

University of the West of Scotland

Module Descriptor

Session: 2024/25

Title of Module: Web Application Security Testing			
Code: COMP09109	SCQF Level: 9 (Scottish Credit and Qualifications Framework)	Credit Points: 20	ECTS: 10 (European Credit Transfer Scheme)
School:	School of Computing, Engineering and Physical Sciences		
Module Co-ordinator:	Raman Singh		
Summary of Module			
<p>The aim of the module is to provide advanced web application testing and ethical hacking practices to provide students with an understanding of web application vulnerabilities including their causes and consequences as well as the methodologies for testing and how to protect applications.</p> <p>Undertaking this module will develop a range of graduate attributes. Knowledge of the principles behind the techniques used to create secure web applications. Sourcing, reviewing and applying current best practices will develop critical thinking and analytical skills.</p> <p>This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module:</p> <ul style="list-style-type: none"> • Universal: Critical Thinker, Ethically minded, Research-minded • Work Ready: Problem-Solver, Effective Communicator, Ambitious • Successful: Autonomous, Resilient, Driven 			

Module Delivery Method					
Face-To-Face	Blended	Fully Online	HybridC	Hybrid 0	Work-Based Learning
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
See Guidance Note for details.					

Campus(es) for Module Delivery						
The module will normally be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit) (tick as appropriate)						
Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D&GC and NCL

Term(s) for Module Delivery					
(Provided viable student numbers permit).					
Term 1	<input type="checkbox"/>	Term 2	<input checked="" type="checkbox"/>	Term 3	<input type="checkbox"/>

Learning Outcomes: (maximum of 5 statements) These should take cognisance of the SCQF level descriptors and be at the appropriate level for the module. At the end of this module, the student will be able to:	
L1	Demonstrate a critical understanding of the legal risks of web application testing;
L2	Demonstrate an understanding of secure web architecture and OWASP Top 10 security risks;
L3	Develop the skill to use a variety of tools to undertake rigorous security testing of the web applications;
L4	Develop skills to discover and exploit vulnerabilities in web applications;
L5	Recommend measures to improve the security of web applications;
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 Level 9 A detailed understanding of the architecture of web applications, protection schemes for web applications, and cryptography for web applications.
Practice: Applied Knowledge and Understanding	SCQF Level 9 The ability to use a variety of tools to discover and analyse the vulnerability of web applications.

Generic Cognitive skills	SCQF Level 9 Systematic planning and undertaking of testing and hacking.	
Communication, ICT and Numeracy Skills	SCQF Level 9 Effective use of a variety of tools. Analytic skills in identifying the weaknesses and vulnerabilities of systems. Report writing and presentation skills.	
Autonomy, Accountability and Working with others	SCQF Level 9 Teamwork skills.	
Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code: COMP07075 COMP08094	Module Title: Security Fundamentals Ethical Hacking: Tools & Techniques
	Other:	
Co-requisites	Module Code:	Module Title:

*Indicates that module descriptor is not published.

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 (Normally totalling 200 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
	200 Hours Total
**Indicative Resources: (eg. Core text, journals, internet access)	

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

Hoffman, A. (2024), *Web Application Security: Exploitation and Countermeasures for Modern Web Applications*. (2nd Edition), O'Reilly Media.

Harper, A., Eagle, C., Ness, J., Harris, S., Spasojevic, B., Regalado, D., Linn, R. and Sims, S. (2011) *Grey Hat Hacking* (4th Edition). McGraw-Hill.

Najera-Gutierrez, G. and Ansari, J.A. (2018) *Web Penetration Testing with Kali Linux - Third Edition: Explore the methods and tools of ethical hacking with Kali Linux* Paperback. (3rd Edition) Packt Publishing

(*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.

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](#).

Please ensure any specific requirements are detailed in this section. Module Co-ordinators should consider the accessibility of their module for groups with protected characteristics..

(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
Assessment Results (Pass/Fail)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
School Assessment Board	Business & Applied Computing
Moderator	Althaff Mohideen

External Examiner	M Davis
Accreditation Details	e.g. ACCA Click or tap here to enter text.
Changes/Version Number	1.06

Assessment: (also refer to Assessment Outcomes Grids below)
Practical Coursework (60%)
Group Project (40%)
(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.)

Assessment Outcome Grids (See Guidance Note)

Component 1							
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Report of practical/field/clinical work	✓	✓	✓				0

Component 2							
Assessment Type (Footnote B.)	Learning Outcome (1)	Learning Outcome (2)	Learning Outcome (3)	Learning Outcome (4)	Learning Outcome (5)	Weighting (%) of Assessment Element	Timetabled Contact Hours
Dissertation/Project report/Thesis				✓	✓		8
Combined Total for All Components						100%	8 hours

Change Control:

What	When	Who
Further guidance on aggregate regulation and application when completing template	16/01/2020	H McLean
Updated contact hours	14/09/21	H McLean
Updated Student Attendance and Engagement Procedure	19/10/2023	C Winter
Updated UWS Equality, Diversity and Human Rights Code	19/10/2023	C Winter
Guidance Note 23-24 provided	12/12/23	D Taylor
General housekeeping to text across sections.	12/12/23	D Taylor

Version Number: MD Template 1 (2023-24)