Liverpool John Moores University

Title: COMPUTER ARCHITECTURE
Status: Definitive
Code: **4510TECYPC**   (119810)
Version Start Date: 01-08-2018

Owning School/Faculty: Engineering
Teaching School/Faculty: YPC International College (Kolej Antarabangsa YPC)

Team	Leader
Michael Shaw	

Academic Level:	FHEQ4	**Credit Value:**	24	**Total Delivered Hours:**	101
Total Learning Hours:	240	**Private Study:**	139		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	56
Tutorial	42

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	50	3
Test	AS2	Coursework: In-class test	30	
Test	AS3	Coursework: In-class test	20	

Aims

The aim of the module is to enable students to gain a detailed view of computer architecture at the hardware and software levels

Learning Outcomes

After completing the module the student should be able to:

1   Manipulate the various numbers bases applicable to computing.
2   State the operation and design of logic gates. Use Boolean algebra in representing logic circuit.
3   Explain basic computer architecture in terms of processor, memory, bus, interconnection, machine instruction cycle and different I/O devices.
4   Explain principles of operating systems and explain their operation via processes, threads and scheduling.
5   Explain the role of different languages ranging from machine languages to higher level programming languages and explain the relationships between the different languages and their use of resources such as memory.

Learning Outcomes of Assessments

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

Exam   3   5

In-class test 1   1   2

In-class test 2   4

Outline Syllabus

Number systems: binary, octal, hex and decimal and how to convert numbers between systems. Consideration of number systems for data representation and storage.

Logic circuits: The use of Boolean algebra to write equations that describe logic circuits and the basic techniques used to manipulate Boolean equations. The design and Construction of Logic circuits, both synchronous and asynchronous, including encoders, decoders and adders.

Hardware: processor design and operation, memory and memory organization, I/O devices and peripherals, bus architectures, fetch-execute cycle.

Operating systems: The role of the operating system, resource management, processes, threads and scheduling.

Language systems: different language systems from machine code to assemblerand operating system and high level programming languages and the software tobridge between them.

Learning Activities

The module consists of lectures, which will cover areas listed under Learning Outcomes. Tutorials will follow lectures with the tutorial activities covering the topic covered in the preceding lecture.

Course Material	Book
Author	Stephen D. Burd
Publishing Year	2006
Title	Systems Architecture
Subtitle	
Edition	5th ed
Publisher	Thomson Course Technology.
ISBN	

Course Material	Book
Author	William Stallings
Publishing Year	2010
Title	Computer Organization and Architecture: Designing for Performance
Subtitle	
Edition	8th Ed
Publisher	Pearson Education Inc
ISBN	

Course Material	Book
Author	Andrew S Tanenbaum
Publishing Year	2009
Title	Modern Operating Systems
Subtitle	
Edition	3rd Ed
Publisher	Pearson Prentice Hall
ISBN	

Course Material	Book
Author	Douglas E Comer
Publishing Year	2005
Title	Essentials of Computer Architecture
Subtitle	
Edition	1st
Publisher	Pearson Prentice Hall
ISBN	

Notes

This module provides an overview of number systems for data representation, logic circuits, hardware, operating systems and language systems in a computer architectures.