

### Summary Information

Module Code	5173CSD
Formal Module Title	Applied Electronics and Control
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

### Learning Methods

Learning Method Type	Hours
Practical	22
Workshop	22

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

### Aims and Outcomes

Aims	This module covers the fundamental theory behind the design of sensors, electric motors and microcontrollers through a process of discovery in applied, creative projects. The module will explore the design of remote intelligent systems, the application of measurement requirements and the ways in which we can interface & program sensors to visualise output data.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Design and build remote intelligent systems
MLO2	2	Specify and adapt metrology(measurement) requirements
MLO3	3	Interface & program sensors then visualise output data

### Module Content

Outline Syllabus	Metrology: Precision, Accuracy, Uncertainty, and Traceability, curve fitting Processor interfacing: Bus Expansion, digital I/O (latches, tristate buffering), analogue 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)
Module Overview	
Additional Information	This module is delivered using a variety methods including workshops and practical sessions. The module will be delivered from a engineering and product design perspective.

### Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Dissertation	Design and Practical Portfolio	100	0	MLO1, MLO2, MLO3

### Module Contacts

#### Module Leader

Contact Name	Applies to all offerings	Offerings
Yongqiang Qiu	Yes	N/A

#### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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