Module Specification

Lifecycle Engineering for Manufacturing Systems

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Contents

Part 1: Information

Module title: Lifecycle Engineering for Manufacturing Systems

Module code: UFMFVH-15-2

Level: Level 5

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 module provides a holistic approach to observation and analysis of a production system. The key outcome will be the development of the understanding and knowledge requirements that underpin common improvement paradigms for production systems. To provide direction for the targeting of tools and methods for manufacturing improvement in order to deliver targets and sustainable improvements and maximise benefits.

Features: Not applicable

Educational aims: The aim of this module is to provide the conceptual framework and tools for conducting a manufacturing system analysis.

Outline syllabus: Syllabus to include:

Investigating the barriers to realising sustainable improvement, and in particular the inability to communicate understanding
Analysing the changes and issues associated with the different life phases of a manufacturing system
To provide a structured representation (standardised diagram) of the system, its internal relations, inputs and external influences, which can be used to communicate and ensure all stakeholders have a common, shared understanding.
Simulate and predict systems maintainability, reliability and end-of-life
Simulate and predict system's Life Cycle Cost (LCC)
Optimisation of the whole life cycle of a typical manufacturing systems

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 as a combination of lectorials, discussion groups, case studies and 'hands on' use of tools and techniques that provide the practical knowledge to undertake a manufacturing setup evaluation and present improvement solutions.

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 Investigate the barriers to realising sustainable improvement of a specified manufacturing system

MO2 Analyse potential changes and issues associated with the different life phases of a manufacturing system

MO3 Simulate and predict manufacturing system's Life Cycle Cost

MO4 Identify the factors and characteristics that affect process efficacy and to elicit the important relationships for improvement

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

E-learning/online learning = 12 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/9ECFA958-65AD-905D-D8D5-551018CB86C8.html?lang=en-GB&login=1

Part 4: Assessment

Assessment strategy: The assessment is designed to follow a lifecycle analysis of a manufacturing system and to replicate a consultancy style activity.

There will be two case study investigations

The first case study includes a group presentation of an initial manufacturing system review. The aim of this review is to investigate the barriers to realising sustainable improvement of a specified manufacturing system and to provide an initial plan of improvement to the client.

In the second students present an more detailed assessment of the manufacturing system identified in the forst as a 3500 word group report that includes a 500 word individual summary and reflection of the application and analysis.

The group report will cover justification of approaches, life cycle tools and techniques applied, application process and method, findings and analysis, recommendations to client.

Resit is the same as the first sit

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

Assessment tasks:

Presentation (First Sit)
Description: Presentation of an initial plan of improvement to the client (10 minutes + 10 Q&A).
Weighting: 25 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO1

Case Study (First Sit)
Description: Technical report, modelling and analysis (3000 words) plus individual summary and reflection (500 words).
Weighting: 75 %
Final assessment: Yes
Group work: Yes
Learning outcomes tested: MO2, MO3, MO4

Presentation (Resit)
Description: Presentation of an initial plan of improvement to the client (10 minutes + 10 Q&A).

Resit deliverable(s) will be scaled appropriately to group size and task complexity
Weighting: 25 %
Final assessment: Yes
Group work: Yes

Learning outcomes tested: MO1

Case Study (Resit)
Description: Technical report, modelling and analysis (3000 words) plus individual summary and reflection (500 words).

Resit deliverable(s) will be scaled appropriately to group size and task complexity
Weighting: 75 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [UCW] BEng (Hons) 2022-23

Mechanical Engineering with Manufacturing {Apprenticeship-UWE} [COBC] BEng (Hons) 2022-23