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Module specification

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Module Code	COM475
Module Title	Computer Systems and Architecture
Level	4
Credit value	20
Faculty	FACE
HECoS Code	100734
Cost Code	GACP

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Computer Science	Core
BSc (Hons) Computer Science with Industrial Placement	Core
BSc (Hons) Cyber Security	Core
BSc (Hons) Cyber Security with Industrial Placement	Core
BSc (Hons) Software Engineering	Core
BSc (Hons) Software Engineering with Industrial Placement	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	24 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	12 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**36** hrs
Placement / work based learning	0 hrs
Guided independent study	164hrs
Module duration (total hours)	200 hrs

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Initial approval date	08/11/2023
With effect from date	Sept 2024

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Date and details of revision	
Version number	1

Module aims

The aim of the Computer Systems and Architecture module is to provide students with a comprehensive understanding of computer systems and their underlying architecture. The module will explore the components and organization of computer systems, including hardware, software, and their interaction. Students will develop a strong foundation in computer architecture principles and gain practical knowledge of system components and their functionalities.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Recall the basic components of computer systems, including the CPU, memory, input/output devices, and storage systems.
2	Interpret the concepts of computer organization and architecture, including instruction sets, memory hierarchies, and bus structures.
3	Analyse and evaluate the performance of computer systems using appropriate metrics and performance measurement techniques.
4	Demonstrate practical skills in assembling, configuring, and troubleshooting computer systems.

Assessment

Indicative Assessment Tasks:
This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

The assessment for this module will be a portfolio that showcases your understanding and practical skills in computer systems, specifically focusing on the basic components, computer organization, performance evaluation, and practical application. The portfolio may contain practical activities, these may include assembling, configuring, and troubleshooting computer systems, presentations or a short video about the basic components within a computer system plus a performance evaluation of a computer system.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3,4	Portfolio	100%

Derogations

None

Learning and Teaching Strategies

The teaching and learning strategies for the Computer Systems and Architecture module in accordance with the Active Learning Framework, will be digitally blended with both a Virtual Learning Environment (VLE) and an online community. Students will have access to a variety of content, both synchronously and asynchronously, including first and third-party tutorials, videos, supporting files, online activities, and additional resources to enhance their learning experience.

The module's instructional strategies will adapt throughout to cater to the diverse learning environment. Initially, there will be a stronger emphasis on engaging tutor-led lectures, demonstrations, and workshops to ensure students grasp the fundamental concepts. As the module progresses, experiential and peer learning strategies will be promoted, allowing students to apply their knowledge through practical coursework. Sessions will transition to tutorial-based formats, prioritizing formative feedback to support individual student achievement.

Indicative Syllabus Outline

- Introduction to Computer Systems and Architecture
- Data Representation and Arithmetic Operations
- Processor Organization and Instruction Set Architecture
- Pipelining and Parallelism
- Memory Hierarchy and Caching
- Input/Output and Storage Systems
- Performance Evaluation and Benchmarking
- Advanced Computer Architectures

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update. Please *ensure correct referencing format is being followed as per University Harvard Referencing Guidance*.

Essential Reads

W. Stallings, *Computer Organization and Architecture, Global Edition 11th Edition* Pearson, 2021.

Other indicative reading

L. Null, *The Essentials of Computer Organization and Architecture 6th Edition,* Jones and Bartlett Learning, 2023.