

Module Code	Pre-requisite Module codes	Co-Requisite Modules code(s)	ISCED Code	Subject Code	ECTS Credits	NFQ Level (CPD)#
CMPU4056					5	8
Module Title	Information Security Services					

Information Security Services

School Responsible:	School of Computing
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Module Overview:

The Internet has allowed researchers, organisations and entities of all sorts to become more effective and efficient. This has enabled an unprecedented exchange of ideas, information, and culture among previously unconnected individuals and groups. However, this ubiquitous connectivity opens the cyber space to the greatest risks. As the networks increase in size, reach and functions, their growth empowers both law-abiding citizens and hostile actors. The aim of this programme is to provide a detailed understanding of the systems vulnerabilities, how attackers take advantage of these vulnerabilities and practical techniques of mitigating the effects of attacks. The programme has a very strong practical flavour. Students will be shown how to find vulnerabilities, perform ethical hacking and devise strategies for securing their systems. All the practical experiments to be done in this module will be on simulated environment.

The aims of this module are to:

- Introduce students to the information security and ethical hacking principles
- Give students a thorough understanding of the theoretical and practical issues involved in ethical hacking
- Provide students with sound knowledge of security protocols, strategies for finding vulnerabilities and securing systems

Learning Outcomes (LO):

On Completion of this module, the learner will be able to

1	Define and describe the underlying principles of ethical hacking
2	Evaluate the effectiveness of ethical hacking techniques according to well they expose system vulnerability
3	Recognise and justify the different scenarios of legality using ethical hacking in practice
4	Apply ethical hacking techniques in a simulated environment
5	Identify and examine different system vulnerabilities and their effect

Indicative Syllabus:

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Introduction to Ethical Hacking

Nurturing ethical hacking mindset

Enumeration, Scanning, Footprinting

Evading Intrusion Detection Systems and Firewalls

Hacking HTTP, web browsers (client side) and websites (server side)

Operating System hacking and low level exploits

Malware

Sniffers and session hijacking

Hacking wireless and local networks

Services vulnerabilities

Securing known vulnerable services

Penetration testing methodologies and vulnerability management and defect reporting

Learning and Teaching Methods:

The course delivery involves a combination of lectures and labs which may incorporate the use of blended learning techniques as appropriate throughout the delivery.

Total Teaching Contact Hours	39
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Total Self-Directed Learning Hours	61
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Module Delivery Duration:

Indicate if the module is normally delivered for example over one semester or less, or over one academic year etc.

Assessment

Assessment Type	Weighting (%)	LO Assessment (No.)
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In Class Assessment	100	1-5
Module Specific Assessment Arrangements (if applicable)		
(a) Derogations from General Assessment Regulations		
(b) Module Assessment Thresholds		
(c) Special Repeat Assessment Arrangements		

Essential Reading

CEH v9: Certified Ethical Hacker Study Guide by Sean-Philip Oriyano 2016 ISBN-10: 1119252245

Supplemental Reading

Jon Erickson, 2008, Hacking: The Art of Exploitation, 2nd Edition, No Starch Press

Dafydd Stuttard and Marcus Pinto, 2007, The Web Application Hacker's Handbook:

Discovering and Exploiting Security Flaws, Wiley

Stuart McClure, Joel Scambray and George Kurtz, 2009, Hacking Exposed: Network

Security Secrets and Solutions, 6th Edition, McGraw-Hill Osborne Media

Gordon Fyodor Lyon, 2009, Nmap Network Scanning: The Official Nmap Project Guide to

Network Discovery and Security Scanning, Nmap Project

Jeremy Faircloth, Chris Hurley and Jesse Varsalone, 2007, Penetration Tester's Open

Source Toolkit, Vol. 2, Syngress

Web references, journals and other

<http://www.phrack.org/>

<https://www.owasp.org/>

<http://www.eccouncil.org/>

<https://www.isc2.org>

Version No:		Amended By	
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Commencement Date	Associated Programme Codes

Modules that are to be offered as Stand-Alone CPD Programmes must have an NFQ level assigned

*Details of the assessment schedule should be contained in the student handbook for the programme stage.

Date of Academic Council approval

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