Liverpool John Moores University

Title: Embedded Systems
Status: Definitive
Code: **7309ELE**   (121454)
Version Start Date: 01-08-2020

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

Team	Leader
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Academic Level:	FHEQ7	**Credit Value:**	20	**Total Delivered Hours:**	68
Total Learning Hours:	200	**Private Study:**	132		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	22
Practical	22
Tutorial	22

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Examination	70	2
Portfolio	Practical	Laboratory demo and report	30	

Aims

To provide both the theoretical and practical skills in the design and development of advanced embedded systems..

Learning Outcomes

After completing the module the student should be able to:

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

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Examination	3	4	5
Laboratory demo and report	1	2	4

Outline Syllabus

Design Application: Circuit Schematics, Flow charts, Pseudo code. Hardware design.
High level language constructs: variables, conditional statements, loops, string handling, 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.

Learning Activities

Lectures, Tutorials, Practical activities

Notes

This module will provide students with the capability to design and develop an embedded solution to an engineering problem.