



## Programme Specification

Mechanical Engineering {Apprenticeship-UCW}

[Sep][FT][UCW][3yrs]

Version: 2021-22, v2.0, 01 Jun 2021

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## Section 1: Key Programme Details

### Part A: Programme Information

**Programme title:** Mechanical Engineering {Apprenticeship-UCW}  
[Sep][FT][UCW][3yrs]

**Highest award:** FdSc Mechanical Engineering

**Interim award:** CertHE Mechanical Engineering

**Awarding institution:** UWE Bristol

**Affiliated institutions:** University Centre Weston

**Teaching institutions:** University Centre Weston, UWE Bristol

**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:** ST0025; ST0289

**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:** H30643-SEP-FT-UW-H30E

## Section 2: Programme Overview, Aims and Learning Outcomes

### Part A: Programme Overview, Aims and Learning Outcomes

**Overview:** 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.

Mechanical engineers are employed throughout the engineering 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.

**Educational Aims:** As a result of successful completion of this programme, a student will

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

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.

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.

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.

have the requisite academic knowledge, skills and preparation for progression to level 6 programmes in appropriate engineering disciplines.

### **Programme Learning Outcomes:**

#### **Programme Learning Outcomes**

- PO1. Apply established mechanical analysis concepts to solve engineering problems involving design, operations and manufacture that arise across mechanical engineering applications.
- 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.

### **Part B: Programme Structure**

#### **Year 1**

This programme is typically taught across both University Centre Weston and UWE Bristol.

#### **Year 1 Compulsory Modules**

<b>Module Code</b>	<b>Module Title</b>	<b>Credit</b>
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UFMFPS-15-1	Applied Electrical Technology 2021-22	15
UFMFMS-30-1	Dynamics Modelling and Simulation 2021-22	30
UFMFKS-30-1	Engineering Practice 1 2021-22	30
UFMFSL-30-1	Solid Mechanics, Materials and Manufacturing 2021-22	30
UFMFNS-15-1	Thermofluids 2021-22	15

## Year 2

### Year 2 Compulsory Modules

Module Code	Module Title	Credit
UFMFQS-15-2	Engineering Practice 2 2022-23	15
UFMFSS-30-2	Structural Mechanics 2022-23	30
UFMFUS-15-2	Systems Design 2022-23	15

## Year 3

### Year 3 Compulsory Modules

Module Code	Module Title	Credit
UFMFTS-30-2	Applied Thermofluids 2023-24	30
UFMFL8-15-2	Dynamics 2023-24	15
UFMFRS-15-2	Engineering Research 2023-24	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**

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 (Note programme is not accredited but PSRB requirements have been used to ensure progression to level 6 accredited programmes)

Industrial Advisory Board

#### **Part E: Regulations**

Approved to University Academic Regulations and Procedures