



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

UNIVERSITY OF WALES: TRINITY SAINT DAVID
PRIFYSGOL CYMRU: Y DRINDOD DEWI SANT

BSc Cloud Computing

London Campus

Computer Architecture and Operating Systems
ACCA4022

Module Code	ACCA4022
Title	Computer Architecture and Operating Systems
Date	09/09/2020
Level	4
Credits	20
Pre-Requisites	None

AIM(S)

- To provide the student with a fundamental grounding in the key concepts behind typical computer architectures, hardware, networks and operating systems.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Determine the essential characteristics and concepts behind computer systems and components, number systems, data capacities and transfer speeds, in the context of typical PC hardware and networking environments.
- Demonstrate an understanding of general Operating System concepts.

INDICATIVE CONTENT

- Fundamentals of number systems. Binary, Dec and Hex notation, representation and conversion.
- Computer systems: major components and peripherals.
- Storage devices. Optical, HDD, SSD, RAID configurations etc.
- Nomenclature and specification of typical data capacities and transfer speeds
- Processor characteristics: RISC, CISC, multi-core etc.
- Computer architecture: system block diagram, CPU, memory, input/output unit, system clock, data bus, address bus, control bus, Harvard vs Von-Neumann etc.
- Memory Organisation: Main RAM, cache, virtual memory etc
- Input/output including polled, interrupts and direct memory access.
- Networking hardware and introduction to networking principles.
- OS fundamentals
- Privileges and permissions
- File system structures, navigation, viewing and editing files and scripts

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	200	100%

ASSESSMENT

Assessment Component 1

☒ **Written exam** ☐ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Exam or In class test	2 hours	50%

Assessment Component 2

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Assignment	2500 words	50%

Assessment Summary

Activity type	Percentage
Written exam	50%
Coursework	50%
Practical	0%
TOTAL	100%

INDICATIVE READING LIST

Module Code	ACCA4022	
Module Title	Computer Architecture and Operating Systems	
Classification	Reading List entry	Electronic*
Essential	W Stallings, Computer Organization and Architecture (10th Ed), Pearson, 2016	☐
Essential	I Englander, The architecture of Computer Hardware, Systems Software & Networking – An Information Technology Approach, John Wiley & sons, 2014	☐
Essential	E Siever, Linux in a nutshell, O'Reilly 2009	☒
Further	https://www.tomshardware.com/uk	☒
Further	https://www.anandtech.com/	☒
Further	J O'Gorman, Operating systems with Linux, Palgrave 2001	☐
Further	S Mueller, Upgrading and repairing PCs, Que 2015	☐