Module Descriptor

Title	Operating Systems		
Session	2025/26	**Status**	Published
Code	COMP08074	**SCQF Level**	8
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Tony Gurney		

Summary of Module

An operating system module is one of the most important professional and fundamental modules taught in the computing curriculum. The user interacts with the computer system, during the design and development and use of the computer applications. The module builds upon previously presented concepts. The module will provide understanding of the principles behind the design of centralized and distributed operating systems observing how these principles are put into practice in real operating systems. It will also look at solved and open problems and issues in OS design as well as recent trends.

The module will provide students with an introduction to the concepts, structure and mechanisms of Operating Systems. The main topics covered by the module include: Basic Principles, Kernel, Input/Output, File Management, Network File Systems, Memory Management, Scheduling and Dispatch, Concurrency and Synchronisation, Security and Protection.

The teaching and assessment contained in this module are specifically designed to encourage independent, critical thinking. In addition students are encouraged to work through problems both indpendently and as part of a group. Tutorials, as well as group interactions, are expressly structured to encourage the creation and dispersal of solutions using a critical approach to problem solving whilst bearing in mind best industry practice both legally and ethically.

Module Delivery Method	**On-Campus[1]**	**Hybrid[2]**	**Online[3]**	**Work -Based Learning[4]**
	☒	☐	☐	

[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

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Campuses for Module Delivery	☐ Ayr ☒ Dumfries	☒ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☒ Other (specify) NCL	
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 understanding of the principles, structure and functions of operating systems as an integral part of the design of modern computer system.
L2	Investigate, analyse and define the requirements for an operating system given an application scenario relating its functions to the architecture of the machine.
L3	N/A
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 8** Knowledge & understanding of working principle of computer components and an operating system.
Practice: Applied Knowledge and Understanding	**SCQF 8** Knowledge of applying practical skills in designing and building simple communications between computer components and systems software.
Generic Cognitive skills	**SCQF 8** Students will learn how to bring together information from various sources so as to complete their laboratory and tutorial tasks.
Communication, ICT and Numeracy Skills	**SCQF 8** Working in interacting groups and compiling individual reports students will develop communication skills as well as the ability to write technical report and documentation. The practical problem solving exercises will enhance students' numerical skills.
Autonomy, Accountability and Working with Others	**SCQF 8** Students will be encouraged to work with others in tutorials and lab sessions for finding information and solving problems on the assigned task. In doing so, students will develop a sense of accountability to the other members.

Prerequisites	Module Code COMP07061	Module Title Computing Systems
	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. The module will be delivered by means of lectures, tutorials and practical lab work aimed at developing the knowledge and skills on Operating systems. The lectures will introduce techniques and cover core concepts, principles and theories of the operating system. These will be supported by practical exercises undertaken during tutorials, labs and direct study. Additional reading material - classic papers on operating systems and papers covering some new developments - is provided as part of coursework that involves critically evaluating the ideas presented in the papers. The follow-on lab work will enable students to put the theory into practice what they have learned. The tutorial sessions will help consolidate both the lecture material and the skills practiced during the lab work. Oral feedback will be given during the tutorials and labs. Practical understanding and skills and learning outcomes will be tested through coursework and the formal examination.	
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	24
Tutorial / Synchronous Support Activity	12
Laboratory / Practical Demonstration / Workshop	12
Independent Study	152
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Module Resources on Moodle Little Man Computer software PC-SPIM software YASS OS simulator software The World Wide Web Operating System Concepts, Ninth Edition, Silberschatzt, Galvin and Gagne, John Wiley & Sons, 2012. Computer Organisation and Architecture, Ninth Edition, William Stallings, Pearson, 2013. Modern Operating Systems, (3rd ed), Andrew Tanenbaum, Pearson, 2009. Computer architecture and Logic Design, Thomas Bartee, McGraw-Hill, 2010. The architecture of Computer Hardware and Software: An Information Technology Approach, forth edition, Irv Englander, Wiley, 2009.

Computer Organization and Design The Hardware/Software Interface, Fifth Edition, David A Patterson and John L Hennessey; Elsevier, 2008.

(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 Applied Computing
Moderator	Henry Hunter
External Examiner	R Khusainov

Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.08

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
An individual coursework assignment (weighted at 20%).
Assessment 2
A group coursework assignment (weighted at 40%).
Assessment 3
Two knowledge based class tests (each weighted at 20% for a total of 40%).
(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	☒	☒	☐	☐	☐	20	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Dissertation/ Project report/ Thesis	☒	☒	☐	☐	☐	40	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Class test (written)	☒	☒	☐	☐	☐	40	2
Combined total for all components						100%	2 hours

Change Control

What	**When**	**Who**
Attendance and Engagement and Equality and Diversity statements updated	20/02/25	L Smith
