Microprocessors and Software

Module Information

2022.01, Approved

Summary Information

Module Code	4302ELE
Formal Module Title	Microprocessors and Software
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	11
Practical	55

Module Offering(s)

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

Aims and Outcomes

Aims	Provide an overview of the operation of modern microprocessors/microcontrollers and the mechanisms used to represent and process information. Design and implement applications written in both low level and high level languages.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Describe the techniques applied to represent information within a Microprocessor. Describe the instruction set of a computer contrasting RISC and CISC approaches.
MLO2	2	Identify the fundamental components of a Microprocessor. Demonstrate an understanding of the registers that constitute a Microprocessor.
MLO3	3	Describe the role of modern Operating Systems in embedded, mobile, desktop and server environments.
MLO4	4	Specify and design microprocessor applications, then implement them utilising high or low level languages

Module Content

Outline Syllabus	Binary, HEX, 2s Complement, Number endianness, IEEE 754, ASCII, UNICODE.Processor core and cache hierarchies, Buses, Memory Organisation, Cache Coherency, Multicore, 80% 20% ratio.Application Scheduling, Security, Interrupt Handling, Libraries, Communications.Variables, Arrays, Iteration, Selection, Interaction with I/O, Structures, Flow charts.
Module Overview	This module provides an overview of the operation of modern microprocessors/microcontrollers and the mechanisms used to represent and process information. The module introduces you to the fundamentals of Computer architecture and the development of high level software. You will design and implement applications written in both low level and high level languages.
Additional Information	This module introduces the fundamentals of Computer architecture and the development of High level software.Where this module is part of a Degree Apprenticeship programme, the knowledge learning outcomes are K4, the skills learning outcomes are S3 and S4

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Exam	60	2	MLO1, MLO2, MLO4, MLO3
Technology	Programming	40	0	MLO1, MLO2, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Qian Zhang	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings