

## Liverpool John Moores University

Title: Mechatronics 2 - Selection and Application  
Status: Definitive  
Code: **4007AMCPD** (126481)  
Version Start Date: 01-08-2019

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

Team	Leader
Frederic Bezombes	Y

**Academic Level:** FHEQ4      **Credit Value:** 10      **Total Delivered Hours:** 23  
**Total Learning Hours:** 100      **Private Study:** 77

### Delivery Options

Course typically offered: Summer

Component	Contact Hours
Online	12
Practical	6
Tutorial	5

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Test	ASS1	VLE Test	100	

### Aims

*This module provides an applied introduction to sensors, actuators, and programmable controllers including their integration into a programmable control system.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Apply a knowledge of sensors and actuators to correctly select them for a manufacturing application.
- 2 Program a simple micro-controller to execute a simple measurement and control task.

## Learning Outcomes of Assessments

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

VLE Test	1	2
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## Outline Syllabus

*Characteristics and application of sensors and actuators;*

- *Temperature, Proximity, Pressure, Level and flow rate, Position (displacement), Force and inertia, Vision, Electro-mechanical actuators*

*Micro-controllers*

- *Microcontroller systems architecture, interfacing, fundamental programming*

## Learning Activities

On-line lectures and tutorials, online tutorials and practicals, work-related learning

## Notes

This is a single-module CPD programme code 36251.

This module covers the selection of sensors, actuators and programmable control systems relevant to mechanical and manufacturing engineering. Knowledge will be further developed by application to a work related learning project.

Candidates applying for the module must hold the prerequisite relevant engineering qualifications at Level 3 totalling at least 90 credits. In addition, many will already have a HE level qualification and may use this CPD module to extend or update their existing skill set.

Intake entry point for study onto the CPD module will occur in summer.

The CPD module will not have any formal PSRB accreditation.

Subject benchmark statement - Aligns to Engineering Council UK SPEC

The module is a CPD version based on part of 4500MTC, which is part of the Advanced Manufacturing BEng.

The module will be delivered by remote study of on-line lecture content. Delivery of

the module is intended to last approximately 12 weeks.

Learners are allocated a personal tutor, who may be drawn on to deal with any support requirements they may have. This support is delivered virtually using online virtual tutorial sessions.

Formative assessment will be facilitated through tutorial feedback, plus through engagement with online study material and assessment tasks.

The programme is assessed and run in line with the Academic Framework (<https://www.ljmu.ac.uk/about-us/public-information/academic-qualityandregulations/academic-framework>).

The methods for improving the quality and standards of learning are as follows:

- Continuous Monitoring and Enhancement
- Liaison and feedback from the students
- Reports from the External Examiner
- Programme team ensuring the module reflects the values of the current teaching and learning strategy
- Module/Programme Leader updating knowledge and skills to ensure these remain current and relevant.

As the content of this CPD is derived from the Advanced Manufacturing BEng, it will share the same external examiner as that programme.