Session: 2021/22

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Title of Module: Mobile Forensics

Code: COMP11093	SCQF Level: 11 (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:	Sean Sturley		

Summary of Module

This module develops an advanced level of analysis of mobile devices. This module strengthens a student's knowledge and deepens understanding and reasoning by introducing them to alternative environments. The module develops a students' understanding of the attack surface and necessary skills to security test mobile applications and to identify vulnerabilities in the structure of the application, and the contemporary knowledge to secure against threats.

The module examines in-depth the techniques of forensic analysis of mobile devices. The ethical and professional issues/requirements of the practitioner are embedded throughout the syllabus.

Module Delivery Method

Face-To-Face	Blended	Fully Online
	✓	

Face-To-Face
Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

Fully Online
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.

Blended
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

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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)

Paisley:	Ayr:	Dumfries:	Lanarkshire:	London:	Distance/Online Learning:	Other:
			✓			

Term(s) for Module Delivery

(Provided viable student numbers permit).

Term 1		Term 2	✓	Term 3	

Learning Outcomes: (maximum of 5 statements)

On successful completion of this module the student will be able to:

L1. Demonstrate a critical understanding of the infrastructure and protocols used to support a mobile devices.

L2. Critically evaluate mobile device security through the use of appropriate penetration testing methods.

L3. Undertake advanced digital forensic examination/investigation and analysis of mobile devices through the use of appropriate tools whilst preserving evidential integrity.

L4. Develop a critical understanding of relevant literature and quality information sources.

L5. Consider ethical issues involved and critically evaluate professional requirements of the practitioner.

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 11. Critical knowledge & understanding of: the principal theories, concepts and principles; fundamental mobile device technologies; the internals of mobile devices and associated security models; the attack surface; testing and analysis techniques; the principles of security by design; mobile forensic acquisition & analysis.
Practice: Applied Knowledge and Understanding	SCQF Level 11. Use specialised and advanced skills, techniques and practices.
Generic Cognitive skills	SCQF Level 11. Critically identify, define, conceptualise and analyse complex problems; Offer professional insights, interpretations and solutions to problems and issues; Demonstrate some originality and creativity; Critically review and consolidate knowledge, skills, practices and thinking in the discipline; Make judgements where data/information is limited or comes from a range of sources.
Communication, ICT and Numeracy Skills	SCQF Level 11. Useawiderangeofadvancedandspecialisedskillsinsupportofestablishedpractices; Present or convey, formally and informally, information about specialised topics to informed audiences; Interpret, use and evaluate a wide range of data.
Autonomy, Accountability and Working with others	SCQF Level 11. Exercise autonomy and initiative in activities. Manage complex ethical and professional issues.

Pre-requisites:	Before undertaking this module the student should have undertaken the following:	
	Module Code: COMP08094 COMP09109 COMP09107 COMP09087 COMP10073	**Module Title:** Ethical Hacking: Tools & Techniques Web Application Security Testing Digital Forensic Analysis Mobile Development with HTML5 and JavaScript * Advanced Digital Forensic Analysis
	Other:	
Co-requisites	**Module Code:**	**Module Title:**

* Indicates that module descriptor is not published.

Learning and Teaching

This module emphasises a "hands-on" active approach to learning, with learning taking place through a variety of complementary mechanisms, including lectures, seminars, with associated practical sessions, research into current developments and issues, and case studies.
Topics will be introduced in lectures and discussed through guided inquiry and problem based learning activities.
Theoretical material will be re-enforced and consolidated through the critical analysis and discussion of case studies in tutorials that are designed to explain and elaborate both on theoretical and laboratory content. Students are guided through real-world scenarios featuring structured inquiry based learning. Additionally, directed learning will reinforce essential theory and place understanding into context. An "industry lecture series" will provide examples of current practice, approaches and challenges as portrayed by practitioners across various industry sectors.
The subject discipline is continuously evolving and as a result students will be expected to keep up to date with developments through independent study. Students will be encouraged to adopt an independent learning style, acquiring

and applying knowledge through their own enquiry, supported by a series of guided activities and exercises. Students will be encouraged to share the findings of their enquiry through seminar presentations and participation in on-line discussions with the student cohort.

The material presented in this module is potentially damaging if used maliciously and the capabilities developed in this module have potential for harm. Academics will emphasise the professional expectations of students and of persons working in this domain as well as stressing the students' legal, ethical and moral responsibilities.

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	24
Tutorial/Synchronous Support Activity	12
Laboratory/Practical Demonstration/Workshop	24
Independent Study	140
	200 Hours Total

**Indicative Resources: (eg. Core text, journals, internet access)

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

Mahalik et al (2018) 3rd Ed. Practical Mobile Forensics: A hands-on guide to mastering mobile forensics for the iOS, Android, and the Windows Phone platforms. Packt Publishing

Reiber, L. (2016) Mobile Forensic Investigations: A Guide to Evidence Collection, Analysis, and Presentation. McGraw-Hill Education

Afonin, O. and Katalov, V. (2016) Mobile Forensics - Advanced Investigative Strategies. 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 Requirements

In line with the Academic Engagement and Attendance 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 Moodle, and complete assessments and submit these on time. Please refer to the Academic Engagement and Attendance Procedure at the following link: Academic engagement and attendance procedure

Supplemental Information

Programme Board	Computing
Assessment Results (Pass/Fail)	No
Subject Panel	Business & Applied Computing
Moderator	Graham Parsonage
External Examiner	TBC
Accreditation Details	
Version Number	1.03

Assessment: (also refer to Assessment Outcomes Grids below)

Examination (50%) - 2 hour unseen examination designed to assess the student knowledge and understanding of the theory of the discipline.

Practical Assignment: Penetration Test Report (25%) - Practical assignments enable students to demonstrate their analytic skills in the penetration testing of mobile devices.

Practical Assignment: Forensic Report (25%) - Practical assignments enable students to demonstrate their analytic skills in forensics analysis of mobile devices.

(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 Handbook.)

Assessment Outcome Grids (Footnote A.)

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
Unseen closed book (standard)	✓	✓	✓		✓	50	2

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
Report of practical/ field/ clinical work	✓	✓		✓	✓	25	0

Component 3

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	✓		✓	✓	✓	25	0
			Combined Total For All Components			100%	2 hours

Footnotes
A. Referred to within Assessment Section above
B. Identified in the Learning Outcome Section above

Note(s):
1. More than one assessment method can be used to assess individual learning outcomes.
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 &/or Professional requirements.

Equality and Diversity

This module is suitable for any student. The assessment regime will be applied flexibly so that a student who can attain the practical outcomes of the module will not be disadvantaged. When a student discloses a disability, or if a tutor is concerned about a student, the tutor in consultation with the School Enabling Support co-ordinator will agree the appropriate adjustments to be made.
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)