University of the West of Scotland

Module Descriptor

Session: 2024/25

Title of Module: Virtualisation			
Code: COMP10064	**SCQF Level:** Choose an item. **(Scottish Credit and Qualifications Framework)**	**Credit Points:**	**ECTS: (European Credit Transfer Scheme)**
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Duncan Thomson		

Summary of Module

Virtualisation is becoming an increasingly important part of the IT infrastructure in modern organisations. This module begins by examining the reasons for this change and the various different types of virtualisation available (hardware - type I and II, operating system, storage, network, desktop). It continues by examining in detail the terminology and concepts underlying standard hardware and operating system virtualisation, as well as the techniques required to create and manage basic virtualised systems. A number of widely-used virtualisation systems are introduced, and the module concludes with a look at more advanced and emerging areas, such as common frameworks and standards for managing virtualisation, virtual networking and live migration.

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
• Ethically-minded
• Research-minded
Work Ready
• Problem-Solver
• Effective Communicator
• Ambitious
Successful
• Autonomous
• Resilient
• Driven

Module Delivery Method					
Face-To-Face	**Blended**	**Fully Online**	**HybridC**	**Hybrid 0**	**Work-Based Learning**
☑	☐	☐	☐	☐	☐
See Guidance Note for details.					

Campus(es) for Module Delivery						
The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit) (tick as appropriate)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
☑	☐	☐	☐	☐	☐	Add name

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1	☑	Term 2	☐	Term 3	☐

Learning Outcomes: (maximum of 5 statements) **These should take cognisance of the SCQF level descriptors and be at the appropriate level for the module.** At the end of this module the student will be able to:	
L1	Demonstrate a critical understanding of the terminology and concepts of the main types of virtualisation
L2	Design, implement and manage virtualised systems to meet specified criteria at a professional level
L3	Demonstrate a detailed knowledge and understanding of a specific virtualisation system

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 Level 10 Understanding the main types of virtualisation and where and why they are used

	Understanding the underlying models and concepts relating to a range of virtualisation systems	
Practice: Applied Knowledge and Understanding	SCQF Level 10 Creating and managing virtualised systems with a range of virtualisation systems	
Generic Cognitive skills	SCQF Level 10 Make judgements as to where virtualisation is appropriate Critically evaluate the application of various types of virtualisation to specific scenaria	
Communication, ICT and Numeracy Skills	SCQF Level 10 Use a range of virtualisation and virtualisation management software	
Autonomy, Accountability and Working with others	SCQF Level 10 Exercise autonomy and initiative when implementing systems to meet specific requirements	
Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code:	**Module Title:**
	Other:	
Co-requisites	**Module Code:**	**Module Title:**

*Indicates that module descriptor is not published.

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** (Normally totalling 200 hours): (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture/Core Content Delivery	10

Laboratory/Practical Demonstration/Workshop	38
Independent Study	152
	200 Hours Total

****Indicative Resources: (eg. Core text, journals, internet access)**

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

- Oracle VirtualBox with images for Linux and Windows
- Access to a number of other virtualisation systems, for example HyperV, VMWare and/or KVM
- Debian GNU/Linux with support for LVM, KVM, bridging software, libvirt support and utilities

Please ensure the list is kept short and current. Essential resources should be included, broader resources should be kept for module handbooks / Aula VLE.

Resources should be listed in Right Harvard referencing style or agreed professional body deviation and in alphabetical order.

(**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: Attendance in at least 75% of timetabled classes, and submission of all assessments.

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. In order for the student to complete this module the student will be required to take part in laboratory exercises, including assessments requiring completion in a special-purpose laboratory. Students with substantial physical impairments should be assessed and counselled prior to selecting courses requiring this module. When a student discloses a disability an additional support advisor will agree the appropriate adjustments to be made, consulting with the module coordinator if necessary.
(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
Assessment Results (Pass/Fail)	Yes ☐No ☒
School Assessment Board	Business & Applied Computing
Moderator	Steve Eager
External Examiner	R Khusainov
Accreditation Details	
Changes/Version Number	1.12

Assessment: (also refer to Assessment Outcomes Grids below)
This section should make transparent what assessment categories form part of this module

(stating what % contributes to the final mark). Maximum of 3 main assessment categories can be identified (which may comprise smaller elements of assessment). **NB: The 30% aggregate regulation (Reg. 3.9) (40% for PG) for each main category must be taken into account. When using PSMD, if all assessments are recorded in the one box, only one assessment grid will show and the 30% (40% at PG) aggregate regulation will not stand. For the aggregate regulation to stand, each component of assessment must be captured in a separate box.** Please provide brief information about the overall approach to assessment that is taken within the module. In order to be flexible with assessment delivery, be brief, but do state assessment type (e.g. written assignment rather than "essay" / presentation, etc) and keep the detail for the module handbook. Click or tap here to enter text.
Assessment 1: Theoretical Knowledge (50%) Two assessments will assess the theoretical knowledge of the student: - A research-informed report comparing two hypervisors (worth 20% of the marks) - A multi-choice computer-based assessment (worth 30% of the marks)
Assessment 2: Practical Skills (50%) Two assessments will assess the practical skills of the students: - A lab log book with evidence of completion of tasks in the laboratory (worth 20%) - An implementation to specifications, comprising a demo, short report, and configuration (worth 30%)
(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.)

Assessment Outcome Grids (See Guidance Note)

Component 1							
Assessment Type (Footnote B.)	**Learning Outcome (1)**	**Learning Outcome (2)**	**Learning Outcome (3)**	**Learning Outcome (4)**	**Learning Outcome (5)**	**Weighting (%) of Assessment Element**	**Timetabled Contact Hours**
Report	X		X			20	
Class Test	X					30	1

Component 2							
Assessment Type (Footnote B.)	**Learning Outcome (1)**	**Learning Outcome (2)**	**Learning Outcome (3)**	**Learning Outcome (4)**	**Learning Outcome (5)**	**Weighting (%) of Assessment Element**	**Timetabled Contact Hours**
Log Book		X				20	
Practical skills assessment		X	X			30	1

Component 3							
Assessment Type (Footnote B.)	**Learning Outcome (1)**	**Learning Outcome (2)**	**Learning Outcome (3)**	**Learning Outcome (4)**	**Learning Outcome (5)**	**Weighting (%) of Assessment Element**	**Timetabled Contact Hours**
Combined Total for All Components						**100%**	**2 hours**