

## Liverpool John Moores University

Title: Manufacturing Operations Management  
Status: Definitive  
Code: **6107MAN** (121990)  
Version Start Date: 01-08-2022  
  
Owning School/Faculty: Engineering  
Teaching School/Faculty: Engineering

Team	Leader
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**Academic Level:** FHEQ6      **Credit Value:** 20      **Total Delivered Hours:** 41  
**Total Learning Hours:** 200      **Private Study:** 159

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	33
Tutorial	6

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	70	2
Report	AS2	Coursework - Analysis and Written Report	30	

### Aims

*The module deals with modern, world class service and manufacturing operations management and quality control principles. The work explores: The relationship between manufacturing data and organisation in terms of planning, scheduling and cost, lean/agile manufacturing, and modern quality control management principles in world class organisation.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Use the principles of control of resources in a modern manufacturing organisation, apply the planning and control of information, data and resources in the efficient execution of manufacturing.
- 2 Apply decision making tools in service and manufacturing companies.
- 3 Apply a range of quality techniques (e.g. SPC, QFD, FMEA) to monitor, analyze and improve business processes.
- 4 Understand the six sigma methodologies and apply the DMAIC model to an improvements activity.

## Learning Outcomes of Assessments

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

Examination	1	2	3	4
Analysis and written report	1	2	3	4

## Outline Syllabus

*Demand management: forecasting, patterns of demand; qualitative and quantitative methods.*

*Master production scheduling and Operations planning: the master scheduling process, rough-cut capacity planning fences, final assembly scheduling, Bill of Material structure and design, Materials requirements planning, Manufacturing Resources Planning, Enterprise Resources Planning systems, scheduling and inventory control.*

*Lean manufacturing, just-in-time - the culture and manufacturing techniques, kanbans, one-piece flow and set-up time reduction.*

*Background and evolution of the quality movement.*

*Quality gurus and the cost of quality.*

*Quality control procedures, Process capability and statistical process control techniques. Process design for quality considerations: design for assembly, liaison diagrams, key characteristics to enable quality conformance.*

*Quality management systems - standards and models: ISO9000:2000.*

*Business improvement techniques - FMEA, QFD and value management.*

*The six sigma approach, its methodologies.*

*The DMAIC project model and six sigma process mapping.*

## **Learning Activities**

Lectures, tutorials and private study

## **Notes**

This module aims to equip the student with important underpinning engineering skills relating to manufacturing operations and quality systems. A student must therefore successfully complete all sections of the module to a satisfactory level.

In this module, the knowledge learning outcomes are K5 and K6 and the behaviours learning outcomes are B5 and B9.