Cloud Security

Session No#	Session mode	Topic	Week -Day No	Duration Hrs
1	EL-Async	IU 1: Introduction to Cloud Computing and Security • Overview of cloud computing models: IaaS, PaaS, SaaS • Cloud deployment models: Public, Private, Hybrid, Community • Shared responsibility model in cloud security • Common cloud security challenges and threat landscape IU 2: Cloud Infrastructure Security • Securing virtual machines and containers • Network security groups and firewall configurations • Implementing intrusion detection and prevention systems (IDPS) in the cloud • Hardening cloud storage services	Before Sync Session	4
2	FC -Sync	IU 1: Introduction to Cloud Computing and Security IU 2: Cloud Infrastructure Security Discussion on the assignments	1-1	3
3	AS -Sync	Assignment 1: Identify and analyze security challenges specific to various cloud deployment models. Assignment 2: Implement security configurations for virtual networks and compute resources in a cloud environment.	1-2	3
4	MS-Async	Assignment 1 & 2 Submission	Before next Assignment session	1
5	EL-Async	IU 3: Data Security and Encryption in the Cloud • Encryption techniques for data at rest and in transit • Key management practices and tools • Data loss prevention (DLP) strategies • Implementing secure backup and recovery solutions	Before Sync Session	2
6	FC -Sync	IU 3: Data Security and Encryption in the Cloud Discussion on the assignments	1-3	3
7	AS -Sync	Assignment 3: Apply encryption techniques to protect sensitive data stored and transmitted in the cloud.	2-4	3
8	MS-Async	Assignment 3 Submission	Before next Assignment session	1
9	EL-Async	IU 4: Identity and Access Management (IAM) in Cloud Environments • Role-based access control (RBAC) and attribute-based access control (ABAC) • Multi-factor authentication (MFA) implementation • Federated identity and single sign-on (SSO) solutions • Monitoring and auditing IAM policies	Before Sync Session	2

10	FC -Sync	IU 4: Identity and Access Management (IAM) in Cloud Environments Discussion on the assignments	2-5	3
11	AS -Sync	Assignment 4: Configure IAM policies and roles to manage user access effectively in cloud platforms.	2-6	3
12	MS-Async	Assignment 4 Submission	Before next Assignment session	2
13	EL-Async	IU 5: Cloud Security Assessment and Penetration Testing • Planning and scoping cloud penetration tests • Identifying vulnerabilities in cloud infrastructure • Using penetration testing tools (Burp Suite, Nmap, Metasploit) for cloud security assessment • Exploiting misconfigurations and privilege escalation in cloud environments	Before Sync Session	2
14	FC -Sync	IU 5: Cloud Security Assessment and Penetration Testing Discussion on the assignments	3-7	3
15	AS -Sync	Assignment 5: Conduct vulnerability scans and penetration tests on cloud infrastructures using industry-standard tools.	3-8	3
16	MS-Async	Assignment 5 Submission	Before next Assignment session	2
17	EL-Async	IU 6: Incident Response and Forensics in the Cloud • Cloud-specific incident response process and challenges • Collecting and analyzing logs from cloud platforms (AWS CloudTrail, Azure Monitor, Google Cloud Logging) • Forensic investigation techniques in cloud environments • Preserving evidence and maintaining chain of custody in cloud-based forensic investigations IU 7: Compliance and Legal Considerations in Cloud Security • Key regulations and compliance standards (GDPR, HIPAA, ISO 27017, NIST 800-53) • Legal and contractual considerations in cloud security • Cloud service provider security certifications (SOC 2, CSA STAR, FedRAMP) • Implementing governance, risk management, and compliance (GRC) frameworks	Before Sync Session	4
18	FC -Sync	IU 6: Incident Response and Forensics in the Cloud IU 7: Compliance and Legal Considerations in Cloud Security Discussion on the assignments	3-9	3
19	AS -Sync	Assignment 6: Perform incident detection, analysis, and response activities within a cloud environment	4-10	3
20	MS-Async	Assignment 6 Submission	Before next Assignment session	2

21	AS -Sync	Assignment 7: Assess cloud services for compliance with relevant legal and regulatory frameworks.	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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