

## Module 1 :- Introduction to Cloud Computing

- ❖ Definition and Evolution of Cloud Computing
  - ❖ Key Concepts: Virtualization, Multi-tenancy, and Scalability
  - ❖ Types of Cloud Computing:
    - Public, Private, Hybrid, and Community Clouds
  - ❖ Benefits and Challenges of Cloud Adoption
  - ❖ Popular Cloud Service Providers Overview: AWS, Azure, GCP
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## Module 2 :- Cloud Service Models

- ❖ Infrastructure as a Service (IaaS)
  - ❖ Platform as a Service (PaaS)
  - ❖ Software as a Service (SaaS)
  - ❖ Real-world Use Cases of Each Model
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## Module 3 :- Virtualization in Cloud

- ❖ Concepts of Virtual Machines (VMs) and Containers
- ❖ Hypervisors: Types and Examples
- ❖ Introduction to Docker and Kubernetes

## Module 4 :- Cloud Architecture and Security

- ❖ Components of Cloud Architecture
  - ❖ Load Balancing and Auto-Scaling
  - ❖ Cloud Security Fundamentals
    - Identity and Access Management (IAM)
    - Encryption and Data Protection
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## Module 5 :- Hands-on with Amazon Web Services (AWS)

- ❖ AWS Account Setup
- ❖ Key Services:
  - Elastic Compute Cloud (EC2)
  - Simple Storage Service (S3)
  - Relational Database Service (RDS)
  - Lambda Functions
- ❖ Building a Simple Cloud Application

## Module 6 :- Microsoft Azure Basics

- ❖ Overview of Azure Services
- ❖ Key Offerings
  - Virtual Machines (VMs)
  - Azure Blob Storage
  - Azure App Services
- ❖ Hands-on: Deploying Applications on Azure

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## Module 7 :- Google Cloud Platform (GCP) Introduction

- ❖ Setting up a GCP Account
  - ❖ Key Services:
    - Google Compute Engine
    - Google Cloud Storage
    - Google Kubernetes Engine
  - ❖ Hands-on Lab: Hosting a Web Application on GCP
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## Module 8 :- Cloud Deployment and Management

- ❖ Deployment Models: On-Premise, Hybrid, Multi-Cloud
  - ❖ Cloud Monitoring and Logging
  - ❖ Cost Optimization Strategies
  - ❖ Disaster Recovery and Backup Solutions
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## Module 9 :- Advanced Topics

- ❖ Serverless Computing
- ❖ Edge Computing and IoT in the Cloud
- ❖ DevOps and Cloud Integration
- ❖ AI and Machine Learning in Cloud

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## Module 10 :- Capstone Project

- ❖ Design and Implement a Cloud Solution
  - ❖ Deployment of a Real-world Project (e.g., E-commerce, Blogging Platform, or CRM)
  - ❖ Presentation and Feedback
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