Module Descriptor

Title	Python for Network Engineers		
Session	2025/26	**Status**	Published
Code	COMP09110	**SCQF Level**	9
Credit Points	10	**ECTS (European Credit Transfer Scheme)**	5
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Gerry Creechan		

Summary of Module

This module provides students with the necessary programming knowledge of Python programming fundamentals for networking. The core principles considered key in this module are those which underpin a practical ability to write code: data and data structures, structured code, subroutines, parameters, loops, input/output and files.

The emphasis is on the creation of programs to connect to, and configure, networked systems and devices.

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)	

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 Python programming for networking.
L2	Critically reflect on alternative system programming techniques to provide solutions for automating network administration tasks.
L3	Analyse a given scenario and apply suitable programming techniques to implement an appropriate solution.
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 9** Knowledge and understanding of the scope and defining features of Python programming, and an integrated knowledge of its main areas and boundaries. A critical understanding of the principles, principal theories, concepts and terminology associated with programming.
Practice: Applied Knowledge and Understanding	**SCQF 9** Use the principle skills, techniques and practices related to programming.
Generic Cognitive skills	**SCQF 9** Undertake critical analysis, evaluation and/or synthesis of ideas, concepts, information and issues in programming. Identify and analyse

[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

	routine professional problems and issues. Draw on a range of sources in making judgements.
Communication, ICT and Numeracy Skills	**SCQF 9** Use a wide range of skills in support of established practices. Interpret, use and evaluate data.
Autonomy, Accountability and Working with Others	**SCQF 9** Exercise autonomy and initiative in activities. Manage complex ethical and professional issues in accordance with ethical codes or practices.

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	12
Laboratory / Practical Demonstration / Workshop	12
Independent Study	76
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: Goerzen, J, (2014) Foundations of Python Network Programming: The comprehensive guide to building network applications with Python. (3rd Edition) Apress. ISBN-10: 1430258543, ISBN-13: 978-1430258544 Faruque Sarker, M. O. (2014). Python Network Programming Cookbook. Packt Publishing. ISBN-10: 1849513465, ISBN-13: 978-1849513463 Faruque Sarker, M. O. and Washington, S. (2015). Learning Python Network Programming. Packt Publishing. ISBN-10: 1784396001, ISBN-13: 978-1784396008

Ortega, J. M. (2018). Mastering Python for Networking and Security: Leverage Python scripts and libraries to overcome networking and security issues. Packt Publishing. ISBN-10: 1788992512, ISBN-13: 978-1788992510

(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	TBC
External Examiner	M Davis

Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.04

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Programming Coursework (50%)
Assessment 2
Practical programming exercise(50%)
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	4

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Clinical/ Fieldwork/ Practical skills assessment/ Debate/ Interview/ Viva voce/ Oral	☐	☒	☒	☐	☐	50	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 and Engagement and Equality and Diversity Statements	20/01/2025	R Moffat