

### SEMESTER I

#### 1. Cyber Security Fundamentals

1. Introduction to Cyber Security
2. Cyber Security Terminologies
3. Vulnerabilities, Threats and Risks
4. hackers
5. Malicious Attacks
6. CIA Triad
7. Cyber kill chain methodology
8. Biometrics
9. Security Architecture and Design

#### 2. Information Security Management Systems

1. Security Engineering
2. Cyber Security Architecture
3. Information Security in Business
4. Governance, Risk & Compliance
5. Risk Management
6. Cyber Security Policy, Standards, Procedures & Guidelines
7. International Compliance Frameworks
8. IT and National Acts
9. Legal and Ethical Considerations
10. Cyber Crime and Cyber Law

#### 3. Network Security

1. Overview of computer networks
2. Introduction to Network Security
3. Firewalls and Intrusion Detection and Prevention Systems
4. Demilitarized Zone
5. Proxy Servers and Application Layer Firewalls
6. Network Security Protocols
7. Operating System security
8. System and Software Security
9. Remote Access Security

#### 4. Cryptography and Applications

1. Principles of Cryptography
2. Symmetric and Asymmetric Cryptography
3. Encryption and Decryption Techniques
4. One-way Functions
5. Hash Functions
6. Digital Signatures
7. Public Key Infrastructure
8. Key Management
9. Certificate Authorities
10. Applications and Tools

#### 5. Assets Security, Identity and Access Management

1. Asset Security
2. Data Security
3. Identity and Access Management
4. Mandatory Access Control
5. Discrete Access Control
6. Role-Based Access Control
7. Rule-Based Access Control
8. Defence in Depth
9. Zero Trust Architecture
10. Financial Assets

### SEMESTER II

#### 1. Cyber Security Incident Management

1. Incident Management
2. Incident Response and Management
3. Business Continuity Management
4. Disaster Recovery Planning (DRP)
5. Anomaly Detection
6. Security Information and Event Management
7. SIEM Architecture
8. Robust SIEM
9. Case study.

#### 2. Web Security, Application Security and Mobile Security

1. Web Application Security Risks
2. DevSecOps
3. Security challenges in mobile devices
4. Mobile App security
5. Unified Endpoint Management
6. Mobile Device and Application Management.
7. Web Browser security
8. Android Malware
9. Web application firewalls

#### 3. Forensics Investigation & Audit

1. Introduction to Digital Forensics and Audit
2. Role of Digital Forensics in Business Security
3. Email Investigation
4. Mobile device Forensics
5. Sans Investigative Forensics Toolkit
6. CAINE Forensic Environment
7. Database and Cloud Forensic
8. Ethics in Digital Forensics
9. Forensics Analysis Tools
10. Anti-Forensic Techniques.

#### 4. Emerging Trends in Cyber Security

1. Cyber Threat Intelligence
2. Cloud Computing Fundamentals
3. Cloud Security
4. Automotive Industry
5. Supervisory Control and Data Acquisition
6. Internet Of Things
7. Artificial Intelligence and machine learning
8. Blockchain
9. Targeted Ransomware

#### 5. Project

Culminating project integrating concepts from the entire program