Embedded Systems

Module Information

2022.01, Approved

Summary Information

Module Code	7309ELEM
Formal Module Title	Embedded Systems
Owning School	Engineering
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	12
Tutorial	11

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..

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 complex embedded projects
MLO3	3	Critically compare and contrast the suitability to specific engineering applications of microprocessor hardware
MLO4	4	Critically evaluate the use of real-time operating systems.
MLO5	5	Critically 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, stringhandling, input-output, data structures, classes, inheritance, file handling, functions, Arrays, conditional statements, loops, string handling, input-output, data structures, functions.Development 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 enables you to design and develop an embedded solution to an engineering problem. The module provides the theoretical and practical skills required in the design and development of advanced embedded systems.
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	Examination	70	2	MLO3, MLO4, MLO5
Report	Laboratory demo and report	30	0	MLO1, MLO2

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Ronan McMahon	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings