

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
Pre-requisite module	N/A

Programmes in which module to be offered

Programme title	Core/Optional/Standalone
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) Computing for Business	Core

Breakdown of module hours

Learning and teaching hours	24 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	12 hrs
Project supervision hours	0 hrs
Active learning and teaching hours total	36 hrs
Placement hours	0 hrs
Guided independent study hours	164 hrs
Module duration (Total hours)	200 hrs

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:

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; and a performance evaluation of a computer system.

Portfolio assessments may comprise multiple pieces of work that collectively demonstrate a student's knowledge and skills developed throughout the module. These may take the form of one or two substantial tasks, or a series of smaller tasks, typically ranging from one to eight across the duration of the module.

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.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1,2,3,4	Portfolio	4000 Words or Equivalent	100%	

Derogations

N/A

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, prioritising formative feedback to support individual student achievement.

Welsh Elements

This module is designed to support Welsh-speaking students in line with the Welsh Language Standards. While the primary delivery will be in English, students will have the opportunity to submit assessments, including coursework and projects, in Welsh if preferred. Relevant module materials, such as reading lists, key texts, and guidance, will be available bilingually upon request, ensuring accessibility for all students. Additionally, where possible, guest speakers, case studies, or examples may include references to the Welsh business context, especially in areas such as data use in local industries and Welsh public sector organisations.

The department encourages students to develop bilingual digital skills by incorporating Welsh-language datasets, tools, and resources where appropriate, offering an inclusive learning environment. We also support the development of bilingual visualisation techniques, enabling students to create digital outputs that reflect the Welsh language, should they wish to do so.

Indicative Syllabus Outline

Indicative syllabus includes topic areas that may include:

- 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.

Essential Reads:

Stallings, W. (2021) Computer Organization and Architecture. Global Edition, 11th edn. Pearson.

Other indicative reading:

Null, L. (2023) The Essentials of Computer Organization and Architecture. 6th edn. Jones and Bartlett Learning.

Please note the essential reads and other indicative reading are subject to annual review and update.

Administrative Information

For office use only	
Initial approval date	08/11/2023
With effect from date	Sept 2026
Date and details of revision	Jan 26 - Addition of BSc (Hons) Computing for Business from Sept 26
Version number	2