SECTION 1: KEY PROGRAMME DETAILS

This section provides students with key details about their programme.

PROGRAMME INFORMATION	
Final Award Title	FdSc Mechatronics
Default Award Title (Exit Award)	N/A
Interim Award Titles (Exit Awards)	CERTHE Mechatronics
Awarding Institution	UWE Bristol
Teaching Institutions	UWE Bristol
Partner Institutions	None
Delivery Locations	Gloucestershire College University Centre Somerset University Centre Weston
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	None
Apprenticeship	Forms part of the knowledge qualification for the level 6 standard ST0025
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: H730

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 designed for students seeking an engineering education closely aligned to engineering practice. 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.

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.

Mechatronics engineers are employed throughout the engineering sector in the creation, maintenance and improvement of engineering operations. Consequently mechatronics 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. Mechatronics topics of engineering analysis, design, electronics, mechanical 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 tacking 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.

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.

PART A: PROGRAMME OVERVIEW, AIMS and LEARNING OUTCOMES

2. 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.

3. 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.

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 level 6 programmes in appropriate engineering disciplines.

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

Programme (Learning) Outcomes (POs)

No.	PO Text
PO1	Apply scientific and mathematical principles necessary to underpin mechatronics and associated mathematical methods, computational tools and notation used in the evaluation, integration and analysis of mechatronics problems
PO2	use systems incorporating digital hardware, software, communication, processing algorithms, interfacing circuits and parameter sensing and actuating devices.
PO3	model mechatronic systems and be able to specify and assess technical designs.
PO4	understand the manufacturing, financial and marketing implications of design proposals.
PO5	apply advanced problem-solving skills and technical knowledge, using a systems approach, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance and disposal.
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: UFMFFT-15-1 (c)	Module No: UFMFGT-15-1 (c)	Module No: UFMFJT-30-1 (c)	Module No: UFMFQS-15-2 (c)	Module No: UFMFRS-15-2 (c)	Module No: UFMFMT-30-2 (c)	Module No: UFMFQ8-30-2 (c)	Module No: UFMFPT-15-2 (c)	Module No: UFMFUS-15-2 (c)
PO1:	x	x	x					x	x	x	x
PO2:								x	x	x	x
PO3:		x	x	x	x					x	x
PO4:	x	x									
PO5:	x	x	x					x		x	x
PO6:	x	x		x	x	x	x		x		x
PO7:		x		x	x			x	x		
PO8:	x			x	x			x			

PART B: PROGRAMME STRUCTURE

1. Structure (Part-time)

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

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

Year: 1

Interim award: CertHE Mechanical Engineering requires 120 credits at the appropriate level. Please refer to UWE Academic Regulations for details.

Compulsory modules

Module Code	Module Title	Level	Credit
UFMFKS-30-1	Engineering Practice 1	4	30
UFMFLS-30-1	Solid Mechanics, Materials and Manufacturing	4	30
UFMFJT-30-1	Principles of Electrical Engineering	4	30
UFMFFT-15-1	Mathematical Modelling for Electronics and Robotics	4	15
UFMFGT-15-1	Programming for Engineers	4	15

Year: 2

Compulsory modules

Module Code	Module title	Level	Credit
UFMFQS-15-2	Engineering Practice 2	5	15
UFMFMT-30-2	Signals and Systems	5	30
UFMFPT-15-2	Analogue Electronic Systems	5	15

Year: 3

Compulsory modules

Module Code	Module title	Level	Credit
UFMFRS-15-2	Engineering Research	5	15
UFMFQ8-30-2	Electrical Technology	5	30
UFMFUS-15-2	Systems Design	5	15

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.

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 (October 2019)
- Strategy 2030
- University policies
- Staff research projects
- Relevant PSRB requirements: AHEP3 (Note programme is not accredited but PSRB requirements have been used to ensure progression to level 6 accredited programmes)
- Level 6 Degree Apprenticeship standard ST0151
- Industrial Advisory Board

PART E: REGULATIONS

A: Approved to University Academic Regulations and Procedures