Liverpool John Moores University

Title:	MICROCONTROLLER BASED SYSTEMS
Status:	Definitive
Code:	**5006ENGFRI** (117019)
Version Start Date:	01-08-2016
Owning School/Faculty:	Electronics and Electrical Engineering
Teaching School/Faculty:	Electronics and Electrical Engineering

Team	Leader
Princy Johnson	Y
Russell English	

Academic Level:	FHEQ5	**Credit Value:**	20	**Total Delivered Hours:**	50
Total Learning Hours:	200	**Private Study:**	150		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	20
Practical	24
Tutorial	4

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam		60	2
Essay	Essay		40	

Aims

To enhance knowledge and understanding of microprocessor based-system architecture, the techniques and methods for interfacing with microprocessor based-systems
To develop intellectual ability to analyse systems, processes and components requiring engineering solutions and to produce solutions to problems through the

practical application of engineering.
To enhance professional practical skills in the use of appropriate programming language for practical testing of design ideas in laboratories or through simulation, with technical analysis and critical evaluation of results.
To develop knowledge and practical skills in the programming and application of Programmable Logic Controllers to control various systems.

Learning Outcomes

After completing the module the student should be able to:

1	Recognise the fundamental components of a Microcontroller system, a typical architecture and associated instruction set
2	Explain Microcontroller memory organisation, I/O interfacing and data transfer
3	Design and test programs using PIC specific Flowcode, Assembly Language or C
4	Develop and execute simple applications using a standard PIC development board and associated accessories

Learning Outcomes of Assessments

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

Exam	1	2	3
Essay	3	4	

Outline Syllabus

Typical Microcontroller architecture
PIC microcontroller data memory organisation
I/O sub-systems
Microprocessor-based system interfacing and data transfer
Digital interfacing with microcontrollers
PIC programming using Flowcode, and Assembly language
Introduction to C programming for PIC microcontrollers

Learning Activities

By a series of lectures, tutorials and practical classes

Notes

This module extends the knowledge of microcontrollers, includes their programming using both low level and high level languages and interfacing with peripheral devices.