Module Descriptor

Title	Network Management, Monitoring and Automation		
Session	2025/26	**Status**	Published
Code	COMP10070	**SCQF Level**	10
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Steve Eager		

Summary of Module

Networks are managed and monitored using a variety of methods, including dedicated network management and monitoring protocols such as SNMP and IPFIX; standard management APIs or configuration databases through a variety of programming languages; web-based configuration systems; and more ad-hoc approaches via scripted use of command line tools. This module begins by examining a range of network management and monitoring protocols and tools (CLI, GUI and web-based), and then looks at how programming approaches can be used to automate network management tasks, including shell scripting, python programs and a number of network managements APIs.

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	**On-Campus[1]** ☒	**Hybrid[2]** ☐	**Online[3]** ☐	**Work -Based Learning[4]** ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☒ Lanarkshire ☐ London ☒ Paisley	☐ Online / Distance Learning ☐ Other (specify)	

[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

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 a range of network management protocols and tools.
L2	Select and apply several appropriate software tools to control and/or monitor specific network behaviour.
L3	Design, implement and demonstrate software-based methods for managing, monitoring and / or automating processes in a network scenario
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 10** Understanding a range of network management and monitoring protocols Comparing the strengths and weakness of various approaches to network management
Practice: Applied Knowledge and Understanding	**SCQF 10** Selecting network management and monitoring tools appropriate to a specific task Automating network management and monitoring tasks using scripts and/or programs
Generic Cognitive skills	**SCQF 10** Critically reviewing network management and monitoring protocols and tools
Communication, ICT and Numeracy Skills	**SCQF 10** Writing software for automation of tasks
Autonomy, Accountability and Working with Others	**SCQF 10** Exercising autonomy and initiative when managing IT infrastructure

Prerequisites	**Module Code** COMP09024	**Module Title** Unix System Administration
	Other	
Co-requisites	**Module Code** COMP10014	**Module Title** Network Security

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)
Tutorial / Synchronous Support Activity	12
Laboratory / Practical Demonstration / Workshop	36
Independent Study	152
Please select	
Please select	
Please select	
TOTAL	200

Indicative Resources

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Students will require access to a networked computer, installed with virtualization software and extensions hosting multiple computer operating systems to enable practical lab work and assignments to be completed.

Lecture notes, laboratory sheets and tutorial questions will be posted on the VLE.

(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	Duncan Thomson
External Examiner	R Khusainov
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.07

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
This module is primarily concerned with developing hands-on skills managing and monitoring networks and as such the assessments are focused on the work carried out in the practical lab sessions and submissions based on work carried out in the labs is worth 40% of the marks for the module.
Assessment 2
A practical implementation of Management, Monitoring and Automation tools for the management and control of a enterprise class network (with an associated report) forms the other 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	☒	☒	☒	☐	☐	50	12

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Report of practical/ field/ clinical work	☒	☒	☒	☐	☐	50	24

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	36 hours

Change Control

What	**When**	**Who**
Attendance and Engagement Procedure and Equality and Diversity	17/1/25	F.Valentine
Minor change to wording of L3 Learning outcome. Change in weighting of assessment 1 50% to 40% and Assessment 2 from 50% to 60%	21/06/25	S Eager