

Module 1: Introduction to Cloud Computing (1 day)

- Overview of Cloud Computing
- Benefits and Challenges of Cloud Computing
- Cloud Service Models (IaaS, PaaS, SaaS)
- Cloud Deployment Models (Public, Private, Hybrid)

Module 2: AWS Fundamentals (4 Days)

- Introduction to AWS
- AWS Global Infrastructure
- AWS Management Console
- AWS Identity and Access Management (IAM)
- AWS Simple Storage Service (S3)
- AWS Elastic Compute Cloud (EC2)
- AWS Virtual Private Cloud (VPC)

Demo1: Setup Basic Architecture Manually

Demo2: Prepare AWS DevOps (Real Time Scenario) : Example of IaaS

Module 3: Azure Fundamentals (3 Days)

- Introduction to Azure
- Azure Portal and Management Tools
- Azure Identity and Access Management (Azure AD)
- Azure Storage Services
- Azure Virtual Machines
- Azure Networking (Virtual Network, Subnet, Gateway)

Demo1: Setup Basic Architecture Manually

Demo2: Prepare Azure DevOps (Real Time Scenario) : Example of PaaS

Module 4: GCP Fundamentals (1 day)

- Introduction to Google Cloud Platform (GCP)
- GCP Console and Command-Line Interface (CLI)
- GCP Identity and Access Management (IAM)
- GCP Storage Services
- Google Compute Engine (GCE)
- Networking in GCP (VPC, Firewall Rules)

Module 5: Cloud Networking (2 Days)

- Virtual Private Clouds (VPCs)
- Subnets and CIDR Notation
- Network Security Groups and Firewalls
- Load Balancing in the Cloud
- Content Delivery Networks (CDNs)

Demo1: Setup Basic Architecture Manually

Demo2: Prepare GCP DevOps (Real Time Scenario) : Example of SaaS

Module 6: Cloud Storage Solutions (2 Days)

- Object Storage (S3, Azure Blob Storage, Google Cloud Storage)
- Block Storage (EBS, Azure Disk Storage, Persistent Disks)
- File Storage (EFS, Azure Files, Cloud Filestore)

Demo1: Block Storage usage and how it works (on GCP)

Demo2: File Storage usage and how it works (on Azure)

Demo3: Object Storage (On AWS)

Module 7: Compute Services (4 Days)

- MicroServices
- Containerization (Docker)
- Container Orchestration (Kubernetes)
- Serverless Computing (AWS Lambda, Azure Functions, Cloud Functions)

Demo1: Docker Examples

Demo2: docker-compose , docker-swarm examples

Demo3: Kubernetes Installation

Demo4: Deployment of different components on kubernetes

Module 8: Database Services (3 Days)

- Relational Databases (RDS, Azure SQL Database, Cloud SQL)
- NoSQL Databases (DynamoDB, Cosmos DB, Cloud Firestore)
- Managed Database Services

Demo1: RDS provisioning on AWS

Demo2: Provisioning of DynamoDB on Azure

Demo3: Provisioning of Cloud Bigtable on GCP

Module 9: Cloud Security (1 Day)

- Security Best Practices in the Cloud
- Identity and Access Management
- Encryption in Transit and at Rest
- Compliance and Governance

Module 10: Monitoring and Management (1 Day)

- Cloud Monitoring and Logging
- Performance Optimization
- Cost Management and Optimization
- Automation and Infrastructure as Code (IaC)

Module 11: Advanced Cloud Topics (1 Day)

- DevOps in the Cloud
- Hybrid Cloud Solutions
- Multi-cloud Strategies
- Emerging Trends in Cloud Computing

Assessment:

- Quizzes and Assignments
- Final Project: Design and deploy a multi-cloud solution