

Summary Information

Module Code	6302ELE
Formal Module Title	Embedded Systems
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	22

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To provide both the theoretical and practical skills in the design and development of advanced embedded systems.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Design and implement complex integrated hardware and software solutions to engineering problems.
MLO2	2	Apply the software development lifecycle to embedded projects.
MLO3	3	Compare and contrast microprocessor hardware as to its suitability to specific engineering applications.
MLO4	4	Evaluate the use of real-time operating systems.
MLO5	5	Analyse the security implications of network connectivity in embedded applications.

Module Content

Outline Syllabus	Design Application: Circuit Schematics, Flow charts, Pseudo code. Hardware design.High level language constructs: variables, conditional statements, loops, string handling, input-output, classes, inheritance, functions, Arrays.Embedded Systems Modelling ToolsDevelopment Lifecycle: Design, Development, Testing, Maintenance.Microprocessor Hardware: Power, price, energy, capability.RTOS: Cost, Security, Driver support, development time.Security: Hacking threats, Maintenance/Updates, SCADA.
Module Overview	This module provides you with the capability to design and develop an embedded solution to an engineering problem. You will design and implement complex integrated hardware and software solutions to engineering problems, apply the software development lifecycle to projects, and compare microprocessor hardware to assess its suitability to specific engineering applications.
Additional Information	This module will provide students with the capability to design and develop an embedded solution to an engineering problem.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Exam	70	2	MLO3, MLO4, MLO5
Essay	Embedded Systems Project	30	0	MLO1, MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings

Partner Module Team

Contact Name	Applies to all offerings	Offerings