Module Descriptor

Title	Data Communications & Networks		
Session	2025/26	**Status**	Published
Code	COMP10092	**SCQF Level**	10
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Duncan Thomson		

Summary of Module

Networks are built on a number of protocols operating in various layers. This module examines the functionality required in these layers, with a focus on the underlying theory and models around which they are designed. The module begins with the ideas of information and channel capacity, covers the physical layer concepts of media characteristics and encoding techniques, and then moves upwards, first examining media access and error control. The use of addressing and path determination are covered, along with techniques for redundancy and availability, and the basics of queueing theory and QoS provision. The module concludes with a brief examination of encryption and security protocols.

This module works to develop a number of the key "I am UWS" Graduate Attributes, to make those who complete the module:

- Universal (Critical Thinker, Ethically-minded, Research-minded)

- Work-Ready (Problem Solver, Effective Communicator, Ambitious)

- Successful (Autonomous, Resilient, Driven)

Module Delivery Method	**On-Campus[1]**	**Hybrid[2]**	**Online[3]**	**Work -Based Learning[4]**
	☒	☐	☐	☐

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Campuses for Module Delivery	☐ Ayr ☐ Dumfries		☐ Lanarkshire ☐ London ☒ Paisley		☐ Online / Distance Learning ☐ Other (specify)	
Terms for Module Delivery	Term 1	☒	Term 2	☐	Term 3	☐
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes	
L1	Demonstrate a critical understanding of the principal theories, concepts and principles of networks and data communication
L2	Investigate a specific networking problem using established tools or techniques
L3	Use numerical or graphical data to analyse network performance
L4	
L5	

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 10** understanding in detail specialisms of computer networks understanding the integrated operation of networking protocols
Practice: Applied Knowledge and Understanding	**SCQF 10** using tools and techniques associated with modelling networks
Generic Cognitive skills	**SCQF 10** critically defining and analysing complex networking problems
Communication, ICT and Numeracy Skills	**SCQF 10** using mathematical equations and graphs to investigate network performance
Autonomy, Accountability and Working with Others	**SCQF 10** exercise professional responsibility for own work

Prerequisites	**Module Code**	**Module Title**
	Other Basic mathematical skills (using equations, scientific notation, use of a scientify calculator); exposure to networking protocol operation, eg through COMP07012 or similar	
Co-requisites	**Module Code**	**Module Title**

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** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	18
Tutorial / Synchronous Support Activity	18
Independent Study	164
Please select	
Please select	
Please select	
TOTAL	36

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Recommended: * Computer Networks 6/e, Tanenbaum & Wetherall, Prentice Hall, 2021, ISBN 1292374063
(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:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

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. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(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**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Business & Applied Computing
Moderator	M Zeeshan Shakir
External Examiner	TBC
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.0

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
An class test worth 60% will assess students' overall understanding of the principal concepts and theories of networking, and their ability to perform calculations or analysis relating to networks
Assessment 2
A report worth 40% in total will assess students' abilities to use simulation or analysis to assess network or protocol performance. This will include 10 marks for a brief proposal paper, and 30 marks for a final handin
Assessment 3
(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.)

Component 1

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Class Test	☒	☐	☒	☐	☐	60	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Report	☐	☒	☒	☐	☐	40	0

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	hours

Change Control

What	When	Who
Exam changed to class test, assessment weighting added (missing in original)	2025-10--08	DCT