

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**

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**

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

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

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**

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**

Module 9 :- Advanced Topics

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

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**

