

Details of Course Outline

Module 1: Introduction to Cloud Computing

1. Definition of Cloud Computing
2. Benefits of Cloud Computing
3. Types of Cloud Models (Public, Private, Hybrid)
4. Cloud Service Models (IaaS, PaaS, SaaS)
5. Key Cloud Providers
6. Overview of Cloud Computing Trends

Module 2: AWS Overview and Global Infrastructure

1. Introduction to AWS
2. AWS Global Regions and Availability Zones
3. Core AWS Services
4. AWS Shared Responsibility Model
5. AWS Security Best Practices
6. AWS Compliance Programs

Module 3: Compute Services

1. Introduction to Compute in AWS
2. Amazon EC2 Overview
3. EC2 Instance Types and Pricing Models
4. Elastic Load Balancing (ELB)
5. Auto Scaling Basics
6. AWS Lambda Overview

Module 4: Storage Services

1. Introduction to AWS Storage Services
2. Amazon S3: Features and Use Cases
3. Amazon EBS: Elastic Block Storage
4. Amazon Glacier: Archival Storage

5. AWS Storage Gateway
6. S3 Security and Access Control

Module 5: Networking and Content Delivery

1. Amazon VPC: Virtual Private Cloud
2. Subnets, Route Tables, and Gateways
3. Security Groups and Network ACLs
4. Elastic IPs and NAT Gateways
5. Route 53: DNS and Traffic Management
6. CloudFront: Content Delivery Network (CDN)

Module 6: Database Services

1. Introduction to AWS Databases
2. Amazon RDS: Relational Databases
3. DynamoDB: NoSQL Databases
4. Amazon Redshift: Data Warehousing
5. Database Migration Service (DMS)
6. Aurora: MySQL and PostgreSQL-Compatible Database

Module 7: Security and Identity Management

1. AWS IAM: Users, Groups, Roles
2. Identity Federation and Multi-Factor Authentication (MFA)
3. AWS Key Management Service (KMS)
4. Encryption and Data Protection
5. AWS Organizations and Control Tower
6. VPC Security Best Practices

Module 8: Monitoring and Management

1. AWS CloudWatch: Monitoring and Metrics
2. AWS CloudTrail: Logging and Auditing
3. AWS Config: Resource Configuration Monitoring
4. AWS Systems Manager
5. Service Health Dashboard

6. Troubleshooting with AWS Support

Module 9: Cost Management and Billing

1. AWS Pricing Models (On-Demand, Reserved, Spot)
2. AWS Free Tier Overview
3. Billing and Cost Management Dashboard
4. AWS Budgets and Alerts
5. Cost Optimization Strategies
6. Consolidated Billing

Module 10: DevOps and Automation

1. Introduction to DevOps in AWS
2. AWS CodePipeline
3. AWS CodeBuild
4. AWS CloudFormation for Infrastructure as Code
5. AWS Elastic Beanstalk
6. Continuous Integration/Continuous Deployment (CI/CD)

Module 11: Application Services

1. Amazon SQS: Simple Queue Service
2. Amazon SNS: Simple Notification Service
3. Amazon SES: Simple Email Service
4. AWS Step Functions
5. AWS AppSync
6. AWS Elastic Transcoder

Module 12: Analytics and Big Data

1. AWS Data Analytics Services Overview
2. Amazon Kinesis: Real-Time Streaming Data
3. Amazon EMR: Hadoop and Big Data Processing
4. AWS Glue: Data Integration Service
5. Amazon QuickSight: Business Intelligence
6. Data Lake Solutions on AWS

Module 13: Machine Learning and AI

1. Introduction to Machine Learning on AWS
2. Amazon SageMaker Overview
3. AWS Rekognition: Image and Video Analysis
4. AWS Polly: Text-to-Speech
5. AWS Lex: Conversational Interfaces
6. AI Use Cases in AWS

Module 14: Hybrid Cloud and Migration

1. Introduction to Hybrid Cloud
2. AWS Direct Connect
3. AWS Storage Gateway
4. AWS Migration Hub
5. AWS Snowball: Data Transfer
6. Best Practices for Cloud Migration

Module 15: Serverless Architecture

1. Introduction to Serverless Computing
2. AWS Lambda: Functions as a Service
3. Amazon API Gateway
4. AWS Step Functions: Orchestration
5. Serverless Databases (DynamoDB, Aurora Serverless)
6. Benefits and Use Cases of Serverless

Module 16: AWS Certification and Best Practices

1. AWS Certification Pathways
2. Preparation Strategies for Certification
3. AWS Well-Architected Framework
4. Security Best Practices
5. Performance Efficiency and Reliability
6. Cost Optimization and Operational Excellence