

Summary Information

Module Code	5163PDE
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 and calculations behind the design of sensors, electric motors and microcontrollers through involvement in applied, creative engineering projects.
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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	This module covers the fundamental theory and calculations behind the design of sensors, electric motors and microcontrollers through involvement in applied, creative engineering projects.
Additional Information	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.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Portfolio	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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