Liverpool John Moores University

Title:	Applied Electronics And Control
Status:	Definitive
Code:	**5173CSD** (125582)
Version Start Date:	01-08-2021
Owning School/Faculty:	Engineering
Teaching School/Faculty:	Engineering

Team	Leader
Yongqiang Qiu	Y
Qian Zhang	
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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 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.

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

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

Demonstration, workshop 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 workshops and practical sessions. The module will be delivered from a engineering and product design perspective.