

NEW/UPDATED MODULE DESCRIPTOR

Module Title	Operating Systems
Course Title(s)	BSc Hons Computer Science
School	Engineering
Division	Computer Science and Informatics
Parent Course (If applicable)	N/A
Level	5
Semester	Semester one
Module Code (showing level)	CSI_5_OSY
Joint Academic Coding System / Higher Education Classification of Subjects Code	JACS code : I112 HECoS Code 100735
Credit Value	20 credit points
Student Study Hours	Contact hours:48 Student managed learning hours: 152 Placement hours: N/A
Pre-requisite Learning	None

Co-requisite Module(s)	None
Excluded Combinations	None
Module Co-ordinator	TBC
Short Description (max. 100 words)	An operating system is a computer program that acts as an intermediary between users and their application programs and, on the other hand, the computer hardware. Operating systems are highly complex software artefacts. This module covers all aspects of the design of operating systems and the functions they perform. It also covers related technologies such as virtualisation and CPU features for maximising performance.
Aims	This module aims to give students an understanding of modern operating systems and their implementation, the principles of data transmission, protocols and security issues, and the characteristics of various kinds of computer networks.
Learning Outcomes (4 to 6 outcomes)	Knowledge and Understanding: - Describe and categorise operating system designs and strategies for a large range of functionality including memory management, process scheduling and file systems. Intellectual Skills: - Select the algorithms and design strategies required for a diverse range of fundamental computer functionality. Practical Skills: - Configure and make effective use of operating system facilities. Transferable Skills: - Analyse problems and identify strategies for their solutions.
Employability	A good understanding of modern computer operating systems, data transmission principles, protocols, security issues and computer network operation, and an ability to work with or analyse them as appropriate, is to be expected of all prospective computing professionals.

Teaching and Learning Pattern	Contact hours includes the following: (Please click on the checkboxes as appropriate) Lectures [X] Group Work [X] Seminars Tutorials [X] Laboratory [X] Workshops Practical [X] VLE Activities [X]
Indicative Content	• Role and purpose of the operating systems • Design issues (efficiency, robustness, flexibility, portability, security, compatibility) • Monolithic, micro-kernel and hybrid architecture • Concepts of application program interfaces • Physical memory, caches and memory management hardware • Paging and virtual memory • Context switching • Pre-emptive and non-pre-emptive scheduling • Processes and threads • Multi-core processors • Protection, access control, and authentication • File systems • Virtualisation • Application execution mechanisms: Interpretation, compilation to native code and compilation to bytecode
Assessment Method (Please give details – of components, weightings, sequence of components, final component)	Formative assessment: Skills for the summative assessment will be embedded throughout formative opportunities in Lectures and Workshops. Formative assessment will take different forms, such as: • interactive revision quizzes • verbal feedback on tutorial activities • observation and questioning to provide instant feedback as the student takes part in learning activities Summative assessment: <i>CW1: In class test (40%)</i> <i>CW2: OS Prototype task (60%)</i> <i>(The sequence of components in this section should reflect the order of submission)</i>
Mode of Resit	Formative assessment: N/A Summative assessment: <i>CW1: In class test (40%)</i> <i>CW2: OS Prototype task (60%)</i>

Indicative Sources (Reading lists)	Core materials: 1. <i>William Stallings (Pearson 2018), Operating Systems: Internals and Design Principles, 9th Edition</i> ISBN-10: 1292214295 2. <i>O'Reilly (2005)</i> Learning the bash Shell: Unix Shell Programming (In a Nutshell) (2005), ISBN: 9780596009656 Optional reading: 1. <i>Galvin, P. (2020), Operating System Concepts, 10th Edition</i> ISBN: 978-11194-5408-3 2. <i>Tanenbaum, A., Bos, H. (Pearson 2017), Modern Operating Systems 4th Global Edition</i> ISBN-10: 1292061421 3. <i>Raphaël Hertzog (2020)</i> The Debian Administrator's Handbook, ISBN: 9791091414043
Other Learning Resources	• VLE • MS Teams You can borrow up to 20 books from the library: https://libguides.lsbu.ac.uk/library-services/access-to-resources Where can I find my books in the LSBU Hub? Subject area: Shelfmark LSBU Hub Computer science 004-006 Zone B, C, Level 03 Each book is given a specific shelfmark (class number). Please use the maps on this page to locate the zone for that shelfmark: https://library.lsbu.ac.uk/our-libraries/Southwark-Campus-Library