



## **Programme Specification**

### **Mechanical Engineering**

**(Manufacturing)[Feb][FT][BIET][12months]**

Version: 2021-22, v1.1, 11 Jan 2022

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## Section 1: Key Programme Details

### Part A: Programme Information

**Programme title:** Mechanical Engineering  
(Manufacturing)[Feb][FT][BIET][12months]

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

**Interim award:** BEng Mechanical Engineering (Manufacturing)

**Awarding institution:** UWE Bristol

**Affiliated institutions:** British Institute of Engineering and Technology, Sri Lanka

**Teaching institutions:** British Institute of Engineering and Technology, Sri Lanka

**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:** Not applicable

**Mode of delivery:** Full-time

**Entry requirements:** For the current entry requirements see the UWE public website

**For implementation from:** 01 February 2022

**Programme code:** H3X713-FEB-FT-BE-H3V7

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

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

**Overview:** The Mechanical Engineering (Manufacturing) programme is a variant of the BEng Mechanical Engineering award accredited by the Institute of Mechanical Engineers. The programme has been developed to provide future graduates with the effective theoretical and practical knowledge of a range of engineering principles and presents an exciting course of study that will prepare graduate engineers with a specialism for the design of systems involving mechanical and electro-mechanical components.

Graduates from the programme will have the intellectual, creative and personal qualities necessary for undertaking a leadership role and a depth of knowledge that will enable the application of new and emerging technologies to the solution of manufacturing problems.

Topics have been chosen to reflect the changing needs of industry covering established and novel mechanical analysis concepts to the solution of engineering problems involving design, operations and manufacture. The programme aims to develop practical professional graduate engineers able to make considered judgements and decisions on complex engineering issues in which not all facts and consequences are accurately known.

The programme is delivered in a way that develops technically competent individuals who think and communicate effectively and who can conduct inquiry, solve problems, undertake critical analysis and deliver effective mechanical and manufacturing system solutions in a constantly changing business context. It provides a solid foundation for lifelong learning, emphasising the development of knowledge, skills and professional values essential to the practice of systems development.

A wide range of expertise in mechanical engineering is developed that is relevant to

advanced manufacturing and the design of mechatronic systems. The programme covers a broad range of disciplines such as stress analysis, dynamics, electro-mechanical systems, control, materials and structures, reliability and Asset management, and manufacturing technology.

**Educational Aims:** The programme is designed to provide a rich combination of engineering analysis, skill in designing mechatronic engineering systems and creativity to meet the demands of the high tech manufacturing and automation for engineering practitioners.

The educational aims of the programme are to ensure that graduates:

have a sound knowledge and understanding of scientific and engineering principles to be used in their chosen engineering discipline.

demonstrate a capacity for innovative and creative design to further develop and improve existing systems and to generate new systems which meet required specifications;

have a broad knowledge and understanding of engineering theory, practices and applications and be able to use advanced techniques of analysis, synthesis and implementation in the field of mechatronics;

have developed the ability, interest and motivation to conduct research, independent study and keep abreast of future changes in technology and engineering practices;

be able to communicate clearly, concisely and persuasively

**Programme Learning Outcomes:**

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

**Programme Learning Outcomes**

- PO1. Apply scientific and mathematical principles necessary to underpin engineering and analytical tools in the analysis and solution of problems that arise in a mechanical and manufacturing engineering context.
- PO2. Create and verify engineering solutions to problems involving complexity and uncertainty.
- PO3. Show understanding and demonstrate applicability of a range of modelling and simulation for mechanical components and manufacturing processes and their fundamental limitations.
- PO4. Select and apply appropriate computer-based methods relating to the design, manufacture and control of mechanical and electro-mechanical components and systems.
- PO5. Apply experimental methods in the laboratory relating to engineering design, manufacture and test using relevant measurement equipment.
- PO6. Work effectively within the commercial, ethical, economic and legal context of engineering processes, including sustainable development, risk management, health and safety and environmental legislation.
- PO7. Understand and apply appropriate codes of practice and industry standards including an awareness of quality issues.
- PO8. Ability to be able to critically review available literature relevant to the subject discipline and demonstrate independent thinking in the design and development of solutions to real -world problems.

## Part B: Programme Structure

### Year 1

The entry point of this programme is at Level 5.2, 120 AL credits awarded at Level 4 and 60 credits awarded at Level 5.1 to students with suitable prior qualifications.

Students may also study the programme over a longer period part time. The duration is usually four terms (16 months).

### Year 1 Compulsory Modules Level 5

The student must take 60 credits from the modules in Compulsory Modules Level 5.

Module Code	Module Title	Credit
UFMF88-30-2	Design and Electromechanical Systems 2021-22	30

UFMFL8-15-2	Dynamics 2021-22	15
UFMFQA-15-2	Stress Analysis 2021-22	15

### Year 1 Compulsory Modules Level 6

The student must take 120 credits from the modules in Compulsory Modules Level 6.

Module Code	Module Title	Credit
UFMFYJ-15-3	Control Engineering 2021-22	15
UFMFX8-30-3	Individual Project BEng 2021-22	30
UFMFDY-30-3	Lean Manufacturing Technology 2021-22	30
UFMF7K-15-3	Materials and Structures for Special Applications 2021-22	15
UFMFP9-15-3	Mechanics of Materials 2021-22	15
UFMFPB-15-3	Reliability Engineering and Asset Management 2021-22	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**

Description of how the following reference points and benchmarks have been used in the design of the programme:

QAA UK Quality Code for HE and the QAA Engineering Benchmark 2015.  
Engineering Council, UK Accreditation of Higher Education Programmes (AHEP3).  
The Higher Diploma in Mechanical Engineering delivered at the Auston Institute of Management.

The programme has no PSRB requirements.

**Part E: Regulations**

Approved to University Regulations and Procedures.