

Cloud Computing– Course Outline

1 Duration

- 24 hours

2 Objectives

This course is designed to provide basic understanding on Cloud Computing & it's foundation services with demo sessions and good overview on all cloud services and how to troubleshoot the issues.

By the end of this course, you will be able to:

- Understand the basics of cloud computing, benefits and various cloud service providers / offerings
- Understand various cloud providers services and it's usage, sizing and cloud migration strategies
- Good understanding on Cloud Compute, Storage, Networking, DB, Security and Management services
- Manage, monitor and troubleshoot the cloud infrastructure and cloud applications / solutions

3 Audience

Freshers, Developers, QA Professionals, Architects, Database and Big Data professionals, Automation Engineers, IT Administrators and also whoever aspire to learn about Cloud Computing.

4 Pre-requisite

- Open to all. Better to have basic reading / knowledge on below things.
- General knowledge on application design, development and hosting is recommended
- General knowledge on networking concepts, storage concepts and IT infrastructure is recommended

5 Hardware & Network Requirements

- Desktop or Laptop with minimum 16GB RAM
- Internet connection with good speed (minimum 10 mbps per user)
- AWS account for individual participants (If want to do some hands-on)

6 Software Requirements

- Windows / Linux / Mac OS (with Local Admin Access)
- AWS CLI
- Java 17
- Eclipse/IntelliJ IDE
- MySQL Client

7 Outline

Module-1: Introduction to Cloud Computing (1.5 hrs)

- What is Cloud Computing?
- Evolution of Cloud Computing
- Virtualization Overview
- Cloud Computing Concepts
- Cloud Computing Architecture
- Cloud Service Models - SaaS vs PaaS vs IaaS
- Cloud Deployment Models - Private, Public, Community, Hybrid
- Benefits and Limitations

Module-2: Cloud Providers Overview and Intro to AWS (1.5 hrs)

- Cloud Service Providers Overview
- AWS, Azure, GCP Overview
- AWS Services Overview
- AWS Management Console Overview
- Availability Zones/Regions
- AWS Pricing Overview
- **Demo:**
 - AWS Account Registration
 - Management Console Usage - Account, Billing, Budget and Reports

Module 3: Design and Implement Cloud Compute (3 hrs)

- Cloud Compute Overview
- Amazon EC2 (Elastic Cloud Compute) Overview
- Amazon AMI (Amazon Machine Image)
- EC2/ AMI CLI
- Elastic IPs, Security Groups, Key Pairs, Placement Groups
- **Demo:**
 - Launching EC2 instance with Windows and Linux OS
 - Attaching EBS volume and Configuring Security Groups
 - How to upgrade / downgrade EC2 instance types
 - Monitoring EC2 instance basic health metrics and logs
 - Creating EBS Snapshot and Restore and Encrypting data stored
 - Creating custom AMIs and manage life cycle

Module 4: Load Balancing and Auto Scaling (2 hrs)

- Load Balancers Overview
- Elastic Load Balancer
- Auto Scaling Overview
- **Demo:**
 - Creating and configuring Elastic Load Balancer to load balance the EC2 instances with sample webapp
 - Creating and configuring Auto Scaling Groups to scale EC2 instances on the fly based on configured rules

Module-5: Design and Implement Cloud Storage (2 hrs)

- Cloud Storage Overview
- AWS S3 (Simple Storage Service) Overview
- EBS Overview
- EFS Overview
- Glacier Overview
- Storage Gateway Overview
- **Demo:**
 - Creating S3 Bucket and how to upload / download the data
 - Applying Version Control
 - Enabling Cross Region Replication
 - S3 Bucket Lifecycle Management
 - S3 Security & Encryption
 - Static website hosting using S3

Module 6: Design and Implement Cloud Network (2 hrs)

- Cloud Network Overview
- Amazon VPC (Virtual Private Cloud)
- Amazon VPN
- Amazon Direct Connect
- Amazon Route 53
- **Demo:**
 - Creating private VPC Network with different topologies and access restrictions
 - Creating public VPC Network with different topologies and access restrictions

Module 7: Design and Implement Content Delivery Network (CDN) (1 hr)

- CDN (Content Delivery Network) Overview
- CloudFront Overview
- **Demo:**
 - Creating CloudFront distribution for sample web application hosted in S3

Module 8: Cloud Databases (2 hrs)

- Database As Service Overview
- RDS Instance Overview
- DynamoDB Overview
- Redshift Overview
- ElastiCache Overview
- Aurora Overview
- **Demo:**
 - Launching RDS instance with MySQL database engine
 - Connecting RDS instances from cloud and on-premise machines
 - Creating Backups, Multi-AZs & Replicas

Module 9: Cloud Migration Strategies / Disaster Recovery and Business Continuity (2 hrs)

- Cloud Migration Strategies
- Server Migration Service
- Database Migration Service
- Disaster Recovery and Business Continuity services

Module-10: Cloud Security and IAM (2 hrs)

- Cloud Security Overview
- AWS Security Services
- IAM (Identity Access Management) Overview
- AWS IAM Overview
- **Demo:**
 - Creating IAM users and roles
 - Configuring and applying permissions for IAM users
 - Creating and applying custom policies

Module 11: Cloud Provisioning, Management and Monitoring (2 hrs)

- CloudFormation
- Amazon CloudWatch Overview
- AWS CloudTrail Overview
- Event and Notification Management
- **Demo:**
 - Creating alarms and notifications using CloudWatch service
 - Configuring CloudTrail service and monitoring the logs
 - Creating CloudFormation templates and provision AWS infrastructure

Module 12: Cloud Advance Services Overview, Best Practices and Latest Trends (3 hrs)

- Compute - Elastic Beanstalk, Lambda, EC2 Container Service, Batch, Lightsail
- Messaging - SQS, SNS, SES, Pinpoint
- Developer Tools - CodeCommit, CodeBuild, CodeDeploy, CodePipeline
- AWS Analytics & AI Services Overview
- AWS IoT Services Overview
- AWS Mobile Services Overview
- Organizations, Resource Groups & Tagging
- Best Practices and Latest Trends