Virtualisation and Cloud Computing

Module Information

2022.01, Approved

Summary Information

Module Code	6503SDLBHG
Formal Module Title	Virtualisation and Cloud Computing
Owning School	Computer Science and Mathematics
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Beaconhouse Group

Learning Methods

Learning Method Type	Hours
Online	44

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-PAR	PAR	January	12 Weeks

Aims and Outcomes

Aims	To investigate the underpinnings of cloud computing, including familiarising the student with virtualisation techniques and the principles of distributed systems.To develop software applications that target cloud platforms; ensuring students understand differences and difficulties in platform deployment and management.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Develop scalable applications and deploy them on a group of virtualised or otherwise distributed platforms.
MLO2	2	Configure and monitor virtual infrastructure for software deployment and operations.
MLO3	3	Critically analyse the underlying principles of cloud computing, virtualisation and distributed systems.
MLO4	4	Critically review common software architectural patterns and principles used to facilitate cloud, virtualised and distributed applications.

Module Content

Outline Syllabus	Cloud computing and its enabling technologies – data centres, virtualisation, software defined architecture/infrastructure/*aaSDistributed systems, including:-shared memory architectures vs. message passing systems-uniformity of shared memory and impact: UMA, NUMA and COMA-synchronous vs. asynchronous messaging and scalability-distributed data stores; schemes and consistency models (e.g. ACID, BASE, CAP)Virtualisation-Of resources and systems; containers and VMs-Types of virtualisation / types of hypervisorAssociated development and design paradigms:-Service-oriented architectures-Pipelining and message queues
Module Overview	
Additional Information	This module explores often overlooked yet key disciplines in modern computing infrastructure. It serves to impart upon students both a conceptual and practical insight into three key disciplines, namely virtualisation, distributed and cloud computing. It neatly complements two associated modules at NQF6, namely Embedded Systems and Applied Data Science in providing students with a complete coverage of modern computing infrastructure.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Artefacts	Development and deployment	50	0	MLO1, MLO2
Exam	Examination	50	2	MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Glyn Hughes	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings