# MODULE SPECIFICATION

| Part 1: Information | | | |
|---|---|---|---|
| Module Title | Computer and Network Systems | | |
| Module Code | UFCF93-30-1 | Level | Level 4 |
| For implementation from | 2019-20 | | |
| UWE Credit Rating | 30 | ECTS Credit Rating | 15 |
| Faculty | Faculty of Environment & Technology | Field | Computer Science and Creative Technologies |
| Department | FET Dept of Computer Sci & Creative Tech | | |
| Module type: | Standard | | |
| Pre-requisites | None | | |
| Excluded Combinations | None | | |
| Co- requisites | None | | |
| Module Entry requirements | None | | |

## Part 2: Description

**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

**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)

**Part 3: Assessment**

The assessment is split 50/50 between practical coursework and tests. Component B, 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.

All the coursework is required to be carried out individually but team working will be allowed in the second

assignment 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 component A grade will be obtained from two tests. By offering within-course tests, helpful feedback can be delivered, and students can work to improve their final grade. Tests will be delivered in a multiple choice format, with the marked scripts returned quickly to the students for immediate review.

| First Sit Components | **Final Assessment** | **Element weighting** | **Description** |
|---|---|---|---|
| Set Exercise - Component B | | 5 % | Library Exercise |
| Report - Component B | | 22.5 % | Programming assignment with report (800 words) |
| Report - Component B | ✓ | 22.5 % | Programming assignment with report (800 words) |
| Examination - Component A | | 25 % | Written test (2 hours) |
| Examination - Component A | | 25 % | Written test (2 hours) |
| Resit Components | **Final Assessment** | **Element weighting** | **Description** |
| Set Exercise - Component B | ✓ | 50 % | Programming assignment with report (1600 words) |
| Examination - Component A | | 50 % | Written examination (3 hours) |

**Part 4: Teaching and Learning Methods**

Learning Outcomes

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

| **Module Learning Outcomes** | **Reference** |
|---|---|
| Demonstrate detailed knowledge and understanding of the structure and function of modern computer systems | 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 |
| Write programs using assembler | MO6 |
| Use numeric and character data typing and convert between them | MO7 |
| Understand some of the technical principles and practical details of computer networking | MO8 |
| Conduct research into the impact on society of decisions related to sustainability, e.g. decisions on power consumption by computing devices | MO9 |

Contact Hours

**Independent Study Hours:**

| | |
|---|---|
| Independent study/self-guided study | 192 |

| | | |
|---|---|---|
| | **Total Independent Study Hours:** | 192 |
| | **Scheduled Learning and Teaching Hours:** | |
| | Face-to-face learning | 108 |
| | **Total Scheduled Learning and Teaching Hours:** | 108 |
| | **Hours to be allocated** | 300 |
| | **Allocated Hours** | 300 |
| Reading List | *The reading list for this module can be accessed via the following link:*<br><br>https://uwe.rl.talis.com/index.html | |

| **Part 5: Contributes Towards** |
|---|
| This module contributes towards the following programmes of study:<br><br>Computing {Dual} [Aug][FT][Taylors][3yrs] BSc (Hons) 2019-20<br>Computing {Dual} [Aug][SW][Taylors][4yrs] BSc (Hons) 2019-20<br>Computing {Dual} [Mar][FT][Taylors][3yrs] BSc (Hons) 2019-20<br>Computing {Dual} [Mar][SW][Taylors][4yrs] BSc (Hons) 2019-20<br>Forensic Computing and Security {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19<br>Software Engineering [Oct][FT][GCET][4yrs] BEng (Hons) 2018-19<br>Forensic Computing and Security {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2018-19<br>Computer Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19<br>Computer Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2018-19<br>Computer Security and Forensics {Foundation} [Sep] [FT] [GCET] [4yrs] BSc (Hons) 2018-19<br>Software Engineering [Feb][FT][GCET][4yrs] BEng (Hons) 2018-19<br>Computer Security and Forensics [Feb][FT][GCET][4yrs] BSc (Hons) 2018-19<br>Computer Security and Forensics [Oct][FT][GCET][4yrs] BSc (Hons) 2018-19 |