

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Value Added Course on “DIGITAL FORTRESS: BUILDING RESILIENT CYBER SECURITY”

22.07.2024 to 26.07.2024

Value Added Course – syllabus

Objectives:

- Understand the basics of cyber security
- Know the Metasploitable as virtual machine
- Familiarize with Vulnerability –Penetration Testing
- Understand the Advanced Hacking Techniques
- Familiarize with Capturing Traffic and filtering traffic and analysis in the real world

UNIT 1: Introduction to cyber security

Date: 22-07-2024

1. Cyber security - Current Threats and Vulnerability
2. Security Bugs and Vulnerabilities - The Vulnerability Landscape
3. Overview of Ethical Hacking
4. Hackers, Crackers and Cyber criminals
5. Malware, viruses, rootkits and RATs
6. Spyware, Adware, Scareware, PUPs & Browser hijacking, Spamming & Doxing
7. Social engineering - Scams, cons, tricks and fraud
8. Installing Kali Linux (VM)
9. Basic Kali Linux Commands
10. Essential Tools in Kali - Vim, Nano, Wget, Curl, John the Ripper, Hashcat

Unit- 2: Metasploitable as virtual machine

Date: 23-07-2024

1. Hacking process
2. Installing Metasploitable As a Virtual Machine

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3. NMAP

4. Port scanning on Servers, Nmap Operating System Detection, Random Port Scanning

5. Nmap Scripting Engine - Reconnaissance with NMAP, IP Geolocation and WhoIS using Nmap

6. Webmap - Nmap Dashboard

7. Phishing tools for Kali Linux

Unit- 3: SQL injection Vulnerability –Penetration Testing

Date: 24-07-2024

1. Website Hacking / Penetration Testing

2. Information Gathering

3. Information Gathering Techniques and Tools

4. File Upload Vulnerability

5. SQL injection Vulnerability - Extracting data from Database

6. Brute Force & Dictionary Attacks

Unit-4: Advanced Hacking Techniques

Date: 25-07-2024

1. Advanced Hacking Techniques

2. Sniffing & Spoofing

3. Social Engineering

4. DoS attack

5. Session hijacking

6. Burpsuite tool and practical application

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Unit- 5: Capturing Traffic and filtering traffic and analysis

Date: 26-07-2024

1. Overview of cyber Security tools
2. Network Packet analyser - Wireshark - Installation and Setup
3. Capturing Traffic
4. Analyzing Captured Data
5. Advanced Filtering and Analysis
6. Protocol-Specific Analysis
7. Setting up and performing packet captures in different scenarios
8. Quiz and Assessment

OUTCOMES:

At the end of the course, the student will be able to,

CO1	Explain the fundamentals of cyber security
CO2	Describe Metasploitable as virtual machine
CO3	Summarize SQL injection Vulnerability –Penetration Testing
CO4	Outline the Advanced Hacking Techniques
CO5	Explain the concept of Capturing Traffic and filtering traffic and analysis in real time.
CO6	Apply the conceptual knowledge to a real world problem by using various tools Learned and report on the expected accuracy that can be achieved by applying those tools.