Module Specification

Computer Systems Architecture

Version: 2025-26, v2.0, 24 Jan 2025

Contents

Part 1: Information

Module title: Computer Systems Architecture

Module code: UFCFDS-15-1

Level: Level 4

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module broadens and deepens the students knowledge and understanding of how complex systems of communicating computing devices operate. The focus of the module is on understanding and experimenting with some of the fundamental issues operating within the layered model of computer architectures. The vulnerability of computer systems to information security threats is also explored.

Features: Not applicable

Educational aims: The module aims to provide the students with a bedrock of understanding about computer systems that will enable to make sense of, extend and experiment with computing concepts at higher levels of study.

Outline syllabus: In this module you will cover the following areas:

Logic and its application in simple circuits
Computer Architecture
- Von Neumann Architecture
- Alternative Architectures

Fetch/Execute cycle
Machine code, assembler, high level languages and their relationship one to the other.
Operating Systems: their role, and primary functions.
Processes and Threads
Communications
Information Security: vulnerabilities and types of control.
Sustainability: The move to low power consumption

Part 3: Teaching and learning methods

Teaching and learning methods: This module will principally be delivered as combination of lectures and practical sessions with some occasional tutorials and seminars. Students are expected to attend all scheduled classes. We encourage students to be active in their learning. We provide a range of resources and activities to enable them to engage in achieving the learning outcomes.

The lectures will explain theoretical concepts. The theory will be illustrated and illuminated through the use of case studies and by practical sessions during which the students will solve problems and write and experiment with programme code to implement those solutions. As part of their self-directed study time, students are expected to read around the topics presented

The module will be supported by the University's VLE which will be used as a repository for course materials, a forum for discussion and, from time to time, tests and/or quizzes to enable the students to self-test their knowledge.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Explain the structure and function of modern computer systems and demonstrate how they can be integrated to create more complex systems to solve real-world problems.

MO2 Recognise that computers can be viewed as a hierarchy of functional layers and discuss the competing constraints imposed by the close interplay of hardware and software.

MO3 Make use of some of the technical principles and practical details of computer networking, particularly with regard to information security.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://rl.talis.com/3/uwe/lists/068AB317-BEA1-3D01-2F38-60FB4A74B620.html?lang=en-GB&login=1

Part 4: Assessment

Assessment strategy: Students will gain practical experience of the outcomes though engaging in a project to build a communicating device. The project will be supported during lab-sessions. Students are also expected to work on the project during independent study times. The primary purpose of the lab-sessions will offer time for support in overcoming any challenges and to extend the students thinking.

This approach is replicated at resit except that students will be expected to make contact with the module team for additional support in developing their project.

Assessment tasks:

Project (First Sit)
Description: One practical programming task
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Project (Resit)
Description: One practical programming task
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Computer Science {Foundation} [GCET] DipHE 2024-25

Computer Science (Smart Devices) {Foundation} [GCET] BSc (Hons) 2024-25

Computer Science (Artificial Intelligence) {Foundation} [GCET] BSc (Hons) 2024-25

Computer Science {Foundation} [Frenchay] BSc (Hons) 2024-25

Computer Science {Foundation} [GCET] BSc (Hons) 2024-25

Computer Science (Artificial Intelligence) {Foundation} [GCET] DipHE 2024-25

Computer Science (Smart Devices) {Foundation} [GCET] DipHE 2024-25

Computer Science (Artificial Intelligence) {Foundation} [GCET] BSc (Hons) 2024-25

Computer Science {Foundation} [GCET] BSc (Hons) 2024-25

Computer Science (Smart Devices) {Foundation} [GCET] BSc (Hons) 2024-25

Computer Science {Foundation} [Frenchay] BSc (Hons) 2024-25

Computer Science [Frenchay] BSc (Hons) 2025-26

Computer Science [Phenikaa] BSc (Hons) 2025-26

Computer Science (Artificial Intelligence) [NepalBrit] BSc (Hons) 2025-26

Computer Science [Villa] BSc (Hons) 2025-26

Computer Science {Dual} BSc (Hons) 2025-26