

Cyber Security Course Content

1. Introduction to Cyber Security
2. Networking and Operating System Fundamentals (Hands on)
3. Cryptography
4. Ethical Hacking Methodology (Hands on)
5. Web Application Security (Hands on)
6. Network and Wireless Security
7. Security Operations (SOC) (Hands on)
8. Digital Forensics and Malware Analysis
9. Cloud and Identity Security
10. Governance, Risk and Compliance
11. Capstone Projects

Introduction to Cyber Security

- CIA Triad, Threats, Vulnerabilities, Risks, Attack Vectors
- Security Domains, Roles, Careers, and Certifications
- Laws, Ethics, and Compliance: ISO 27001, GDPR, NIST, PCI-DSS

Networking and Operating System Fundamentals (Hands on)

- OSI and TCP/IP Models, Protocols, Ports, Subnetting
- Firewalls, IDS/IPS, VPN, Proxy, DNS Security
- Linux and Windows Security Basics, Command Line

Cryptography

- Symmetric and Asymmetric Encryption, Hashing, Digital Signatures
- PKI, SSL/TLS, Certificates, Key Management

Ethical Hacking Methodology (Hands on)

- Footprinting and Reconnaissance, Scanning, Enumeration
- Vulnerability Assessment with Nessus and OpenVAS
- Kali Linux, Nmap, Wireshark, Metasploit Basics (Lab Environment)

Web Application Security (Hands on)

- OWASP Top 10, SQL Injection, XSS, CSRF, IDOR
- Burp Suite, Secure Coding Practices

- API Security Testing

Network and Wireless Security

- Network Attacks and Defense, Sniffing, Spoofing
- Wireless Security: WPA2/WPA3, Rogue Access Points

Security Operations (SOC) (Hands on)

- SIEM: Splunk and ELK, Log Analysis, Alert Triage
- Incident Response Lifecycle, Threat Hunting, MITRE ATT&CK
- Endpoint Detection and Response (EDR)

Digital Forensics and Malware Analysis

- Evidence Collection, Disk and Memory Forensics
- Static and Dynamic Malware Analysis Concepts

Cloud and Identity Security

- Cloud Security Fundamentals (AWS, Azure, GCP), Shared Responsibility
- IAM, MFA, Zero Trust, Container Security Basics
- DevSecOps Overview

Governance, Risk and Compliance

- Risk Assessment, Security Policies, Audits, BCP and DR
- Social Engineering and Awareness Training

Capstone Projects

- Vulnerability Assessment Report, SOC Lab, Incident Response Simulation
- Certification Guidance (Security+, CEH, CompTIA CySA+) and Interview Preparation