University of the West of Scotland

Module Descriptor

Session: 2024/25

Title of Module: Business Data Communication and Networks			
Code: COMP11107	**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:	Raja M Ujjan		

Summary of Module

The module focuses on developing students' state-of-the-art capabilities and exposes them to feasibly contribute to the planning, design, development, acquisition, implementation, management, and evaluation of modern computer networks with underlying research-oriented theory and model development. VMWare Virtualisation, Cisco Packet Tracer, Wireshark Packet Analysis and SDN-based experiments on testbeds will be provided on-campus to improve the hands-on practical skills of students, and further up the variety of in-depth knowledge presented during lectures. Furthermore, this module complements the MSc Master Project by building students' understanding/abilities to design specifically Data Communication and Network models or network security models inbound with legal, ethical, and professional concerns.

The module evaluates and examines a wide range of ideas, theories, procedures, protocols, and technological advancements that support contemporary, technologically advanced business-related computer networking. Crucially, this module identifies Data Communication and Networks design, implementation, and associated utilising issues/gaps in business and industry. Additionally, there is an in-depth review of a wide range of TCP/IP stack protocols and networking technologies. Overall, state-of-the-art business-related trends in Data Communication and Networks and their influences on emerging innovations will be covered. Emerging communication protocols, Software Defined Networking (SDN), cloud computing and cloud-based services, optical and wireless networking, virtualization trends like VLANs and VPNs, cloud networking, next-generation networking, and cloud computing have been introduced, contextualised, and assessed in this context.

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 comprehensive/critical and systemic understanding of concepts, principles, protocols, and technologies that underpin the creation, operation, and management of contemporary business computer networks.
L2	Demonstrate professional abilities and practices in investigating, analysing and defining requirements for the successful introduction of appropriate and viable, business-driven, network-based solutions.
L3	Develop (simulation or graphical model) in designing and modelling business network protocols, and data communications with feasible requirements and management.
L4	Recognise the legal, professional, and ethical issues involved in the exploitation of network data acquisition, planning and management.

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** Students will learn an in-depth understanding of modern networking theories, ideas, protocols, models, and strategies, as well as how these are applied in business settings. An in-depth

	knowledge of how hardware-based networking devices and technologies work and are used when building for business settings.	
Practice: Applied Knowledge and Understanding	SCQF Level **11** Students will gain an in-depth understanding of appropriate methodologies and techniques to design and model network-based, technology-driven solutions with a range of standard and specialised research skills, hardware/software tools, and development frameworks.	
Generic Cognitive skills	SCQF Level **11** Students will further up skills by utilising a range of reputable and latest sources by evaluating/completing business settings network solutions via written reports and laboratory tasks.	
Communication, ICT and Numeracy Skills	SCQF Level **11** Through collaborative work with group and tutorial activities, students will improve their communication skills with feasible reports and professional documentation with graphical presentation and TCP/IP-based modelling.	
Autonomy, Accountability and Working with others	SCQF Level **11** Each student in group or solo activities will demonstrate and identify personal learning, critical thinking for producing standard and quality work within rigorous investigation, and sense of accountability.	
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	24
Tutorial/Synchronous Support Activity	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:

“Computer Networks and Internets" - Douglas Comer; Pearson (2015)

“Data and Computer Communications" - William Stallings; Prentice Hall(2006)*

Business Data Communications and Networking, Alan Dennis and Alexandra Durcikova, Wiley, 2014, 12th edition

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:

It is mandatory that all students will attend scheduled lectures, tutorials and also participate with all delivered elements as part of their engagement with their programme of study, please refer to UWS Regulation.

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.

Please ensure any specific requirements are detailed in this section. Module Co-ordinators should consider the accessibility of their module for groups with protected characteristics..
(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	Applied and Business Computing
Moderator	tbc
External Examiner	Format: First initial + Surname. No titles. Please only enter if examiner has been approved for this module.
Accreditation Details	BCS
Changes/Version Number	1

Assessment: (also refer to Assessment Outcomes Grids below)
This module will be assessed with two types of assessment categories. In Assesment-1, each student will provide/demonstrate 5-minute presentations (10%) related to ethical and professional issues of networking hardware and software. A group-based written coursework (50%) will be provided with a technical report comprised of a review and understanding of the latest technologies of hardware and software, students will also provide either a simulation-based network computer model or a graphical model.
In Assessment- 2, each student will take the class test (40%), which will mainly focus on critical understanding/detailed knowledge of protocols, hardware and software related to business data communications covered during lectures and recommended readings.
Assessment 1- Written coursework: (50%) (L2, L3) Presentation (10%) (L4)
Assessment 2 - Class Test: (40%) (L1, L2)
(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)**	**Weighting (%) of Assessment Element**	**Timetabled Contact Hours**
Written coursework		✓	✓		50	0
Presentation				✓	10	0

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**
Class Test	✓	✓			40	0
Combined Total for All Components					**100%**	**0 hours**