University of the West of Scotland

Module Descriptor

Title of Module: Internet and Cloud Computing

Code: COMP11115	SCQF Level: 11 (Scottish Credit and Qualifications Framework)	Credit Points: 20	ECTS: 10 (European Credit Transfer Scheme)
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Graeme A. McRobbie		

Summary of Module

Internet-based communication has become essential for our society and economy. Furthermore, the advent of cloud computing has revolutionised the way in which data is stored and processed.

The first part of the module covers basic concepts of networking such as the Internet architecture, the sliding window protocol for reliable transfer, routing in the Internet, and end-to-end protocols. Students also learn to carry out calculations to predict network performance.

The second part of the module focuses on cloud computing. It covers the principles of cloud computing, the MapReduce programming model for large-scale data processing, the implementation of MapReduce programs using Hadoop, and security considerations relevant to cloud computing.

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	HybridO	Work-based Learning
				✓	

Face-To-Face
Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

Blended
A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations

Fully Online
Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.

HybridC
Online with mandatory face-to-face learning on Campus

HybridO
Online with optional face-to-face learning on Campus

Work-based Learning
Learning activities where the main location for the learning experience is in the workplace.

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)

Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
✓				✓		

Term(s) for Module Delivery

(Provided viable student numbers permit).

Term 1	✓	Term 2	✓	Term 3	✓

Learning Outcomes: (maximum of 5 statements)

On successful completion of this module the student will be able to:

L1. Demonstrate understanding of the principles, components and architecture of cloud computing

L2. Discuss issues and solution approaches for questions of privacy and security in the context of cloud computing

L3. Demonstrate understanding of mechanisms for enhancing fault tolerance in cloud computing

L4. Discuss scalable approaches to distributed computing on large amounts of data

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 11. Knowledge & understanding of working principle of Internet and Cloud Computing
Practice: Applied Knowledge and Understanding	SCQF Level 11. Knowledge of practical skills to apply basic theoretical concepts to design and implementation of Internet and Cloud Computing solutions.
Generic Cognitive skills	SCQF Level 11. Students will develop ability to critically examine and appreciate the central issues in the main sub-areas of Internet and Cloud Computing, and the ability to apply Internet and Cloud Computing techniques.
Communication, ICT and Numeracy Skills	SCQF Level 11. Compiling individual report students will develop communication skills as well as the ability to write technical report. Students will gain a systematic understanding

	supporting mathematics of Internet and Cloud Computing techniques.
Autonomy, Accountability and Working with others	SCQF Level 11. 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

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	
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	12
Tutorial/Synchronous Support Activity	12
Laboratory/Practical Demonstration/Workshop	24
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: Larry Peterson and Bruce S. Davie, Computer Networks: A Systems Approach, 4th Edition, Morgan Kaufmann, Andrew S. Tanenbaum, Computer Networks, 4th Edition, Pearson* William Stallings, Data and Computer Communications, 7th Edition, Pearson* J. Rosenberg, A. Mateos, The Cloud at Your Service: The when, how, and why of enterprise cloud computing, Manning Publications* Jimmy Lin and Chris Dyer, Data-Intensive Text Processing with MapReduce, Morgan & Claypool* Tom White, Hadoop: The Definitive Guide, 3rd Edition, O'Reilly*
(**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)

Engagement Requirements
In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: Academic engagement procedure

Supplemental Information

Programme Board	Computing
Assessment Results (Pass/Fail)	No
Subject Panel	Applied and Business Computing
Moderator	tbc
External Examiner	tbc
Accreditation Details	pending
Changes/Version Number	1

Assessment: (also refer to Assessment Outcomes Grids below)	
Formative assessment is available using on-line practice tests - that allow students to test their progress and understanding of the syllabus. The first summative component of assessment is a class test worth 10% (individual) and this takes place approximately half way through the module and the third summative component of assessment is towards the end of the module and this class test is worth 30% (individual). The results for these two summative assessments are combined to give a total worth 40%.	
Formative assessment is available through completion of the practical labs - that allow students to test their progress and understanding of the practical aspects of the syllabus. The second summative assessment is lab-based, group work coursework worth 60% which is undertaken in the second half of the module.	
(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 Handbook.)	

Assessment Outcome Grids (Footnote A.)

Component 1

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Class test (written)		✓		✓	40	2

Component 2

Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Dissertation/ Project report/ Thesis	✓	✓	✓	✓	60	0
			Combined Total For All Components		100%	2 hours

Footnotes
A. Referred to within Assessment Section above
B. Identified in the Learning Outcome Section above

Note(s):
  1. More than one assessment method can be used to assess individual learning outcomes.

2. Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).
   This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

Equality and Diversity

UWS Equality and Diversity Policy

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)