

Liverpool John Moores University

Title: Microprocessors and Software

Status: Definitive

Code: **4302CIT** (125298)

Version Start Date: 01-08-2020

Owning School/Faculty: Engineering

Teaching School/Faculty: Changshu Institute of Technology

Team	Leader
Qian Zhang	Y
Mahamoud Ahmed	

Academic Level:	FHEQ4	Credit Value:	20	Total Delivered Hours:	66
Total Learning Hours:	200	Private Study:	134		

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	32
Practical	32

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam	60	2
Report	AS1	Programming	30	
Essay	AS2	Coursework	10	

Aims

This module provides 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.

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe the techniques applied to represent information within a microprocessor. Describe the instruction set of a computer which is contrasted with ARM instruction set.
- 2 Describe microcomputer system composition and work principle, and use the bus to access and control computer peripherals.
- 3 Specify and design microprocessor applications, then implement them utilizing high or low level languages.
- 4 Analyse and design the basic circuit of microcomputer system accessing and controlling peripherals, and write the control code.
- 5 Introduce the role of modern operating systems in embedded, mobile, desktop and server environments.

Learning Outcomes of Assessments

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

Exam	1	2	4	5
Programming	1	4	3	
Coursework	1	4	3	

Outline Syllabus

Binary, HEX, 2s Complement, Number endianness, IEEE 754, ASCII, UNICODE.

Processor core and cache hierarchies, Buses, Memory Organization, Cache Coherency, Multicore, 80% 20% ratio.

Application Scheduling, Security, Interrupt Handling, Libraries, Communications. Variables, Arrays, Iteration, Selection, Interaction with I/O, Structures, Flow charts.

Learning Activities

Laboratory experiments, tutorials, and residential field trip.

Notes

Lecture, demonstration and practical activities applying topics discussed.