Security Fundamentals

Session No#	Session mode	Topic	Week -Day No	Duration Hrs
1	EL-Async	IU 1: Introduction to Cybersecurity • Understanding cybersecurity concepts, importance, and key terminologies • Types of cyber threats (malware, phishing, social engineering, ransomware, etc.) • Overview of cybersecurity frameworks and compliance standards (ISO 27001, NIST, GDPR) • Roles and responsibilities of cybersecurity professionals IU 2: Network Security Fundamentals • Network architectures, protocols (TCP/IP, HTTP, DNS), and communication models • Common network vulnerabilities and attack vectors (MITM, DoS/DDoS, packet sniffing) • Network security devices and configurations (firewalls, IDS/IPS, VPNs) • Securing wireless and cloud networks	Before Sync Session	4
2	FC -Sync	IU 1: Introduction to Cybersecurity IU 2: Network Security Fundamentals Discussion on the assignments	1-1	3
3	AS -Sync	Assignment 1 – Identify and assess cybersecurity threats using industry-standard threat intelligence frameworks. Assignment 2: Configure firewalls, intrusion detection/prevention systems (IDS/IPS), and implement secure network configurations.	1-2	3
4	MS-Async	Assignment 1 & 2 Submission	Before next Assignment session	1
5	EL-Async	IU 3: Ethical Hacking Principles • Ethical hacking process: Reconnaissance, scanning, exploitation, post-exploitation • Common attack techniques (brute force, SQL injection, cross-site scripting) • Overview of penetration testing tools (Nmap, Metasploit, Wireshark) • Ethical considerations and legal aspects of penetration testing.	Before Sync Session	2
6	FC -Sync	IU 3: Ethical Hacking Principles Discussion on the assignments	1-3	3
7	AS -Sync	Assignment 3: Conduct basic vulnerability scanning and penetration testing using ethical hacking tools like Nmap and Metasploit.	2-4	3
8	MS-Async	Assignment 3 Submission	Before next Assignment session	1

9	EL-Async	IU 4: Digital Forensics Essentials • Fundamentals of digital forensics and types of forensic investigations • Evidence collection, preservation, and chain of custody • Analyzing system logs, recovering deleted files, and extracting metadata • Tools for forensic investigations (Autopsy, FTK, EnCase)	Before Sync Session	2
10	FC -Sync	IU 4: Digital Forensics Essentials Discussion on the assignments	2-5	3
11	AS -Sync	Assignment 4: Perform forensic data collection, analyze logs, and recover deleted files from compromised systems.	2-6	3
12	MS-Async	Assignment 4 Submission	Before next Assignment session	2
13	EL-Async	IU 5: Security Operations and Monitoring • Understanding Security Information and Event Management (SIEM) • Monitoring security logs and detecting anomalies • Incident response lifecycle and handling security breaches • Cyber Threat Intelligence (CTI) and proactive threat hunting	Before Sync Session	2
14	FC -Sync	IU 5: Security Operations and Monitoring Discussion on the assignments	3-7	3
15	AS -Sync	Assignment 5: Monitor network traffic, analyze security logs, and respond to simulated cyber incidents.	3-8	3
16	MS-Async	Assignment 5 Submission	Before next Assignment session	2
17	EL-Async	IU 6: Cryptography and Data Protection • Basics of cryptography: Symmetric vs. asymmetric encryption • Common cryptographic algorithms (AES, RSA, SHA) • Implementing encryption for data-at-rest and data-in-transit • Digital signatures, certificates, and Public Key Infrastructure (PKI) IU 7: Business Continuity and Disaster Recovery • Importance of Business Continuity Planning (BCP) and Disaster Recovery (DR) • Identifying risks, conducting impact assessments, and developing response strategies • Incident response planning and execution (tabletop exercises, simulations) • Backup and recovery techniques for data protection	Before Sync Session	4
18	FC -Sync	IU 6: Cryptography and Data Protection Discussion on the assignments IU 7: Business Continuity and Disaster Recovery	3-9	3
19	AS -Sync	Assignment 6: Implement encryption techniques to secure files, emails, and communication channels.	4-10	3

20	MS-Async	Assignment 6 Submission	Before next Assignment session	2
21	AS -Sync	Assignment 7: Develop and test a cybersecurity incident response plan to mitigate the impact of security breaches	4-11	3
22	PM-Sync	Explain the project which the learners need to submit for the summative assessment	4-12	3
23	MS-Async	Project Report Submission for the Summative assessment	Before Assessment	2
24	SA-Sync	Summative Assessment (Per learner)	4-13	30 min

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