Applied Electronics and Control

Module Information

2022.01, Approved

Summary Information

Module Code	5263PDE
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.

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 fittingProcessor interfacing: Bus Expansion, digital I/O (latches, tristate buffering), analogueI/O (ADC, DAC, Analog switching)Control: motor control, DC, Servo, Stepper motors, H bridges, MOSFET Switching,RelaysControl theory: open loop, closed loop control, stimulus response, feedbackMicrocontrollers: Data communication technology (Serial methods, RS232,i2c,spi), wireless technology (wifi, Bluetooth, radio link)
Module Overview	**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.**
Additional Information	UN Sustainable Development GoalsThis module includes content, which relates to the following UN Sustainable Development GoalsSDG09 – This module introduces students to technology that has the potential to upgrade the technological capabilities of industrial sectors

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