

## Liverpool John Moores University

Title: Applied Electronics And Control  
Status: Definitive  
Code: **5163PDE** (121751)  
Version Start Date: 01-08-2021

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

Team	Leader
Yongqiang Qiu	Y
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**Academic Level:** FHEQ5      **Credit Value:** 20      **Total Delivered Hours:** 44  
**Total Learning Hours:** 200      **Private Study:** 156

### Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Practical	22
Workshop	22

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	Portfolio	Design and Practical Portfolio	100	

### Aims

*This module covers the fundamental theory and calculations behind the design of sensors, electric motors and microcontrollers through involvement in applied, creative engineering projects.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Design and build remote intelligent systems
- 2 Specify and adapt metrology(measurement) requirements
- 3 Interface & program sensors then visualise output data

## Learning Outcomes of Assessments

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

Design and Practical Portfolio	1	2	3
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## Outline Syllabus

*Metrology: Precision, Accuracy, Uncertainty, and Traceability, curve fitting*  
*Processor interfacing: Bus Expansion, digital I/O (latches, tristate buffering), analog I/O (ADC, DAC, Analog switching)*  
*Control: motor control, DC, Servo, Stepper motors, H bridges, MOSFET Switching, Relays*  
*Control theory: open loop, closed loop control, stimulus response, feedback*  
*Microcontrollers: Data communication technology (Serial methods, RS232,i2c,spi), wireless technology (wifi, Bluetooth, radio link)*

## Learning Activities

Embedded Lecture, demonstration and practical activities applying topics discussed. The learning activities are to be student focused and develop the students design knowledge through experiential learning.

## Notes

This module is delivered using a variety methods including lectures, seminars, tutorials and practical sessions. The module will be delivered from a engineering and product design perspective.