Module Descriptor

Title	Fundamentals of Computing Systems		
Session	2025/26	**Status**	Published
Code	COMP07086	**SCQF Level**	7
Credit Points	10	**ECTS (European Credit Transfer Scheme)**	5
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	TBC		

Summary of Module

Computers and processors are now an ever-present part of normal life, found not only in PCs, but in mobile phones, digital cameras, games consoles and in a myriad of places around the home and workplace. Furthermore, security is now also a core requirement when creating systems and software.

This module aims to provide an understanding of the fundamental behaviour and components (hardware, software, operating systems, networks, and security) of a typical computer system, and how they collaborate to manage resources and provide services.

These aims are met by:

- Providing a theoretic and practical introduction to computer systems
- Introducing essential computing principles and terminology
- Introducing the basic hardware and software components of a computer
- Investigating the structure and function of a computer operating system
- Introduction and usage of an operating system shell
- Investigating computer systems security

This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module:

- Universal: critical thinker; research-minded
- Work Ready: problem-solver; digitally literate
- Successful: autonomous

Module Delivery Method	On-Campus[1] ☐	Hybrid[2] ☒	Online[3] ☒	Work -Based Learning[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☒ Lanarkshire ☐ London ☐ Paisley	☒ Online / Distance Learning ☐ Other (specify) Online Delivery / Distance Learning applies to delivery in the BSc (Hons) Data, AI and Software Engineering programme only	

Terms for Module Delivery	Term 1	☒	Term 2	☐	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Demonstrate an awareness of the range of hardware and software components and devices that are brought together in modern information, entertainment and ubiquitous computer systems
L2	Convey and demonstrate an understanding of the organization and operation of low-level computer system organization and architecture.
L3	Demonstrate the ability to use an operation system shell via the execution of standard commands and the creation of scripts
L4	N/A
L5	N/A

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 7** Demonstrate a knowledge of the various levels contributing to computer system organisation.

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Practice: Applied Knowledge and Understanding	**SCQF 7** Explaining ways in which data may be represented within a computer system and performing conversions between number systems Illustrating the steps involved in the detailed execution of instructions at the logic and machine levels and solve related problems in lab exercises. Illustrating the steps involved in the detailed execution of instructions at the logic and machine levels and solve related problems in lab exercises. Demonstrate proficiency in using an operating systems basic functionality via the shell/command line rather than using the graphical user interface.
Generic Cognitive skills	**SCQF 7** Use a range of approaches to address defined and/or routine problems within familiar contexts
Communication, ICT and Numeracy Skills	**SCQF 7** Use of standard word processing applications Use of a range of numerical and investigative skills.
Autonomy, Accountability and Working with Others	**SCQF 7** Work with others to solve defined problems

Prerequisites	**Module Code**	**Module Title**
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	12
Tutorial / Synchronous Support Activity	12
Independent Study	76
Please select	
Please select	
Please select	
TOTAL	100

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Ledin, J. (2022) Modern Computer Architecture and Organization – Second Edition. Packt Publishing Ltd. White, R. and Timothy Edward Downs (2015) How computers work : the evolution of technology. Indianapolis, Indiana: Que. Williams, R. (2001) Computer systems architecture : a networking approach. Harlow, England ; New York: Addison-Wesley.
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Computing**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**

Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Business and Aplied Computing
Moderator	TBC
External Examiner	A Malhi
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.1

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Class test (practical) (50%)
Assessment 2
Report of practical/ field/ clinical work (50%)
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Report of practical/ field/ clinical work	☐	☒	☐	☐	☐	50	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Class test (practical)	☒	☐	☒	☐	☐	50	2

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**

	☐	☐	☐	☐	☐		
Combined total for all components						100%	2 hours

Change Control

What	**When**	**Who**
Attendance and Engagement and Equality and Diversity statements updated.	17/1/25	L Smith
External Examiner updated	22/01/2025	A Adamson