

Module specification

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Module Code	COM485
Module Title	Computing Technologies
Level	4
Credit value	20
Faculty	FAST
HECoS Code	100366
Cost Code	GACP

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
WUCCE Computing Fundamentals (aligned to BSc (Hons) Computer Science for QA and Assessment process)	Core

Pre-requisites

Breakdown of module hours

Learning and teaching hours	24 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	12 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	36 hrs
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	08/11/2023
With effect from date	Aug 2024



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Date and details of revision	
Version number	1

Module aims

This module will provide an overview of the key concepts, principles, and components of computing technologies. Familiarize students with the fundamental knowledge necessary to understand and explore various aspects of computing. Understand the interactions and functionalities of different hardware components in a computer system. Provide an introduction to operating systems, their purpose, and functions. Familiarize students with the basic concepts of process management, memory management, file systems, and device management. Introduce the basics of databases, data models, and database management systems. Introduce web technologies and web development concepts.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Apply the key concepts, principles, and components of computing technologies.
2	Identify the functions and interactions of various hardware components, such as the CPU, memory, storage devices, and input/output devices.
3	Demonstrate the role of the operating system in managing resources, providing services, and facilitating communication between hardware and software.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

The module will involve continuous assessment through the portfolio tasks. This revolves around real-world scenarios centred on modern computer technologies. Key assessment tasks could focus on researching computer technologies used in different scenarios, how best to allocate system resources for different industry tasks and configuring systems for real-world applications.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2, 3	Portfolio	100%



Derogations

None

Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, online activities any additional content that supports their learning.

As this module progresses, the strategies will change to best support a diverse learning environment. Initially, the module will start with a heavier reliance on engaging tutor-led lectures, demonstrations, and workshops to ensure that the students get the relevant threshold concepts. As the module continues experiential and peer learning strategies will be encouraged as the students' progress with their portfolio work

Indicative Syllabus Outline

Yearly content will be updated to represent the most appropriate content for current industry technologies, but a list of indicative topics could include:

- Overview of computing technologies
- Evolution of computing systems
- Basic computer organization and architecture principles
- CPU, memory, storage devices, and input/output devices
- Instruction execution cycle and machine language instructions
- Introduction to operating systems and their functions
- Process management and scheduling
- Memory management and virtual memory
- File systems and device management
- Introduction to command-line interfaces and basic shell commands
- Introduction to programming languages and their classifications
- Overview of software engineering principles and practices
- Introduction to computer networks and their types
- Introduction to databases and their importance in applications
- Introduction to web technologies and web development
- Introduction to problem-solving techniques

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

N. Nisan, S. Schocken, *The Elements of Computing Systems, second edition: Building a Modern Computer from First Principles 2nd Edition*, The MIT Press, 2021.

Other indicative reading

Y. Patt, S. Patel, *Introduction to Computing Systems: From Bits & Gates to C/C++ & Beyond 3rd Edition*, McGraw Hill, 2019.

A. Yadin, *Computer Systems Architecture* (Chapman & Hall/CRC Textbooks in Computing), Routledge, 2020.