



## **Module Specification**

### **Lean Factory Design**

Version: 2023-24, v1.0, 06 Jul 2023

#### **Contents**

<b>Module Specification .....</b>	<b>1</b>
<b>Part 1: Information .....</b>	<b>2</b>
<b>Part 2: Description .....</b>	<b>2</b>
<b>Part 3: Teaching and learning methods .....</b>	<b>3</b>
<b>Part 4: Assessment.....</b>	<b>4</b>
<b>Part 5: Contributes towards .....</b>	<b>6</b>

## Part 1: Information

**Module title:** Lean Factory Design

**Module code:** UFMFTB-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:** City of Bristol College, Global College of Engineering and Technology (GCET), University Centre Weston

**Field:** Engineering, Design and Mathematics

**Module type:** Module

**Pre-requisites:** Quality Control Systems 2023-24

**Excluded combinations:** None

**Co-requisites:** None

**Continuing professional development:** No

**Professional, statutory or regulatory body requirements:** None

## Part 2: Description

**Overview:** With the ubiquitous use of ICT, the adoption of the Internet of Things and Industrial 4.0. This module covers fundamental concepts and technologies to develop the modern manufacturing environment and the business strategies to produce competitive products. Specifically the Assembly and their assessment in the context process efficacy and efficiency.

**Features:** Not applicable

**Educational aims:** The aim of this module is to familiarise students with the principles and tools and techniques for modern smart manufacturing facility design and continued improvement.

**Outline syllabus:** Assembly layout, cells and line and balancing.

Process considerations while employing design for manufacture and assembly.

Design for Changeover and changeover reduction.

Value stream economics - what to make where.

Application of machine-material interaction evaluation, for process efficacy and efficiency.

Modelling and simulation to support process design and layout.

Developing the lean supply chain, collaboration and lean logistics.

Implementation of Industry 4.0 and the Internet of Things in modern production facilities.

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** Material will be delivered in whole cohort sessions supported by on-line resources. The majority of the learning activity will take place in group-based workshops working on the manufacturing layout, operation and systems tasks.

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

**MO1** Appraise manufacturing specific skills with respect to the principles of process measurement, management and control

**MO2** Demonstrate the Implementation of the agile principles and data exchange technologies for manufacturing systems management

**MO3** Model situations and provide solutions to manufacturing problems using engineering principles

**MO4** Plan and apply continuous process improvement and problem solving strategies for the modern 'SMART' factory

**MO5** Critically appraise justifications for Lean strategies and deployment

**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](https://uwe.rl.talis.com/modules/UFMFTB-15-3.html) via the following link

<https://uwe.rl.talis.com/modules/UFMFTB-15-3.html>

## **Part 4: Assessment**

**Assessment strategy:** The main assessment strategy will be as follows:

A examination that is summative and assesses the students' understanding of concepts, methods and techniques implemented in the modern Smart factory.

A portfolio that is structured to verify students' competence and demonstrate their applied understanding of approaches to support the development and planning of a lean, smart production facility. This will be based around an industrial scenario.

The resit strategy will be as follows:

Resit is the same as the first sit

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

Risk of plagiarism in the portfolio will be mitigated by the individualised variables and data being issues to students with the assignment brief.

**Assessment tasks:**

**Examination (First Sit)**

Description: 2 hour examination

Weighting: 60 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

**Portfolio (First Sit)**

Description: Portfolio - written report, factory design plans and auditing docs (Max. 2000 words)

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4, MO5

**Examination (Resit)**

Description: 2 hour examination

Weighting: 60 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

**Portfolio (Resit)**

Description: Portfolio - written report, factory design plans and auditing docs (Max. 2000 words)

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO4, MO5

## **Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Mechanical Engineering with Manufacturing {Apprenticeship-UWE}

[Sep][FT][UCW][4yrs] BEng (Hons) 2020-21

Mechanical Engineering with Manufacturing {Apprenticeship-UWE}

[Sep][FT][COBC][4yrs] BEng (Hons) 2020-21

Mechanical Engineering with Manufacturing {Apprenticeship-UWE}

[Sep][FT][UCW][4yrs] - Not Running BEng (Hons) 2020-21

Mechanical Engineering with Manufacturing {Apprenticeship-UWE}

[Sep][FT][COBC][4yrs] - Not Running BEng (Hons) 2020-21