



## **Module Specification**

### **Computer and Network Systems**

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## Part 1: Information

**Module title:** Computer and Network Systems

**Module code:** UFCF93-30-1

**Level:** Level 4

**For implementation from:** 2023-24

**UWE credit rating:** 30

**ECTS credit rating:** 15

**Faculty:** Faculty of Environment & Technology

**Department:** FET Dept of Computer Sci & Creative Tech

**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:** Not applicable

**Features:** Not applicable

**Educational aims:** See Learning Outcomes

**Outline syllabus:** This module seeks to introduce the concepts of computer hardware, operating systems, programming and networking.

Computer Hardware:

The Principal Functional Units and the Fetch-execute cycle

Interrupts

Numbers and Logic circuits

Memory circuits

Adding, Subtraction, Multiplication, Division circuits.

Operating Systems:

Memory Management and Scheduling

Processes and Threads

Introduction to Linux

Comparing Windows and Linux

Caching

Programming:

Languages and Compilers

Different ways to programme

Finite State Machine

Using Threads and Semaphores

Data Structures

Networking:

LAN and WAN

Cell Phone Network

Client Server

Security Problems

Security Solutions

Rounding up:

The move to low power consumption and sustainability

Pulling it all together

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** The module is delivered through weekly and fortnightly lectures and weekly lab sessions. Each lecture will direct the course and introduce the new ideas and skills required. Then small group lab sessions will enable each student to carry out the practical exercises described in the associated work-sheet under the guidance of a Lab Tutor. Highly effective PAL tutoring sessions are provided to support students every week.

The teaching material is available from Blackboard. A course text is also recommended.

Scheduled learning includes lectures, tutorials, practical lab classes, and PAL mentoring

Independent learning includes time engaged with essential reading, assignment coursework and self-assessment tests.

This module will involve 9 hours contact time per fortnight (3 hours of lectures, 4 hours practical and 2 hours of PAL sessions).

Activity (hrs)

Contact time (108)

Assimilation and development of knowledge (117)

Exam preparation (37.5)

Coursework preparation (37.5)

Total study time (300)

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

**MO1** Apply fundamental principles of combinatorial digital logic to expose the principal building blocks of computer systems

**MO2** Recognise that computers can be viewed a hierarchy of functional layers, and understand the close interplay of hardware and software

**MO3** Compare features of new computer architectures with the original von Neumann model.

**MO4** Understand the important role of an Operating System

**MO5** Understand some of the technical principles and practical details of computer networking

**MO6** Conduct research into the impact on society of decisions related to sustainability, e.g. decisions on power consumption by computing devices

**Hours to be allocated:** 300

**Contact hours:**

Independent study/self-guided study = 192 hours

Face-to-face learning = 108 hours

Total = 300

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/index.html) via the following link <https://uwe.rl.talis.com/index.html>

## **Part 4: Assessment**

**Assessment strategy:** The assessment is split 50/50 between practical coursework and tests. The coursework normally involves the production of software to implement a specification, coupled with a report on its implications. The actual assignment topics are carefully chosen to demonstrate some basic principles which are especially significant to the course. For example, data transmissions flow, error control, multi-tasking, and the use of FSDs or runtime debugging. There is a library exercise which gives students practice in using research techniques for use in their reports.

The programming will be challenging for most of the students and must be demonstrated and explained orally to a tutor for part of the assessment. In this way, students develop the skill and confidence to talk about the subtle intricacies of their software, and so become aware and proud of their achievements.

The coursework is required to be carried out individually but team working will be allowed to encourage communication.

More often than not, the coursework will contain proven source code to assist students to start the assignment. This in itself is a considerable challenge because reading other's code is not a facile accomplishment.

The in-class test will be delivered in a multiple choice format, with the marked scripts returned quickly to the students for immediate review.

**Assessment tasks:****In-class test** (First Sit)

Description: Examination of the student's theoretical knowledge

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

**Portfolio** (First Sit)

Description: A portfolio of a library exercise and a programming exercise with report (800 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO5, MO6

**In-class test** (Resit)

Description: Examination of the student's theoretical knowledge (2 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

**Portfolio (Resit)**

Description: A portfolio of a library exercise and a programming exercise with report (800 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO5, MO6

**Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Cyber Security and Digital Forensics [Frenchay] BSc (Hons) 2023-24

Cyber Security and Digital Forensics [NepalBrit] BSc (Hons) 2023-24

Cyber Security and Digital Forensics {Foundation} [Frenchay] BSc (Hons) 2022-23

Computer Security and Forensics {Foundation} [GCET] BSc (Hons) 2022-23