

## Session: 2024/25

<b>Title of Module: Network Management, Monitoring and Automation</b>			
<b>Code: COMP10070</b>	<b>SCQF Level: 10</b> (Scottish Credit and Qualifications Framework)	<b>Credit Points: 20</b>	<b>ECTS: 10</b> (European Credit Transfer Scheme)
<b>School:</b>	School of Computing, Engineering and Physical Sciences		
<b>Module Co-ordinator:</b>	Steve Eager		
<b>Summary of Module</b>			
<p>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.</p> <ul style="list-style-type: none"> <li>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</li> </ul>			

<b>Module Delivery Method</b>					
<b>Face-To-Face</b>	<b>Blended</b>	<b>Fully Online</b>	<b>HybridC</b>	<b>HybridO</b>	<b>Work-based Learning</b>
<p><b>Face-To-Face</b> Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.</p> <p><b>Blended</b> 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</p> <p><b>Fully Online</b> 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.</p> <p><b>HybridC</b> Online with mandatory face-to-face learning on Campus</p> <p><b>HybridO</b> Online with optional face-to-face learning on Campus</p> <p><b>Work-based Learning</b> Learning activities where the main location for the learning experience is in the workplace.</p>					

<b>Campus(es) for Module Delivery</b>						
The module will <b>normally</b> 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:

✓			✓			
<b>Term(s) for Module Delivery</b>						
(Provided viable student numbers permit).						
Term 1		Term 2	✓	Term 3		

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<b>Learning Outcomes: (maximum of 5 statements)</b>		
<p>On successful completion of this module the student will be able to:</p> <p>L1. Demonstrate a critical understanding of a range of network management protocols and tools.</p> <p>L2. Select and apply several appropriate software tools to control and/or monitor specific network behaviour.</p> <p>L3. Design and implement a software-based method of network automation</p>		
<b>Employability Skills and Personal Development Planning (PDP) Skills</b>		
<b>SCQF Headings</b>	During completion of this module, there will be an opportunity to achieve core skills in:	
Knowledge and Understanding (K and U)	SCQF Level 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 Level 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 Level 10. Critically reviewing network management and monitoring protocols and tools	
Communication, ICT and Numeracy Skills	SCQF Level 9. Writing software for automation of tasks	
Autonomy, Accountability and Working with others	SCQF Level 9. Exercising autonomy and initiative when managing IT infrastructure	
<b>Pre-requisites:</b>	Before undertaking this module the student should have undertaken the following:	
	<b>Module Code:</b> COMP09024	<b>Module Title:</b> <a href="#">Unix System Administration</a>
	<b>Other:</b>	
<b>Co-requisites</b>	<b>Module Code:</b> COMP10014	<b>Module Title:</b> <a href="#">Network Security</a>

\* Indicates that module descriptor is not published.

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<b>Learning and Teaching</b>	
<b>Learning Activities</b> During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	<b>Student Learning Hours</b> (Normally totalling 200 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
	200 Hours Total
<b>**Indicative Resources: (eg. Core text, journals, internet access)</b>	
The following materials form essential underpinning for the module content and ultimately for the learning outcomes:	
(**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)	
<b>Engagement Requirements</b>	
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: <a href="#">Academic engagement procedure</a>	

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### Supplemental Information

<b>Programme Board</b>	Computing
<b>Assessment Results (Pass/Fail)</b>	No
<b>Subject Panel</b>	Business & Applied Computing
<b>Moderator</b>	Duncan Thomson
<b>External Examiner</b>	R Khusainov
<b>Accreditation Details</b>	
<b>Version Number</b>	1.06

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<b>Assessment: (also refer to Assessment Outcomes Grids below)</b>
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 50% of the marks for the module.
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 50%
(N.B. (i) <b>Assessment Outcomes Grids</b> 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 <b>indicative schedule</b> 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.)

<b>Component 1</b>						
<b>Assessment Type (Footnote B.)</b>	<b>Learning Outcome (1)</b>	<b>Learning Outcome (2)</b>	<b>Learning Outcome (3)</b>	<b>Weighting (%) of Assessment Element</b>	<b>Timetabled Contact Hours</b>	
Report of practical/ field/ clinical work	✓	✓	✓	50	12	
<b>Component 2</b>						
<b>Assessment Type (Footnote B.)</b>	<b>Learning Outcome (1)</b>	<b>Learning Outcome (2)</b>	<b>Learning Outcome (3)</b>	<b>Weighting (%) of Assessment Element</b>	<b>Timetabled Contact Hours</b>	
Report of practical/ field/ clinical work	✓	✓	✓	50	24	
<b>Combined Total For All Components</b>				100%	36 hours	

### Footnotes

A. Referred to within Assessment Section above

B. Identified in the Learning Outcome Section above

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Note(s):
<ol style="list-style-type: none"> <li>1. More than one assessment method can be used to assess individual learning outcomes.</li> <li>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 &amp;/or Professional requirements.</li> </ol>

<b>Equality and Diversity</b>
The University policies on equality and diversity will apply to this module. In order for the student to complete this module the student will be required to take part in

laboratory exercises, including assessments requiring completion in a special-purpose laboratory. Students with substantial physical impairments should be assessed and counselled prior to selecting courses requiring this module.

When a student discloses a disability a special needs advisor will agree the appropriate adjustments to be made, consulting with the module coordinator if necessary.

[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)