



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Wales Institute of Science and Art

Applied Computing

Advanced Cybersecurity (ACCB6000)

MILESTONE - Academic Year 2022-23 (Sep 2022) - Sem 1

Lecturer: Nitheesh Murugan Kaliyamurthy

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To provide information about Cyber Security concepts and a deep understanding of how they are applied using Internet technologies. Understanding of up-to-date security threats and vulnerabilities posed to the Internet and the legal, policy and technical approaches that are necessary to mitigate such risks

Week	Unit(s) Covered	Concepts	Labs
Week 1 (04/10/2022)	Introduction to Advanced Cybersecurity	Introduction to Advance Cybersecurity concepts, Principles of Risk Management, Cyber Risk Assessment, Monitoring and Resilience.	Lab Requirements (Tools - Download, Setup and Coursework Description) Activity 1 Attack and Defence A Warmup
Week 2 (11/10/2022)	Footprinting and Reconnaissance	Footprinting Concepts, Methodology, Tools, Countermeasures and Pentest Notes	Activity 2 Footprinting
Week 3 (18/10/2022)	Scanning Networks and Enumeration	Network Scanning and Enumeration Concepts, Tools and Techniques, OS Fingerprinting.	Activity 3 Scanning
Week 4 (25/10/2022)			
Week 5 (01/11/2022)	Vulnerability Assessment	VA Concepts, Tools and Reports	Activity 4 Vulnerability Assessment
Week 6 (08/11/2022)	Reading/Mid-Assessment Week	Portfolio 1 (Class Test) - Compulsory 30 Minutes	
Week 7 (15/11/2022)	Social Engineering	SE Concepts, Techniques, Insider Threats, Identity Thefts, Countermeasures, Pentest Notes	Activity 5 SEA

Week 8 (22/11/2022)	Hacking	Passwords, Escalations, Covering Tracks, Pentest Concepts	Activity 6 Hacking
Week 9 (29/11/2022)			
Week 10 (06/12/2022)	Discussions: Types of Penetration Testing, Post Engagement Cleanup and Pen Test Report	Internal, External, Physical and Wireless Pentesting. Post Engagement Cleanup, Report Writing.	Compile all the labs and draft the report
Week 11 (13/12/2022)	Discussions: Types of Penetration Testing, Post Engagement Cleanup and Pen Test Report		
Assessment			
	Outcome	Deadline	
Portfolio 1 (20%)	Demonstrate a systematic understanding of a wide range of current research and technological advances in Cyber Security. Consistently apply the principles and practices of Cyber Security for mitigating the key technical internet security vulnerabilities and threats that organisations face	08/11/2022	Class Test
Portfolio 2 (80%)		06/01/2023	Coursework
Readings			
Book	The Web Application Hacker's Handbook: Finding and Exploiting Security Flaws, 2ed. Author: D. Stuttard.		
Book	Cracking the Coding Interview: 189 Programming Questions and Solutions 6th Edition. Author: Gayle Laakmann.		
Book	Basic Security, Penetration Testing and How to Hack. Author: Isaac Sharpe.		
Book	Counter Hack Reloaded: A Step-by-Step Guide to Computer Attacks and Effective Defenses (2nd Edition) 2nd Edition. Authors:		
Book	Cyber Insecurity: Navigating the Perils of the Next Information Age. Author: Richard Harrison.		
Resources	IEEE/ACM, IEEE/ACM Transactions on Networking	IEEE, IEEE Network Magazine	Science Direct
Resources	ACM Transactions on Information Systems	ACM Transactions on Database Systems	
Resources	http://www.veracode.com/directory/owasp-top-10	https://www.owasp.org/index.ph	www.dvwa.co.uk
Resources	http://www.vulnerabilityassessment.co.uk/Penetration%20Test.html		
Resources	http://www.softwaretestinghelp.com/penetration-testing-tools/		
Resources	DoD Cyber Crime Center (http://www.dc3.mil)	http://www.digitalforensicsmagazine.com/	
Resources	https://owasp.org/www-project-juice-shop/		