



Module Specification

Advanced Manufacturing Technology

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Part 1: Information

Module title: Advanced Manufacturing Technology

Module code: UFMFYS-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Field: Engineering, Design and Mathematics

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: The modern manufacturing environment employs a spectrum of technologies, tools and systems to produce contemporary products. This module provides practitioner with a concise overview of such technologies and systems. Which range from highly advanced CNCs to manufacturing robots and the lean operation systems to management them. The module then guides appropriate technology and system selection, along with knowledge of programming and computational tools to produce a product on multi axis machines.

Features: Not applicable

Educational aims: The aim of this module is to enable students to understand the tools, concepts and practices employed by modern manufacturing organisations to satisfy customer requirements.

Outline syllabus: The focus will be on the following topics:

Advanced Manufacturing Systems

Introduction to the trends, legislation and regulations governing global manufacturing sectors such as automotive.

Introduction to automotive manufacturing strategies such as the Toyota Production System.

Implementation of batch vs flow manufacture.

Process management, measurement and control, Six Sigma.

Planning and control of production, scheduling techniques.

Advanced Manufacturing Technologies

CAD/CAM/CAE

Flexible manufacturing systems

Rapid prototyping and time compression technologies

Part 3: Teaching and learning methods

Teaching and learning methods: Scheduled learning: material will be delivered in whole cohort sessions and via on-line resources. The majority of the learning activities will take place on a combination of lectorials, discussion groups, case studies and 'hands on' use of tools and techniques 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 Apply knowledge and understanding of the principles of advanced manufacturing systems management

MO2 Develop a detailed set of production requirements using market trends, legislation and regulations governing global manufacturing industries.

MO3 Justify Lean strategies and their deployment

MO4 Formulate strategies to enhance engineering design and manufacture for industries (such as automotive engineering)

MO5 Select CAD/CAM/CAE tools and technologies to generate and manufacture a component on a 3 Axis machine centre.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link <https://rl.talis.com/3/uwe/lists/8831504A-DDC5-ACD8-0355-7309EF025A84.html?lang=en-gb&login=1>

Part 4: Assessment

Assessment strategy: The module will be assessed as follows:

A one hour in-class examination at the end of the module.

An individual technical report (2000 words) assessing the application of computer aided tools and techniques to provide a manufacturing solution.

Additionally, there will be opportunities for formative assessment (which does not contribute to the module mark. For example, you may be asked to give a presentation, or to compete against other group's work to assess its relative performance.

Feedback will be given on your work each week in the lab sessions.

The resit assessment will have same profile as the first sit

Assessment tasks:

In-class test (First Sit)

Description: 1 hour in-class test

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Written Assignment (First Sit)

Description: Individual assignment (2000 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO5

In-class test (Resit)

Description: 1 hour written test

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Written Assignment (Resit)

Description: Individual assignment (2000 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Electro-mechanical Engineering (Nuclear) {Apprenticeship-UCW}{Top-Up}[Frenchay]
BEng (Hons) 2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Engineering {Top-Up} [Frenchay] BSc (Hons) 2023-24

Electro-mechanical Engineering {Apprenticeship-UCW}{Top-Up}[Frenchay] BEng
(Hons) 2023-24

Mechanical Engineering {Apprenticeship-UCS} {Top-Up} [Frenchay] BEng (Hons)
2023-24

Mechanical Engineering {Apprenticeship-GlosColl} {Top-Up} [Frenchay] BEng
(Hons) 2023-24

Mechanical Engineering {Apprenticeship-UCW} {Top-Up} [Frenchay] BEng (Hons)
2023-24

Mechanical Engineering (Nuclear) {Apprenticeship-UCW} {Top-Up}
[Sep][FT][MOD][2yrs] BEng (Hons) 2023-24

Mechanical Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Automotive Engineering [Sep][FT][Frenchay][3yrs] BEng (Hons) 2021-22

Automotive Engineering [Sep][FT][Frenchay][4yrs] MEng 2021-22

Mechanical Engineering [Sep][FT][Frenchay][4yrs] MEng 2021-22

Mechanical Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Mechanical Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Mechanical Engineering {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2020-21

Automotive Engineering [Sep][SW][Frenchay][5yrs] MEng 2020-21

Automotive Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2020-21

Automotive Engineering {Foundation}[Sep][FT][Frenchay][4yrs] BEng (Hons) 2020-21