Module Specification

Concurrent Engineering and Design for Manufacture

Version: 2021-22, v2.0, 08 Jun 2020

Contents

Part 1: Information

Module title: Concurrent Engineering and Design for Manufacture

Module code: UFMEEC-15-M

Level: Level 7

For implementation from: 2021-22

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Environment & Technology

Department: FET Dept of Engineering Design & Mathematics

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Engineering, Design and Mathematics

Module type: Standard

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: See Learning Outcomes.

Outline syllabus: The syllabus includes:

Rationale of Concurrent Engineering and Design for Manufacture.
Issues related to the corporate culture and the organisational structures in the context of successful implementation of concurrent engineering.
Technologies for communication and collaboration.
Product design and development methodologies including capturing customer needs for defining conceptual specifications.
Issues related to cost factors in a Concurrent Engineering environment.
Design for Manufacturability, Maintainability etc.
Rapid prototyping techniques for fast product development.
Life-Cycle Management vis-à-vis concurrent engineering.

Part 3: Teaching and learning methods

Teaching and learning methods: Scheduled learning: These will be based on a combination of lectures, discussion groups, case studies and 'hands on' use of tools and techniques that provide exposure to the advanced manufacturing context covered by this module. Students will be expected to learn independently by carrying out reading and directed study outside formal sessions.

Module Learning outcomes:

MO1 Select and apply an optimum rapid prototyping technique for a given application

MO2 Critically appraise the existing product design and development environment of a company and recommend changes to support concurrent engineering methodology

MO3 Apply appropriate methodologies for capturing customer requirements

MO4 Demonstrate knowledge and understanding of the benefits of adopting concurrent engineering methodology for efficient produce design and development and its contribution to the competiveness of a company

MO5 Analyse and critically evaluate the strategy and operational environment of a company and recommend changes to improve the effectiveness of integrated product design and development

MO6 Evaluate and identify relevant factors that influence product lifecycle at the design stage

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/ufmeec-15-m.html

Part 4: Assessment

Assessment strategy: The assessment strategy has been designed to ensure that students are able to relate the concepts that lie behind the use of concurrent engineering methodologies in the design and rapid prototyping of products and are able to apply and evaluate the impact of these techniques on business improvement.

To achieve this students are required to demonstrate understanding of key concepts under controlled conditions and so a two hour written examination (component A).

To demonstrate knowledge and skill in applying the design methodology within a real engineering manufacturing context, students undertake a case study of an in-depth appraisal at a company of their choice (component B). The output of this case study will be a 2,500 word individual report.

Assessment components:

Examination (Online) - Component A (First Sit)
Description: Online Examination
Weighting: 25 %
Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO6

Report - Component B (First Sit)

Description: Individual report (2500 words)

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Examination (Online) - Component A (Resit)

Description: Online Examination

Weighting: 25 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Report - Component B (Resit)

Description: Individual report (2500 words)

Weighting: 75 %

Final assessment: No

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Aerospace Engineering (Systems) [Sep][FT][Frenchay][4yrs] MEng 2018-19

Aerospace Engineering (Manufacturing) [Sep][FT][Frenchay][4yrs] MEng 2018-19

Aerospace Engineering with Pilot Studies (Manufacturing) [Sep][FT][Frenchay][4yrs] MEng 2018-19

Aerospace Engineering with Pilot Studies (Systems) [Sep][FT][Frenchay][4yrs] MEng 2018-19

Aerospace Engineering (Systems) [Sep][FT][Frenchay][3yrs] BEng (Hons) 2018-19

Mechanical Engineering [Sep][FT][Frenchay][1yr] MSc 2021-22

Mechanical Engineering [Sep][PT][Frenchay][2yrs] MSc 2021-22

Mechanical Engineering [Sep][PT][Frenchay][2yrs] MSc 2020-21

Aerospace Engineering with Pilot Studies [Sep][FT][Frenchay][4yrs] MEng 2018-19

Mechanical Engineering [Sep][FT][Frenchay][4yrs] MEng 2018-19

Aerospace Engineering [Sep][FT][Frenchay][4yrs] MEng 2018-19