

 Prifysgol Cymru Y Drindod Dewi Sant University of Wales Trinity Saint David	Wales Institute of Science and Art		
	Applied Computing		
	Ethical Hacking (ACCA7033)		
	MILESTONE - Academic Year 2023-24 (Sep 2023) - Sem 1		
Lecturer: Dr. Nitheesh Murugan Kaliyamurthy and Munyaradzi Murira			
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To establish concepts relating to the understanding of how malicious hackers attack and exploit systems. This includes essential procedures and corresponding techniques involved in ethical hacking activities, in correlation to real-world scenarios. Students will gain understanding of security threats, information security, vulnerability, penetration testing procedures and methodologies using up-to-date tools that will allow them to facilitate assessments and technical approaches that are necessary to analyse and mitigate risks, threats, vulnerabilities and attacks across various industries.			
Week	Unit(s) Covered	Concepts	Labs
Week 1 (02/10/2023)	Introduction: Cybercrime, Ethical Hacking	Module Delivery, Assessments, Challenges, Technology in Crime, Risk, Assets, Threats, Vulnerabilities, Exploit, Testing Process and Plans, Ethics and Legality, Attackers Process	Lab Environment and Setup
Week 2 (09/10/2023)	Footprinting, Scanning	Information Gathering Process, Open Ports and Access Points, OS Fingerprinting, Mapping the Attack Surface	Hands-on Activity 1
Week 3 (16/10/2023)	Vulnerability Assessment	Tools, Life Cycle, Pre-Assessment Phase, Assessment, Post-Assessment Phase, Report	Hands-on Activity 2
Week 4 (23/10/2023)	Enumeration	Windows, Linux, SNMP, NTP, SMTP, DNS etc	Hands-on Activity 3
Week 5 (30/11/2023)	System Hacking	Passwords, Privilege Escalation, Exploits, Gaining Access, Hardening, Trojans, Backdoors, Sniffers, Denial of Service	Hands-on Activity 4
Week 6 (06/11/2023)	Reading/Mid-Assessment Week	Complete all the labs - Work with your Team to compete the Tasks for Coursework	
Week 7 (13/11/2023)	Web Servers, Web Applications Hacking	Scanning Web Servers, Banner Grabbing and Enumeration, Attacks - Unvalidated Inputs, Injection, Cross-Site Scripting, Cross Site Request Forgery Attacks, Authentication	Hands-on Activity 5

Week 8 (20/11/2023)	Physical Security and Social Engineering	Physical Security, Types of Social Engineering Attacks, Person to Person SE, CB-SE, Reverse Social Engineering, Policies	Hands-on Activity 6
Week 9 (27/11/2023)			
Week 10 (04/12/2023)	Wireless Tech., Mobile Attacks	Wireless - LAN Security, Authentication, Traffic Analysis, Attacks: Mobile Devices	Hands-on Activity 7
Week 11 (11/12/2023)	General Discussion/ Open Session	Tentative Scope of Major Project/ Internship Opportunities etc	
Assessment			
	Outcome	Deadline	
Coursework (100%)	provide a systematic understanding of a wide range of current research and technological advances in cyber security incidents;perform information security assessments, investigate, analyse, and support cyber security activities of an organisation with effective usage of security tools and methodologies.	08/01/2024	Coursework
Readings			
Book	Diogenes, Y. and Erdal Ozkaya (2019). Cybersecurity - Attack and Defense Strategies; Counter Modern Threats and Employ State-Of-The-Art Tools and Techniques To Protect your Organization against cybercriminals. Packt Publishing		
Book	Whitman, M.E. and Mattord, H.J. (2022). Principles of information security. Boston, Ma: Cengage.		
Book	Rafay Baloch (2017). Ethical hacking and penetration testing guide. Boca Raton: Auerbach Publications.		
Book	CEH Certified Ethical Hacker Cert Guide, 4th edition - Pearson IT Certification - Michael Gregg, Omar Santos		
Book	Blunden, B. (2016). The Rootkit arsenal: escape and evasion in the dark corners of the system. Burlington, Ma Jones & Bartlett Learning.		
Book	Mcclure, S., Scambray, J. and Kurtz, G. (2012). Hacking exposed: network security secrets and solutions. Emeryville, Calif.: McGraw-Hill/Osborne; London.		
Resources	owasp.org. (n.d.). OWASP Foundation Open-Source Foundation for Application Security. [online] Available at: http://owasp.org .		
Resources	EC-Council. (n.d.). Certified Ethical Hacker (CEH). Retrieved from https://www.eccouncil.org/programs/certified-ethical-hacker-ceh/		
Resources	www.skillsforall.com (Ethical Hacker Course)		
Resources	tryhackme.com		