| Scheduled Week | Module Title | Learning Units | Remarks |
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| Week1 | Cloud Computing Concepts and Architectures | Introduction  Why cloud computing Knowledge?  Cloud Computing Certifications  Cloud computing audience  Defining Cloud Computing as per NIST/ISO-IEC  Defining Cloud Computing resources,setup,creation techniques  Cloud computing vs Virtualization  Multi-tenancy  Cloud Computing Definitional Model  Cloud Computing Characteristics  Cloud computing Service Model Iaas,PaaS and SaaS  Cloud Deployment Models Public,Private,Community and Hybrid cloud  Cloud Computing Logical Models  Cloud Computing Architecture Reference Model  Cloud Providers and Cloud Users Responsibilities  AWS Lab |  |
| Week2 | Introduction to Public Clouds | Introduction to amazon web service(AWS)  30 capabilities across 6 categories  Regions and availability zones  Product offering  AWS Shared Responsibilities model  Getting Started with AWS  Examples  Introduction to Google cloud  Google Cloud Products  Shared Security Responsibilities model  Geography and Regions  Google Cloud Offerings  AWS Lab |  |
| Week3 | Identity,entitlements and access management (IAM) | * What is IAM? * Terminologies * IAM Standards in Cloud Computing * How Federated IDM Works? * Managing Users and Identities for Cloud Computing * Hub & Spoke vs Free-Form * Architecture and Process Decisions * Authentication & Credential * Entitlement and Access Management * Cloud Impact on entitlements and Access Management * Privilege Users Management |  |
| Week4 | AWS-IAM overview | What is AWS-IAM?  AWS-IMS Features  Accessing AWS-IAM  How IAM works?  Users Identities in IAM  Federated Identities  Access Management  Attributes based access management vs Role based access management  AWS services resource level,service-linked role,ABAC,temporary credential |  |
| Week5 | Infrastructure Security(Network and Compute) | Introduction to Cloud infrastructure  Cloud Network Virtualization  Service, storage and management Networks  Network virtualization types  Software defined networks(SDN)  How does SDN Work?  SDN Models  How SDN is different from traditional networking?  SDN Benefits & SDN Firewalls  Microsegmentations  Software defined Perimeters  Virtual appliance challenges in cloud  Consideration for Public, private and Hybrid cloud  Cloud Compute and workload security  Compute types VMS,Containers,Platforms based load,serverless computing  How cloud changes workload security?  Auto scaling and Immutable Workload enable security  Immutable workload benefits  Additional immutable workload requirements  Image creations for immutable VMs  Cloud impact on standard workload security  Cloud impact on workload security monitoring and logging and Vulnerability assessments |  |
| Week6 | AWS Network and compute workload | * What is Amazon VPC? * Amazon VPC Features * Shared Security Model * Infrastructure Security in Amazon VPC * Security Group Vs Network ACL * VPC with Other Services * VPC Example   + Test Environment   + Webservers and Database servers   + Private Server |  |
| Week7 | Data Security and Encryption(Storage) | * Data security Control * Cloud data Storage * Data Migration into Cloud * Securing Cloud Data Transfer * Securing Data in the Cloud * Storage-at rest * Tokenization and Key Management * Data Security Architecture * Monitoring,Auditing and Alerting * ERM * Data Masking and Test Data Generation * Enforcing Security Life Security * AWS Data Protection,Data classifications,data queries and answer for data queries * AWS Data Discovery * Data Protections control * Automate data identifications and classifications * Data life cycles management * How to protect data at rest? * Implement Secure Key management * Enforce Encryption at rest * Automate data rest protection * Enforce Access Control * How to protect data in transit? * Implement secure key and certificate management * Enforce encryption in transit * Automate detection of unintended data access * Authenticate network communications |  |
| Week8 | Virtualization and Containers | * Introduction * Overview * Shared Model of Virtualization Security * Major Virtualization Categories in the Cloud * Compute Virtualization * Network Virtualization * Storage Virtualization * Containers Virtualization * Containers Components * Container Security * Containers Isolation and Management * AWS Services and Products * Aws Hypervisors * Aws Compute * AWS Networking & Contents Delivery * AWS Storage Services |  |
| Week9 | Incident Response | * Introduction * Incident Response Life cycle   + Preparation   + Detection and analysis   + Containment ,Eradication and Recovery   + Post-Mortem      * How cloud impact Incident Response Cycle? * AWS Incident Response |  |
| Week10 | Application security | * Introduction * Overview * SSDLC and Cloud Computing * Secure Design and Development * Secure Deployment * Secure Operations * How cloud impact Application Design and Architecture * Additional Consideration for Cloud Provider * Rise and Role of DEVOPS * AWS Application Security * Train for application security * Automate testing throughout the development and release lifecycle * Perform regular penetration testing * Manual code reviews * Centralize services for packages and dependencies * Deploy software programmatically * Regularly assess security properties of the pipelines * Build a program that embeds security ownership in workload teams |  |
| Week11 | Related Technologies | * Overview * Big Data * Big Data Components * Internet of Things(IOT) * AWS IOT Services * Mobile * Serverless Computing * AWS Serverless Computing   + Build Web applications   + Automate Batch Processing   + Data Processing   + Events Ingestion |  |
| Week12 | Management Plane and Business Continuity | * What is Management Plane? * Metastructure vs Management Plane * Accessing Management Plane * Securing Management Plane * Management Plane Security when building /deployment of cloud * BC/DR Introduction * Disaster,DR and Availability * How to calculate availability * Business continuity and Business impact analysis & Risk management * Recovery Objectives (RTO vs RPO) * DR on Premises vs Cloud * DR Options * Backup Restore or Cold site * Pilot light * Warm Standby * Multi sites Active/Active or Hot site * BC for loss of cloud provider |  |
| Week13 | Governance and enterprise risk managemnt | * Introduction * Risk and Governance Hierarchy * How cloud affect Governance * Tools for Governance * Enterprise Risk Management(ERM) * The effect of Service models and Deployment models   + Iaas,Paas,Saas   + Public,Private,community,hybrid cloud |  |
| Week14 | Info Governance | * Info Governance * Cloud impact on info governance * Cloud info  governance Domain * Data Security Life cycle * Locations and Entitlements * Functions,Actors and Control * Mapping Data life cycle with Functions,Actors and Control |  |
| Week15 | Compliance and audit | * What is compliance and Audit? * How Cloud Changes Compliance? * Shared responsibility of Audit Scope * Limitation of Pass-Through Audits * Governance ,Risks and Compliance(GRC) * Audit Management * How cloud changes Audit Management * Audits Artifacts * AWS Shared Responsibility model * AWS 3Party Attestations * AWS Compliance and Audit |  |
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