

## Liverpool John Moores University

Title: Advanced Embedded Systems  
Status: Definitive  
Code: **6113ENG** (116975)  
Version Start Date: 01-08-2016

Owning School/Faculty: Electronics and Electrical Engineering  
Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
Ronan McMahon	Y

**Academic Level:** FHEQ6      **Credit Value:** 20      **Total Delivered Hours:** 75  
**Total Learning Hours:** 200      **Private Study:** 125

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Practical	24
Seminar	24

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam		70	3
Technology	Tech 1		15	
Technology	Tech 2		15	

### Aims

*To enhance knowledge and understanding of embedded systems and their context*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Compare various RTOS in the context of Embedded systems
- 2 Develop an Embedded solution to an Engineering problem
- 3 Produce a functional and non-functional critique of an Embedded solution to an engineering problem
- 4 Discuss various tools and development models

### **Learning Outcomes of Assessments**

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

Exam	1	3	4
Coursework 1	2		
Coursework 2	3		

### **Outline Syllabus**

*Operating System: Concepts and structure, Real time and safety critical systems, Multi-tasking, synchronisation, Threads, Scheduling, SMP and Microkernels, Language constructs: Interrupts, Assembler inserts, Task management Performance measurement and Optimisation: power, timing, memory management I/O Management and Disk Scheduling, File Management, Multimedia Operating Systems Security – Privacy, Access, Integrity. Reliability, Safety, Security*

### **Learning Activities**

Series of Lectures, tutorials, seminars and practical classes

### **Notes**

The module develops advanced aspects of Embedded Systems design. This includes analysis on non-functional aspects of solutions, the relevance of RTOS, the context in which Embedded systems solutions are placed.