Module Specification

Manufacturing Technology

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Contents

Part 1: Information

Module title: Manufacturing Technology

Module code: UFMFP7-15-2

Level: Level 5

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Engineering

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: Engineering Practice 1 2024-25

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Modern manufacturing technology entails a diverse range of disciplines and their interaction, including computer-aided design and manufacture, metrology, manufacturing processes, and automation. The module is designed to familiarise students with these interacting technologies and explore their application in the modern manufacturing environment.

Features: Not applicable

Educational aims: The aim of this module is to equip students with the knowledge and skills to compare and appraise the application of a range of interacting technologies in the modern manufacture environment.

Outline syllabus: Manufacturing processes and technologies, for example, small or batch manufacturing, machining, casting, moulding, automation, continuous flow, and high- and low-volume manufacturing.

Advanced manufacturing processes, such as:

- Additive Layer Manufacture (ALM),
- Waterjet cutting/profiling,
- Laser machining.

Metrology:

- Modern methods to inspect precision machined engineering components:
- Technologies and tools
- Uncertainties in measurement

Computer Numerical Control (CNC):

- Machine tool layout and construction, and
- Manual part programming.

Computer-Aided Manufacture (CAM):

- Application,
- Manufacturing feature recognition, and
- Industrial software.

Fixed and flexible automation:

- Configurations,

- End effectors,
- Drive systems,
- Programming methods and,
- Basic industrial applications.

Part 3: Teaching and learning methods

Teaching and learning methods: Students will be exposed to up to date applications from manufacturing industries, to ensure that they have full appreciation and understanding of modern manufacturing technologies.

Scheduled learning: material will be delivered in whole cohort sessions and via on-line resources. The majority of the learning activities will take place as a combination of lectorials, discussion groups, case studies and 'hands on' use of tools and approaches that provide exposure to contemporary advanced manufacturing, its systems and technologies.

Independent learning: includes hours engaged with essential reading, assignment preparation and completion etc.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations.

MO2 Evaluate design, automation, and metrology in traditional and modern manufacturing processes.

MO3 Demonstrate the application of computer-aided manufacture to undertake multi-axis CNC machining operations.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/index.html

Part 4: Assessment

Assessment strategy: A summative two-hour examination that assesses the students' understanding of concepts, manufacturing methods, and techniques and their ability to apply them to a variety of industrial scenarios.

The resit strategy will be the same as the first sit.

Assessment tasks:

Examination (First Sit)
Description: A two-hour in-person examination.

Examination moved from online to in person to satisfy PSRB concerns on collusion and collaboration.
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Examination (Resit)
Description: A two-hour in-person examination.

Examination moved from online to in person to satisfy PSRB concerns on collusion and collaboration.
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [UCW] BEng (Hons) 2024-25

Mechanical Engineering with Manufacturing {Apprenticeship-UCW} [UCW] BEng (Hons) 2024-25

Mechanical Engineering and Technology (Manufacturing) {Foundation} [GCET] BEng (Hons) 2023-24

Mechanical Engineering and Technology (Manufacturing) {Foundation} [GCET] BEng (Hons) 2023-24

Mechanical Engineering and Technology (Manufacturing) {Foundation} [GCET] DipHE 2023-24