Module Specification

Managing Advanced Manufacture

Version: 2023-24, v2.0, 06 Jul 2023

Contents

Part 1: Information

Module title: Managing Advanced Manufacture

Module code: UFMFWF-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: Not applicable

Features: Not applicable

Educational aims: The course aims to provide a rounded understanding of manufacturing technology and systems through applied industrial case studies so that the students are competent to manage advanced manufacturing systems when they work in industry.

Outline syllabus: Manufacturing Technology:

Traditional and new innovative manufacturing technology and assembly techniques used in the aerospace industry and other developing industrial sectors

The influence of composite materials and other advanced materials on manufacturing technology and manufacturing processes.

Design for manufacture, assembly and maintenance at minimum cost whilst meeting customer requirements.

Manufacturing Systems:

Comparison and analysis of manufacturing systems philosophies.

Application of discrete event (DE) models to analyse manufacturing systems: evaluation of experiments and experimental results.

Investment justification and costing of engineering components.

Part 3: Teaching and learning methods

Teaching and learning methods: Overview: The course will be delivered through a combination of scheduled learning activities, such as lectures and tutorials. These sessions will be used to introduce the principles of the topics and the tutorials will be used to further develop these topics and student competence. Study time outside of contact hours will be spent working on the group project exercise.

Scheduled learning:

Lectures will introduce the general theoretical concepts and present examples in the use of these techniques. Tutorials will be used to underpin and integrate the key theoretical concepts. Some simulation software may be used to complement and

help understand the application concepts.

Independent learning:

In addition to the scheduled learning, students are expected to spend time engaged with essential reading and studying the concepts and underlying principles. Students will be required to work in teams for the Case Study and Presentation.

Activity Approximate time (hours)
Contact (36)
Assimilation and skill development (36)
Project work (78)
Total (150)

NB Where students are engaged in this module through distance and work based learning contact will be replaced by engagement with electronic learning materials and suitable mentoring and e-learning support.

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

MO1 Evaluate traditional and new innovative manufacturing technology and assembly techniques in the aerospace industry and other developing industrial sectors.

MO2 Propose manufacturing technology and techniques for the production of specified products and appraise each technique in terms of manufacturing efficiency, quality and cost

MO3 Identify the need for coordinated product / process development and be able to manage the merging of these two aspects and explain their importance with advanced materials

MO4 Evaluate manufacturing system dynamics and the sequencing and control of the flow of parts.

MO5 Apply structured analysis techniques to model, synthesise and evaluate manufacturing organisations and production systems

MO6 Design and construction of simulation models, statistical analysis of simulation output and experimentation and sensitivity analysis

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://uwe.rl.talis.com/modules/ufmfwf-15-3.html

Part 4: Assessment

Assessment strategy: The assessment model for this module is structured to verify students' competence and demonstrate understanding of a range of manufacturing technologies and systems. It also requires the students to demonstrate an ability to apply this in a realistic and representative scenario.

The nature of the course work and the requirements for the students to demonstrate competence means that a group based task with a presentation session will be used.

For the group based work the default position is equal mark allocation per group and guidelines are provided for the students outlining protocol for dealing with situations where a different allocation should be made.

Each Group will submit a written report together with a short individual evaluation of the project from each member of the group.

A plant visit will be organised to enable the students to link what they learn in the lectures to what they observe during the visit. Applications and reflections from the visit are to be included in the report.

The first sit and resit are the same.

Resit deliverable(s) will be scaled appropriately to group size and task complexity

Assessment tasks:

Report (First Sit)
Description: Report (5000 words)
Weighting: 100 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Report (Resit)
Description: Report (5000 words)

Resit deliverable(s) will be scaled appropriately to group size and task complexity
Weighting: 100 %
Final assessment: Yes
Group work: Yes
Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Aerospace Engineering (Manufacturing) [Sep][SW][Frenchay][5yrs] - Not Running MEng 2020-21

Aerospace Engineering (Manufacturing) [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering (Manufacturing) {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering (Manufacturing) {Apprenticeship-UCW} [Sep][FT][UCW][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering (Manufacturing) {Apprenticeship-UCW} [Sep][FT][UCW][5yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering with Pilot Studies (Manufacturing) [Sep][SW][Frenchay][5yrs] - Not Running MEng 2020-21

Aerospace Engineering with Pilot Studies (Manufacturing) {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering with Pilot Studies (Manufacturing) {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20

Aerospace Engineering (Manufacturing) {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20

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

Aerospace Engineering [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering with Pilot Studies [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering with Pilot Studies (Manufacturing) [Sep][SW][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering with Pilot Studies {Foundation} [Sep][FT][Frenchay][4yrs] - Not Running BEng (Hons) 2020-21

Aerospace Engineering with Pilot Studies [Sep][SW][Frenchay][5yrs] MEng 2020-21

Aerospace Engineering with Pilot Studies {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20

Aerospace Engineering {Foundation} [Sep][SW][Frenchay][5yrs] BEng (Hons) 2019-20