Module Descriptor

Title	Advanced Network Security		
Session	2025/26	**Status**	Published
Code	COMP11076	**SCQF Level**	11
Credit Points	10	**ECTS (European Credit Transfer Scheme)**	5
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Althaff Mohideen		

Summary of Module

Security of computer networks has been a primary issue for the management of information systems used by organisations of all sizes ranging from start-ups to large enterprises. Often computer networks are compromised due to the use of inappropriate security and management measures to detect malicious access privilege escalation, monitor network traffic and services, ensure confidentiality and privacy of the network, prevent network attacks, and build resilience to modern day cyber attacks.

This module addresses the pivotal concepts of network security within the context of network and data management for trusted and untrusted computer networks. It is designed to cover core methodologies, algorithms and tools for network security, providing the essential hands-on experience for designing and managing secure, privacy-aware, and resilient computer networks.

This module has been specifically designed considering the UWS Graduate Attributes of Universal, Work ready, and Successful.

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 extensive knowledge of the core theories, concepts and principles of secure network design, network specific attacks and attack mechanisms.
L2	Develop skills to analyse and critically evaluate security of networked systems and recommend relevant technical and management improvements or solutions.
L3	N/A
L4	N/A
L5	N/A

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 11** Students will learn comprehensive knowledge of advanced network security. Students are expected to be familiar with the key technologies and techniques and their application in practice.
Practice: Applied Knowledge and Understanding	**SCQF 11** Students will gain in-depth understanding and critical awareness of knowledge of advanced network security, and apply this in planning, implementing, configuration and testing of the security state of the test environment. They will also develop capability to apply a range of specialised research skills and relevant tools and software for their written assignment and lab tasks.
Generic Cognitive skills	**SCQF 11** To complete their written reports and laboratory tasks, students will first build skills to integrate information and apply knowledge from various sources including technology advances informed by research and industry
Communication, ICT and Numeracy Skills	**SCQF 11** Working in interacting groups, students will develop communication skills as well as the ability to write technical reports and documentation.
Autonomy, Accountability and Working with Others	**SCQF 11** Each student will generate a comprehensive technical report summarizing the finding for a given relevant topic on computer networks.

Prerequisites	Module Code	Module Title
	Other	
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	10
Laboratory / Practical Demonstration / Workshop	10
Independent Study	80
Please select	
Please select	
Please select	
TOTAL	100

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Diogenes, Y and Ozkaya, E. (2018) Cybersecurity – Attack and Defense Strategies: Infrastructure security withRed Team and Blue Team tactics. Packt Publishing McNab, C. (2016) 3rd Ed. Network Security Assessment: Know Your Network. O'Reilly Media Allsopp, W. (2017) Advanced Penetration Testing: Hacking the World's Most Secure Networks. John Wiley &Sons 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. VirtualBox software and VBOX extension
(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	S Eager
External Examiner	A Esfahani
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2.1

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Coursework 1 (40%)
Assessment 2

Coursework 2 (60%)
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**
Report of practical/ field/clinical work	☒	☐	☐	☐	☐	40	4

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Dissertation/ Project report/Thesis	☐	☒	☐	☐	☐	60	8

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	12 hours

Change Control

What	**When**	**Who**
Attendance Update & EDI Update	20/01/2025	A Adamson
EE Updated	22/01/2025	A Adamson