

 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 2025-26 (Sep 2025) - 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 (29/09/2025)	Introduction to Advanced Cybersecurity	Introduction to Advance Cybersecurity concepts,	Activity 1: Setting up the Network - Lab Requirements, Testing your Network (Tools - Download, Setup and Coursework Description) <i>Submit your Testing Screenshots in Moodle Link under Assessment Tab</i>
Week 2 (06/10/2025)		Principles of Risk Management, Cyber Risk Assessment, Monitoring and Resilience.	
Week 3 (13/10/2025)	Information Gathering	Footprinting Concepts, Methodology, Tools, Countermeasures and Pentest Notes Network Scanning and Enumeration Concepts, Tools and Techniques, OS Fingerprinting.	Activity 2 Information Gathering
Week 4 (20/10/2025)			
Week 5 (27/10/2025)	Vulnerability Assessment	VA Concepts, Tools and Reports	Activity 3 Vulnerability Assessment
Week 6 (03/11/2025)	Reading Week: Complete the Vulnerability Assessment on your SWANSEA.ACCA Network and identify the vulnerabilities		
Week 7 (10/11/2025)	Social Engineering	SE Concepts, Techniques, Insider Threats, Identity Thefts, Countermeasures, Pentest Notes	Activity 3 Vulnerability Assessment
Week 8 (17/11/2025)	Hacking the Network	Passwords, Escalations, Covering Tracks, Pentest Concepts	Activity 4 Exploit the Vulnerabilities
Week 9 (24/11/2025)	Guest Lecture: Hacking the Network: Suresh KS, Chief Expert - Cybersecurity (Worldskills)		Continue to Exploit the Vulnerabilities in Swansea.acca network
Week 10 (01/12/2025)	Switching, Routing and Wireless Module (ACCA6022) - Full Day: Enabling you to focus and practice on Cisco Routers and Switches		
Week 11 (08/12/2025)	Advanced Cybersecurity (ACCB6000) - Full Day: Enabling you to focus on SWANSEA.ACCA Network Exploitation and Security	Internal, External, Physical and Wireless Pentesting. Post Engagement Cleanup, Report Writing.	Portfolio 1 (Class Test) - Compulsory 30 Minutes
(15/12/2025)	Lab Full week Available for Practice/ Complete your Coursework	No Scheduled Lecture	
Week 12 (05/01/2026)	Discussions: Types of Penetration Testing, Post Engagement Cleanup and Pen Test Report	Prepare for the Demonstration	

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	08/12/2025	CTF (Capture the Flag)
Portfolio 2 (80%)		06/10/2025 & 12/01/2026	Test the network and Submit the Screenshots Demonstrate and Propose Mitigation
Readings			
Book	CEH Certified Ethical Hacker Cert Guide, 4th edition		
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	www.skillsforall.com		
Resources	ACM Transactions on Information Systems, IEEE/ACM, IEEE/ACM Transactions on Networking	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/		