



Programme Specification

Mechanical Engineering and Technology (Mechatronics) {Foundation} [GCET]

Version: 2023-24, v1.0, 10 Mar 2023

Contents

Programme Specification	1
Section 1: Key Programme Details	2
Part A: Programme Information	2
Section 2: Programme Overview, Aims and Learning Outcomes	3
Part A: Programme Overview, Aims and Learning Outcomes	3
Part B: Programme Structure.....	6
Part C: Higher Education Achievement Record (HEAR) Synopsis	8
Part D: External Reference Points and Benchmarks	8
Part E: Regulations	8

Section 1: Key Programme Details

Part A: Programme Information

Programme title: Mechanical Engineering and Technology (Mechatronics)
{Foundation} [GCET]

Highest award: DipHE Mechanical Engineering and Technology (Mechatronics)

Interim award: CertHE Mechanical Engineering and Technology

Awarding institution: UWE Bristol

Affiliated institutions: Global College of Engineering and Technology (GCET)

Teaching institutions: Global College of Engineering and Technology (GCET)

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: Yes

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: Not applicable

Mode of delivery: Full-time

Entry requirements: Applicants holding the following qualifications are eligible to apply for entry to Level 0 of the programme:

Thanawiya amma (General Secondary School Certificate) or the one year certificate with an overall mark of 70%, or above

Thanawiya amma (General Secondary School Certificate) with an overall mark of 65% or above PLUS a mark of over 60% in each stage of the GCET Foundation

Studies Programme.

PLUS

A minimum overall score of IELTS 5.5, or equivalent

Further details of entry requirements for applicants holding the IB Diploma or A Levels can be found at

<http://www1.uwe.ac.uk/whatcanistudy/applyingtouwe/undergraduateapplications/entryrequirements.aspx>

**Applicants holding more advanced qualifications may be considered for entry to the programme with advanced standing on an individual basis through the accredited learning.

For implementation from: 01 October 2023

Programme code: H39G00

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 HE Diploma 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 to explore mechanical fields, 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 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 modules to bring students together in problem finding and providing suitable engineering solutions.

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 and technology in industry and society.

The Programme is delivered in full-time mode of study. We have a number of flexible entry routes to the programme that promote industrial collaboration and the advancement of working individuals.

The programme has 3 pathways to allow students to select their specialism within the field of mechanical engineering and its related technologies, these are Vehicle

Technology, Manufacturing and Mechatronics. The design of the programme, and in particular the focus on the development of engineering habits and behaviours required by engineering organisations of diploma holders is intended to ensure that the Educational Aims and Learning Outcomes are relevant to full-time learners with limited or no prior experience of the engineering profession.

Educational Aims: 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 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.

Have the requisite academic knowledge, skills and preparation for progression to the final year of an appropriate Bachelors level degree.

Programme Learning Outcomes:

On successful completion of this programme graduates will achieve the following 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 and technologies.
- PO2. Model mechanical engineering systems and be able to specify and assess technical designs.
- PO3. Describe the manufacturing, financial and marketing implications of design proposals.
- PO4. Review, assess and minimise the environmental impact of engineering solutions with a focus on public health and safety
- PO5. Communicate, manage and operate effectively both as individuals and as members of a team.
- PO6. Work effectively within the commercial, ethical and regulatory context of engineering processes, including sustainable development, risk management, health and safety and environmental legislation.

Part B: Programme Structure

Year 1

The student must take 120 credits from the modules in Year 1.

Year 1 Compulsory Modules

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

Module Code	Module Title	Credit
UFMFEG-30-0	Engineering Experimentation 2023-24	30
UFMFBG-30-0	Foundation Mathematics: Algebra and Calculus 2023-24	30
UFCFGK-30-0	Professional and Academic Skills 2023-24	30
UFCEXX-30-0	Program Design and Implementation 2023-24	30

Year 2

The student must take 120 credits from the modules in Year 2.

Year 2 Compulsory Modules

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

Module Code	Module Title	Credit
UFMFN7-15-1	C Programming 2024-25	15
UFMFN3-30-1	Design, Materials and Manufacturing 2024-25	30
UFMFJ9-30-1	Engineering Mathematics 2024-25	30
UFMFCA-15-1	Practical Electronics 2024-25	15
UFMFH3-30-1	Stress & Dynamics 2024-25	30

Year 3

The student must take 120 credits from the modules in Year 3.

Year 3 Compulsory Modules

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

Module Code	Module Title	Credit
UFMFV7-15-2	Control 2025-26	15
UFMF88-30-2	Design and Electromechanical Systems 2025-26	30
UFMFL8-15-2	Dynamics 2025-26	15
UFMFK9-15-2	Engineering Mathematics 2 2025-26	15
UFMFHM-15-2	Programmable Logic Controller Design 2025-26	15
UFMFHA-15-2	Project Management 2025-26	15
UFMFPK-15-2	Sensors, Transducers and Actuators 2025-26	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 analyse and apply 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

Industrial Advisory Board

Part E: Regulations

A: Approved to University Academic Regulations and Procedures