University of Computer Studies (Thaton)
2025-2026 Academic Year
Fourth Year (B.C.Tech.)
Lecture Plan

CT- 4236 Cyber Security and Ethical Hacking **Second Semester**

Textbook : 1. "CEH Certified Ethical Hacker Cert Guide, 2022, by Michael Gregg" T1
2. "Mastering Kali Linux for Advanced Penetration Testing, 4th Edition, 2022, by Vijay Kumar Velu. T2

Reference : "Computer Security Fundamentals, 4th Ed., 2020, By Chuck Easttom"
Prerequisite : Computer Networking I
Credit Unit : 3 ACUs
Periods : 64 periods for 16 weeks (4 periods * 16 weeks) (1 period – 1 hr)

No.	Topics	Ref.	Page	Period	Detail Lecture Plan
1	**The Basic of Cyber Security**	T1		**6**	
	▪ Security Fundamentals		55-65		
	▪ Security Testing		65-70		
	▪ The Cyber Kill Chain		70-71		
	▪ Hacker and Cracker Descriptions		71-87		
	Exercise & Review Questions		98-103		Assignment
2	**The Technical Foundation of Hacking**	T1		**6**	
	▪ 2.1 The Hacking Process		109-114		
	▪ 2.2 Ethical Hacking Process		114-115		
	▪ 2.3 making an organization secure		115		
	▪ Warming up TCP/IP protocol suite		117-147		Discussion
	Exercise & Review Questions		148-155		Assignment
3	**Reconnaissance and Footprinting**			**6**	
	▪ Basic Principles of Reconnaisance	(T2)	55-57		
	LAB 1: Installing, configuring, and customizing Kali Linux	(T2)	10-31		
	▪ Passive Reconnaissance	(T2)	57-63		
	Lab 2: Information Gathering Tool				
	▪ Active Reconnaissance of External and Internal Networks	(T2)	87-96		
	▪ Foot-printing	T1	166-181		

No.	Topics	Ref.	Page	Period	Detail Lecture Plan
	▪ Footprinting Countermeasures	T1	198-199		
	Lab 3: Anonymous Internet Browsing	(T2)	92		
4	**Scanning**	T1		**4**	
	▪ Network Scanning Concepts and Scanning Tools		199-222		
	▪ Fingerprinting Services and Tools		222-227		
	Lab 4: Identifying active machines and opening ports with "Angry IP" scanner				
5	**Enumeration**	T1		**6**	
	▪ Windows Enumeration		250-255		
	▪ NetBIOS and LDAP Enumeration		255-258		
	▪ Additional Enumerations		272-274		Reading Assignment
	▪ Enumeration Countermeasures		283-284		
	Lab 5: Web Enumeration and Vulnerability Scanning using "Nikto" scanner				
6	**Gaining Access: System Hacking**	T1		**4**	
	▪ Password Attacks against Authentication Systems		285-292		
	▪ Common techniques for Escalating Privilege and Exploiting Vulnerabilities		293-299		
	Lab 6: Cracking Windows Password using "Ophcrack" cracker				
	▪ Other poweful tools to capture and crack authentication		300-316		Assignment
	Review Questions		320-325		Assignment
7	**Most Common Types of Attacks and Exploits**	T1		**8**	
	▪ Common Social Engineering Techniques		333-351		
	▪ Malware Threats		351-359		

No.	Topics	Ref.	Page	Period	Detail Lecture Plan
	▪ Recently popular Malware affected scenerios		369-375		Group Discussion
	▪ Malware Countermeasures		389-396		
	▪ Vulnerability Analysis		402-411		
	Exercises and Review Questions		415-423		Assignment
8	**Sniffing**	T1		**4**	
	▪ Passive and Active Sniffing		428-436, 445-446		
	▪ Wireshark		440-443		Assignment
	Lab 7: Traffic Analysis using any Network Sniffer				
9	**Session Hijacking**	T1		**4**	
	▪ Transport Layer Hijacking		446-450		
	▪ Application Layer Hijacking		451-453 457		
	Lab 8: Sessions Hijacking with "Ettercap"				
10	**Denial of Service Attacks**	T1		**4**	
	▪ DoS and DDoS Attacks		458-469		
	Exercises and Review Questions		472-478		Assignment
	Lab 9: HPing3 DOS attack on kali linux				
11	**Web Hacking**	T1		**4**	
	▪ Web Server Hacking		484-497		
	▪ Securing Web Servers		524-527		
	▪ Web Application Vulnerabilities		527-556		
	▪ Securing Web Applications		556-558		
	Exercises and Review Questions		580-587		Assignment
	Lab 10: Web Information Gathering using "Whatweb"				
12	**Wireless Hacking**	T1		**8**	
	▪ Wireless Network Concepts		593-604		Reading Assignment
	▪ Mobile Device Management and Protection		604-609		
	▪ Wireless LAN Basics		609-613		
	▪ Wireless LAN Security		615-616		
	▪ Wireless Hacking Methodologies		616-618 622-623 625-639		
	▪ Securing Wireless Networks		639-641		

No.	Topics	Ref.	Page	Period	Detail Lecture Plan
	Review Questions		644		Assignment
	Lab 11: Stealing WiFi Password using any tool (or) Aircrack-ng				
			Total	**64**	

Assessment Plan

Exam	60%
Lab	10%
Group Project	10%
Tutorial / Assignment	10%
Quiz	10%