

Liverpool John Moores University

Title: Manufacturing Systems
Status: Definitive
Code: **6102MSE** (128577)
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

Team	Leader
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Academic Level: FHEQ6 **Credit Value:** 20 **Total Delivered Hours:** 30
Total Learning Hours: 200 **Private Study:** 170

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	12
Tutorial	16

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Open book examination	70	2
Report	AS2	Computer modelling and report	30	

Aims

This module develops student's ability to design and improve manufacturing systems to meet the demands of a range of stakeholders.

Learning Outcomes

After completing the module the student should be able to:

- 1 Evaluate data to plan and control manufacturing systems
- 2 Model and appraise system behaviour to predict performance and make improvements
- 3 Design systems to meet customer and stakeholder needs

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Open book examination	1	2	3
Written report	1	2	3

Outline Syllabus

Demand forecasting. Master Production Scheduling (MPS) and operations planning. Bill of Materials (BOM) structure and design. Material Requirements Planning (MRP) and Enterprise Resource Planning (ERP) systems, scheduling, and inventory control. Organisation and control of production processes. Quality management and control systems. Introduction to systems thinking. System conceptualisation and mapping. Simulation methods (Monte Carlo, System Dynamics, Discrete Event and Agent based). Model verification and validation. Decision making technologies.

Learning Activities

Lectures, tutorials, and self-study.

Notes

This module is designed to develop the skills needed to design and improve manufacturing systems in a complex world. The module uses a systems-based approach to design systems which are efficient but are also able to satisfy sustainability and social metrics.