

Module Code	Pre-requisite Module codes	Co-Requisite Modules code(s)	ISCED Code	Subject Code	ECTS Credits	NFQ Level (CPD)#
CMPU 2003	CMPU 1109				10	6
Module Title	Computing Technology 2					

Computer Technology 2

School Responsible:	School of Computing
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Module Overview:

This module develops the learner's understanding of operating systems by introducing them to the theory associated with the study of operating systems, and providing them with the practical skills to perform effective operating system process management. As such, this is a module which is balanced between the theoretical and the practical. An important outcome of this module is the learner's ability to write programs for process management.

Learning Outcomes (LO):

On Completion of this module, the learner will be able to

1	Introduce students to core concepts of low level systems programming language
2	Introduction to basic concepts used in systems programming
3	Perform basic programming for process and thread management
4	Describe how a modern general-purpose operating system typically manages memory, processes and threads
5	Enumerate, explain, and differentiate between different mechanisms of inter-process communication and synchronisation
6	Explain concepts of issues associated with the drawback of inter-process communication and synchronisation

Indicative Syllabus:

Shell commands and basic Shell Scripting.

Processes: Process states, context, and control, Scheduling algorithms: Round-robin, priority queues

Basic concepts of C programming

The implement of data structures associated with the implementation of process and thread management: queues stacks and link lists.

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The core concepts of process and threads: creating and implementation

Process synchronisation: Concurrency: Deadlock prevention, avoidance, detection and starvation,

Implementation of Inter-processes Communication including the use of mutexes, semaphores and shared memory

Memory Management and Virtual Memory: Evolution of virtual memory: overlays, swapping, paging, segmentation, internal and external fragmentation,

File system management: The Organization Directories, files and file control blocks.

Learning and Teaching Methods:

The course delivery involves a combination of lectures and labs which may incorporate the use of blended learning techniques as appropriate throughout the delivery.

Total Teaching Contact Hours	39
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Total Self-Directed Learning Hours	148
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Module Delivery Duration:

This module is delivered over one semester

Assessment

Assessment Type	Weighting (%)	LO Assessment (No.)
Final Exam	70	1 to 6
In Class Examination	30	1, 2 3 and 5

Module Specific Assessment Arrangements (if applicable)

(a) Derogations from General Assessment Regulations	
(b) Module Assessment Thresholds	
(c) Special Repeat Assessment Arrangements	

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Essential Reading: (author, date, title, publisher)

Mchoes, A.M. and Flynn, I.M. Understanding Operating systems 7th ed Cenage Learning

William Stallings, Operating Systems, 4th ed.; Prentice Hall, Upper Saddle River, NJ

On-line material to be given during the running of the module

Supplemental Reading: (author, date, title, publisher)

Relevant supplemental references will be indicated during the teaching of the module.

Version No:		Amended By	
Commencement Date		Associated Programme Codes	

Modules that are to be offered as Stand-Alone CPD Programmes must have an NFQ level assigned

*Details of the assessment schedule should be contained in the student handbook for the programme stage.

Date of Academic Council approval

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