Module Specification

Operating Systems

Version: 2025-26, v4.0, Approved

Contents

Part 1: Information

Module title: Operating Systems

Module code: UFCFWK-15-2

Level: Level 5

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: Computer and Network Systems 2024-25, Computer Systems Architecture 2024-25

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Students must have taken either UFCF93-30-1 Computer and Network Systems OR UFCFDS-15-1 Computer Systems Architecture as a pre-requisite.

Features: Not applicable

Educational aims: See Learning Outcomes.

Outline syllabus: The syllabus includes:

Operating System Organization models and structures

Process and Object Management kernel services, interrupt handlers, scheduling. Inter-process Communication event handling, message passing, synchronous/asynchronous, shared memory.

Concurrency and Synchronization semaphores, critical regions, monitors, message passing, multi-threaded processes.

Memory Management Organization algorithms and policies, Virtual Memory Management.

Security Models for secure computing, access control, capability based systems, access control lists.

Security issues surrounding Operating Systems, including exploitation and the like.

I/O Management Device driver design, Buffering and interrupt handling. File and Persistent Object Management File organization, directories and naming, index nodes, disk block management.

Network and distributed file systems Protection and Security Models.

Part 3: Teaching and learning methods

Teaching and learning methods: Laboratory exercises will allow the student to gain familiarisation with the tools and techniques required for the implementation and verification of operating systems.

Students will be expected to demonstrate self-direction and originality in their learning which will be facilitated through student directed tutorials.

Scheduled learning: in the form of tutorials, demonstrations and practical classes will comprise 1/3 of the total study time for this module.

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

MO1 Show a detailed knowledge and understanding of the design, structure and implementation of modern operating systems (OS)

MO2 Develop small utility programs that interface to the system primitives

MO3 Understand the different OS tools and how they can modify the OS behaviour

MO4 Understand the security problems and solutions in an OS

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 102 hours

Face-to-face learning = 48 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ufcfwk-15-2.html

Part 4: Assessment

Assessment strategy: At both first sit and resit, the assessment for this module will be a portfolio of tasks, focusing on different aspects of Operating Systems. It will be an individual assessment.

Assessment tasks:

Portfolio (First Sit)
Description: The means of assessment will be a portfolio consisting of tasks assessing different aspects of the module. The portfolio will include tasks that will

demonstrate the student's ability both to implement and critique aspects of an operating system.
It will be an individual work,
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4

Portfolio (Resit)
Description: The means of assessment will be a portfolio consisting of tasks assessing different aspects of the module. The portfolio will include tasks that will demonstrate the student's ability both to implement and critique aspects of an operating system.
It will be an individual work,
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

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

Computer Science {Foundation} [Frenchay] BSc (Hons) 2023-24

Computer Science [Phenikaa] BSc (Hons) 2024-25

Computer Science (Artificial Intelligence) [NepalBrit] BSc (Hons) 2024-25

Cyber Security and Digital Forensics [NepalBrit] BSc (Hons) 2024-25

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

Cyber Security and Digital Forensics [Frenchay] BSc (Hons) 2024-25

Computer Science [Villa] BSc (Hons) 2024-25

Cyber Security and Digital Forensics [Frenchay] BSc (Hons) 2024-25

Cyber Security and Digital Forensics [NepalBrit] BSc (Hons) 2024-25

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

Computer Science (Artificial Intelligence) {Foundation} [GCET] BSc (Hons) 2023-24

Computer Science {Foundation} [GCET] BSc (Hons) 2023-24

Computer Science (Smart Devices) {Foundation} [GCET] BSc (Hons) 2023-24

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

Software Engineering for Business {JEP} [Neusoft] BSc (Hons) 2023-24

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

Computer Science (Smart Devices) {Foundation} [GCET] BSc (Hons) 2023-24

Computer Science (Artificial Intelligence) {Foundation} [GCET] BSc (Hons) 2023-24

Computer Science {Foundation} [GCET] BSc (Hons) 2023-24

Computer Science (Artificial Intelligence) {Foundation} [GCET] DipHE 2023-24

Computer Science (Smart Devices) {Foundation} [GCET] DipHE 2023-24

Computer Science {Foundation} [GCET] DipHE 2023-24