO1	apply established and novel mechanical analysis concepts to solve engineering problems involving design, operations and manufacture that arise across mechanical engineering applications including those that arise in the nuclear sector.
PO2	use systems incorporating digital hardware, software, communication, processing algorithms, interfacing circuits and parameter sensing and actuating devices.
PO3	model mechanical engineering systems and be able to specify and assess technical designs.
PO4	understand the manufacturing, financial and marketing implications of design proposals.
PO5	identify the links between design, manufacturing and production management and assess the capabilities of manufacturing systems software used in the design, maintenance and improvement of manufacturing facilities.
PO6	Communicate and operate effectively either as individuals or as members of a team.
PO7	pursue independent study, undertake enquiry into novel and unfamiliar concepts and implement change in an engineering environment.
PO8	make considered judgements and decisions on complex engineering issues in which not all facts and consequences are accurately known.

4. Programme (Learning) Outcomes (POs) Mapping

Programme Outcomes: Level 4 and 5 modules	Module No: UFMFKS-30-1 (c)	Module No: UFMFLS-30-1 (c)	Module No: UFMFMS-30-1 (c)	Module No: UFMFNS-15-1 s (c)	Module No: UFMFPS-15-1 (c)	Module No: UFMFQS-15-2 (c)	Module No: UFMFRS-15-2 (c)	Module No: UFMFSS-30-2 (c)	Module No: UFMFTS-30-2 (c)	Module No: UFMFL8-15-2 (c)	Module No: UFMFUS-15-2 (c)
PO1:	x	x	x						x		x
PO2:											x
PO3:		x	x	x	x			x	x	x	x
PO4:	x	x									
PO5:	x	x									x
PO6:	x	x	x	x	x	x	x	x	x	x	x
PO7:		x	x	x	x						
PO8:	x		x	x	x				x	x	

4. Programme (Learning) Outcomes (POs) Mapping

Programme Outcomes: Level 6 Option numbering indicates mutually exclusive options	Module No: UFMFXL-40-3 (core)	Module No: UFMFYL-20-3 (core)	Module No: UFMFV8-15-3 (core)	Module No: UFMFNQ-15-3 (core)	Module No: UFMFU6-15-3 (op 2.1)	Module No: UFMF7K-15-3 (op 2.1)	Module No: UFMF7T-15-3 (op 2.2)	Module No: UFMFTA-15-3 (op 2.2)	Module No: UFMFYS-15-3 (op 2.3)	Module No: UFMFP9-15-3 (op 2.3)	Module No: UMFFSL-15-3 (op 2.4)	Module No: UFMFYJ-15-3 (op 2.4)	Module No: UFMFXJ-15-3 (op 2.5)
PO1:	x	x			x	x	x	x	x	x	x	x	x
PO2:	x		x								x	x	
PO3:	x				x	x	x	x		x	x	x	x
PO4:			x	x					x				
PO5:	x								x				
PO6:	x		x	x	x	x	x	x	x	x	x	x	x
PO7:	x	x	x	x			x	x			x	x	
PO8:	x	x	x							x	x	x	

PART B: PROGRAMME STRUCTURE

Structure (part-time)

This structure diagram demonstrates the student journey from entry through to Graduation for a typical **part-time student** including:

- level and credit requirements
- interim award titles
- compulsory and optional modules

Accredited Learning: Students entering this award will have successfully achieved the UWE FdSc Mechanical Engineering. Consequently, Accredited Learning credit must be automatically awarded for the level 4 and level 5 modules listed below for the awarding of credit against this programme.

Level 4: 120 credits

Module Code	Module Title	Level	Credit
UFMFKS-30-1	Engineering Practice 1	4	30
UFMFLS-30-1	Solid Mechanics, Materials and Manufacturing	4	30
UFMFMS-30-1	Dynamics Modelling and Simulation	4	30
UFMFNS-15-1	Thermofluids	4	15
UFMFPS-15-1	Applied Electrical Technology	4	15

Level 5: 120 credits

Module Code	Module title	Level	Credit
UFMFSS-30-2	Structural Mechanics	5	30
UFMFTS-30-2	Applied Thermofluids	5	30
UFMFQS-15-2	Engineering Practice 2	5	15
UFMFRS-15-2	Engineering Research	5	15
UFMFL8-15-2	Dynamics	5	15
UFMFUS-15-2	Systems Design	5	15

Year: 1.1

Interim award: BEng Mechanical Engineering (Nuclear) requires 300 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

Compulsory modules

Module Code	Module title	Level	Credit
UFMFVA-15-3	Group Design and Integration Project	6	15
UFMFNQ-15-3	Professionalism for Engineers	6	15

Optional modules Set 1: Select 30 credits from

Module Code	Module title	Level	Credit
UFMFU6-15-3 UFMF7K-15-3	Composite Engineering **or** Materials and Structures for Special Applications	6	15
UFMF7T-15-3 UFMFTA-15-3	Advanced Heat Transfer **or** Thermofluid Systems	6	15

UFMFSL-15-3 UFMFYJ-15-3	Integrated Electromechanical Systems **or** Control Engineering	6	15
UFMFYS-15-3 UFMFP9-15-3	Advanced Manufacturing Technology **or** Mechanics of Materials	6	15
UFMFXJ-15-3	Vibrational Dynamics	6	15

Year: 1.2

Interim award: BEng Mechanical Engineering (Nuclear) requires 300 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

Compulsory modules

Module Code	Module title	Level	Credit
UFMFXL-40-3	Nuclear Apprenticeship Project	6	40
UFMYL-20-3	Nuclear Knowledge	6	20

PART C: HIGHER EDUCATION ACHIEVEMENT RECORD (HEAR) SYNOPSIS

Graduates of this programme will be equipped with a broad understanding of 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 related to the nuclear engineering sector.

PART D: EXTERNAL REFERENCE POINTS AND BENCHMARKS

Set out which reference points and benchmarks have been used in the design of the programme:

- QAA UK Quality Code for HE
- Framework for higher education qualifications (FHEQ)
- Subject benchmark statement for Higher Education qualifications in engineering (Feb 2015)
- Strategy 2030
- University policies
- Staff research projects
- Relevant PSRB requirements: AHEP3
- Industrial Advisory Board
- Level 6 Degree Apprenticeship Standard: Nuclear Scientist/Engineer

PART E: REGULATIONS

B: Approved variant to University Academic Regulations and Procedures

The following variant regulations have been approved by the University Regulations to comply with conditions set out by Engineering Council UK.

- The degree classification for the 360 credit honours degree BEng (Hons) Mechanical Engineering (Nuclear) is based upon
  - the best marks for 100 credits at level 6 and the marks achieved for the remaining 20 credits at level 6.

- Marks achieved for the 100 level 6 credits are weighted three times the value of the marks for the remaining 20 credits at level 6.
- The calculation at level 6 using the best 100 credits must always use the full credit and mark for the level 6 project module UFMFX8-30-3 followed by the best marks associated with the remaining level 6 credits.
- Where the credit size of the best marks associated with the remaining level 6 modules would give a credit total greater than 100, only the relevant portion of credit is counted. The unused credit may be counted towards the calculation involving the worst 20 credits achieved at level 6.

- For students on this programme it is only possible to condone a maximum of 30 credits.