

## Liverpool John Moores University

Title: Automated Manufacture  
Status: Definitive  
Code: **6501MTC** (125792)  
Version Start Date: 01-08-2019

Owning School/Faculty: Maritime and Mechanical Engineering  
Teaching School/Faculty: Maritime and Mechanical Engineering

Team	Leader
Ian Jenkinson	Y

**Academic Level:** FHEQ6  
**Credit Value:** 20  
**Total Delivered Hours:** 46  
**Total Learning Hours:** 200  
**Private Study:** 154

### Delivery Options

Course typically offered: Non Standard Year Long

Component	Contact Hours
Online	24
Practical	10
Tutorial	10

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Exam	60	2
Practice	AS2	Practical work	40	

### Aims

*To develop understanding of the fundamental technologies of industrial automation systems focusing on the application of PLCs, sensors and actuators to automate industrial processes and systems.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Analyse the positional and dynamic control of a robot through off-line programming and simulation.
- 2 Apply the principles of vision and AI systems to improve the performance of an automated manufacturing system.
- 3 Design and specify an automated manufacturing system using structured automated systems design methods.

### **Learning Outcomes of Assessments**

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

Exam	1	2	3
Practical work	3		

### **Outline Syllabus**

*The list below provides an overview of topics which may be covered in this module:*

*Industrial robot systems: static and dynamic control; Off-line and simulation based programming; Integration of robots with force-torque sensors and vision systems; AI systems and application to pattern recognition, measurement etc. relevant to manufacturing operations. Systems design methodologies and application to automation system design. Consideration of tooling and fixturing.*

### **Learning Activities**

Online lectures and tutorials, campus based tutorials, campus based practical activity

### **Notes**

This module incorporates elements of flipped delivery in order to encourage engagement. The source of primary knowledge for this module will be via material made available through the VLE, while understanding will be developed through tutorials and significant practical content.