



## Programme Specification

# Mechanical Engineering with Manufacturing {Apprenticeship-GlosCol} [UWE]

Version: 2026-27, v1.0, Validated

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## Section 1: Key Programme Details

### Part A: Programme Information

**Programme title:** Mechanical Engineering with Manufacturing {Apprenticeship-GlosCol} [UWE]

**Highest award:** BEng (Hons) Mechanical Engineering with Manufacturing

**Default award:** BEng Mechanical Engineering with Manufacturing

**Default award:** DipHE Mechanical Engineering with Manufacturing

**Default award:** CertHE Mechanical Engineering with Manufacturing

**Awarding institution:** UWE Bristol

**Affiliated institutions:** Gloucestershire College

**Teaching institutions:** Gloucestershire College

**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:** ST0025 V1.2

**Modes of delivery:** Full-time

**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:** 01 September 2026

**Programme code:** H3HA13

## 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.

**Features of the programme:** Immersive Project Weeks create student engineer community within curriculum and new building

Integrated Learning Framework and use of problem-based and project-based learning

Industry informed curriculum

Engineering Practice modules to scaffold the journey from student engineer to graduate engineer

Professional and personal development embedded throughout all levels of the programme

Interdisciplinary projects

Real engineering problems in core curriculum where students can explore industrial, environmental and societal impact of discipline

Mathematics skills aligned taught in engineering context

**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 complex 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 substantial range of engineering problems, including ones of a complex nature 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 study for higher degrees in appropriate engineering disciplines.

### **Programme Learning Outcomes:**

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

### **Programme Learning Outcomes**

- PO1. Apply established and novel 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.

**Assessment strategy:** The assessment strategy for the new curriculum is designed to connect topics and levels within the curriculum and to enable students to reflect upon their development. The assessment methods on the programme are aligned to the requirements of the Institution of Mechanical Engineers who place high importance on the demonstration of authentic and verifiable learning outcomes for each individual student. This consideration can lead to a reliance on written examinations and limit the scope for project or group work activities. We have therefore widened the range of activities within our examinations to include more open book examinations, questions based on pre-seen scenarios, questions that build on practical laboratory-based activities and computer-based examinations where students demonstrate the use of software to solve engineering problems.

The above Factors influence and inform the design of this programme's assessment strategy.

In year 1 the Professional Skills for Engineers module develops professional attributes and engineering habits of mind through activities and assessments that encourage reflections through a structured portfolio and presentations. As part of the portfolio we have the concept of a "passport" where students demonstrate key professional skills such as workshop skills, library skills and health and safety awareness. This "replicates" part of the experience of an engineering apprentice but for one who is working in an academic environment.

The assessment strategies of the other core level 4 modules each designed to make sure that the content covered is connected. Solid Mechanics, Materials and Manufacturing and Dynamics Modelling and Simulation are strong examples of the design as students are assessed on key technical material during or at the end of the first semester, then moving to an exercise where the knowledge and skill is assessed in the context of an engineering design problem and then with a controlled assessment at the end of the module. The written examination references and builds upon design activities undertaken during the module and provides an efficient vehicle for integrating the different module elements and assessing individual knowledge. The assessment strategy is programmatic and connects the two immersive project weeks with the task from the first feeding into the second where a more technical treatment is considered bringing the content from these two modules together.

The level 4 module Thermofluids has an examination where examination questions are based around previously completed laboratory sessions, an activity that should mean that they are fully engaged and aware of how to prepare for that assessment. The assessment at level 4 should create the culture required for students to embrace active learning styles., an activity that should mean that they are fully engaged and aware of how to prepare for that assessment. The assessment at level 4 should create the culture required for students to embrace active learning styles.

At level 5 Structural Mechanics provides an example of how content and assessment is developed from level 4 to level 5. The immersive project weeks are used by the project orientated modules Project Management and Engineering Research. The module Project Management takes over from the level 4 version and is a module that relies on the importance and creation of the team with key roles allocated and the dynamics of the team monitored through a regular peer assessment process. The problem to be tackled and forms the vehicle for the assessment is designed to be motivational and accessible and is assessed through group presentation. The assessments for the manufacturing modules imitate the requirements of industrial reporting required of graduate engineers. These range from the audits in the Quality systems control module to the continuous improvement bench marking in the Lifecycle Engineering for Manufacturing Systems. This theme of industrial reporting

is continued into the level 6 manufacturing and systems modules.

Engineering Research is designed to have a significant impact on our operation. Students work in groups to scope out research ideas. They then work with technical and academic staff to develop a project proposal that will pitched as an individual presentation that will feed forward to an individual written proposal. Students should be able to start their individual level 6 project from the very start of that academic year.

In the final year of the programme, students are able to work on individual and group projects to showcase their understanding and skill as engineering practitioners. The design of the Engineering Research module will strengthen performance, management and consistency of the End Point Assessment Project. Optional modules provide the opportunity to pursue specialist areas of materials, and a variety of assessment approaches are used for these modules. The interdisciplinary Group Design and Integration Project t brings mechanical, automotive, electronic engineers and roboticists together on projects that are electromechanical in nature. Typical problem fields could involve projects in biomechanics, assistive living, autonomous vehicles, robotics or electric powered vehicles. Projects from these areas would each have the potential to demonstrate modern developments and impact of engineering. The assessment for this module replicates a professional environment with group design review meetings forming part of the assessment.

**Student support:** Espresso Engineering and Espresso Maths drop-in support stations

Personality and professional strengths finding activity at start of programme

Mathematics diagnostic testing and follow-up interventions early in year 1

Development of group work skills and attributes

Academic mentors to provide continuity of support to SpLD students

Academic personal and degree apprentice tutors

Personal degree apprentice training coordinator

Video capture of course content delivery

E-assessments for rapid feedback

## Part B: Programme Structure

### Year 1

This programme is typically taught across both Gloucester College and UWE Bristol.

Year 1 will be delivered at Gloucester College.

### Year 1 Compulsory Modules

The student must take 120 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMEAS-15-1	Professional Skills for Engineers 2026-27	15
UFMEB9-15-1	Design Fundamentals And Manufacturing Workshop 2026-27	15
UFMFNS-15-1	Thermofluids 2026-27	15
UFMFPS-15-1	Applied Electrical Technology 2026-27	15
UFMFMS-30-1	Dynamics Modelling and Simulation 2026-27	30
UFMFLS-30-1	Solid Mechanics, Materials and Manufacturing 2026-27	30

### Year 2

The student must take 90 credits from the modules in Year 2.

Year 2 will be delivered at Gloucester College.

### Year 2 Compulsory Modules

The student must take 90 credits from the modules in Compulsory modules.

Module Code	Module Title	Credit
UFMFUS-15-2	Systems Design 2027-28	15
UFMFRS-15-2	Engineering Research 2027-28	15

UFMEB5-15-2	Project Management for Engineers 2027-28	15
UFMFXA-15-2	Quality Control Systems 2027-28	15
UFMFSS-30-2	Structural Mechanics 2027-28	30

### Year 3

The student must take 75 credits from the modules in Year 3.

Year 3 will be delivered at UWE.

### Year 3 Compulsory Modules

The student must take 60 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFMFVH-15-2	Lifecycle Engineering for Manufacturing Systems 2028-29	15
UFMEAR-15-3	Professionalism for Engineering Apprentices 2028-29	15
UFMFSL-15-3	Integrated Electro-Mechanical Systems 2028-29	15
UFMFP7-15-2	Manufacturing Technology 2028-29	15

### Year 3 Optional Modules

The student must take 15 credits from the modules in Optional Modules.

Module Code	Module Title	Credit
UFMFU6-15-3	Composite Engineering 2028-29	15
UFMF7K-15-3	Materials and Structures for Special Applications 2028-29	15

### Year 4

The student must take 75 credits from the modules in Year 4.

Year 4 will be delivered at UWE.

**Year 4 Compulsory Modules**

The student must take 75 credits from the modules in Compulsory Modules.

Learners must have achieved 330 credits before they can pass through gateway and take the End-Point Assessment module UFMEBH-30-3.

<b>Module Code</b>	<b>Module Title</b>	<b>Credit</b>
UFMFPB-15-3	Reliability Engineering and Asset Management 2029-30	15
UFMEBH-30-3	Mechanical Engineering with Manufacturing (Integrated) End Point Assessment 2029-30	30
UFMFV8-15-3	Group Design and Integration Project 2029-30	15
UFMFTB-15-3	Lean Factory Design 2029-30	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, project management and manufacturing.

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

2022)

Qualification characteristics for Degree Apprenticeships

Strategy 2030

University policies

Staff research projects

Relevant PSRB requirements: AHEP4

Industrial Advisory Board

Manufacturing Engineer Degree Apprenticeship Standard Aerospace Engineer  
Degree Apprenticeship Standard

Appendix 1 - presents the Programme/Apprenticeship Standard mapping to the  
manufacturing engineer standard (ST0025 1.2)

### **Part E: Regulations**

Approved variants to University Academic Regulations and Procedures.

The following relate to UFMEBH-30-3 Mechanical Engineering with Manufacturing  
(Integrated) End Point Assessment:

Regulation D5 (Requirements to pass a module):

This module has two assessment tasks, each with a mark expressed as a grade:

Task 1: Project with report, presentation and questioning is graded Pass/Fail

Task 2: Professional discussion underpinned by a portfolio is graded  
Distinction/Pass/Fail.

The overall module outcome is graded Distinction/Pass/Fail in line with the  
Manufacturing Engineer apprenticeship standard's assessment plan.

Regulations D6 (Failure of a Module) and D7 (Retaking a Module):

For the purposes of the apprenticeship outcome only, a resit or retake will be capped at a Pass, unless the university determines there are exceptional circumstances requiring a resit or retake. There is no capping of this module for the degree outcome.

The apprentice's employer will need to agree that either a resit or retake is an appropriate course of action.

Regulation D11 (Arrangements for Awards Classifications):

The End-Point Assessment module grade will count towards the overall degree classification.

Additional requirements:

Compensation is not permitted for an End-Point Assessment module.

Approved to University Regulations and Procedures

The PSRB requirements below are permitted within the regulations.

The following requirements apply to awards which have been accredited by a PSRB that comes under the auspices of the Engineering Council UK:

- The permitted maximum compensated credit is 30 credits for a Bachelors or Integrated Masters degree, and a maximum of 20 credits in a Masters degree.
- The awarding of compensated credit may be considered for an overall module mark in the range of 30% to 39% for Levels 4-6 and 40%-49% for Level 7.
- Major individual and group-based project modules must not be compensated.