Module Descriptor

Title	Programming for Cyber Security		
Session	2025/26	Status	Published
Code	COMP08101	SCQF Level	8
Credit Points	20	ECTS (European Credit Transfer Scheme)	10
School	Computing, Engineering and Physical Sciences		
Module Co-ordinator	R Singh		

Summary of Module

This module aims to build on a student's existing programming skills and introduces more advanced techniques such as working with software libraries or application programming interfaces (APIs). The module focuses on a range of cyber security scenarios and introduces programmatic tools and techniques that students can apply to a range of cyber security contexts.

Students will work with a range of libraries to build software that automates common tasks such as network scanning or network package manipulation. Students will also work with data and develop tools to support data analytics and data security. Emphasis is placed on the practical application of these techniques and students will gain insight into how software libraries can facilitate the efficient development of cyber security tools.

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] ☐

---

[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	Effectively use a variety of software libraries to develop cyber security tools;
L2	Employ software tools to facilitate and automate cyber security processes;
L3	Understand how software tools can be chained to accomplish complex tasks;
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 8** Understanding how software libraries and APIs can be utilised to build a range of cyber security software tools.
Practice: Applied Knowledge and Understanding	**SCQF 8** Applying software tools to perform a range of cyber security processes.
Generic Cognitive skills	**SCQF 8** Applying the tools developed to solve more complex problems and scenarios.
Communication, ICT and Numeracy Skills	**SCQF 8** Report writing and presentation skills.
Autonomy, Accountability and Working with Others	**SCQF 8** Ability to work in a team.

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
Tutorial / Synchronous Support Activity	12
Laboratory / Practical Demonstration / Workshop	24
Independent Study	152
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Programming Python by Mark Lutz, 2010, 4th Edition, O'Reilly Media, USA. Mastering Python for Networking and Security by José Ortega, 2021, Second Edition, Packt Publishing. Materials will be made available via the module's VLE site.
(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	G Parsonage
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
Portfolio of practical work (40%)
Assessment 2
Case study and tool development (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**
Portfolio of practical work	☒	☒	☒	☐	☐	40	0

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Case Study	☒	☒	☒	☐	☐	60	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
Attendance and EDI update	17/01/2025	L Cunningham