Azure Course Content

1. Introduction to Cloud Computing and Microsoft Azure

- Overview of cloud computing
- Types of cloud services (IaaS, PaaS, SaaS)
- Introduction to Microsoft Azure
- Azure global infrastructure (Regions, Availability Zones)
- Benefits and key features of Azure
- Setting up an Azure account

2. Azure Architecture and Services Overview

- Azure core architecture
- Azure Resource Manager (ARM)
- Understanding Azure subscriptions, resources, and resource groups
- Overview of key Azure services (compute, networking, storage, databases)

3. Azure Compute Services

- Introduction to Azure Virtual Machines (VMs)
- Creating, configuring, and managing VMs
- Azure App Services: Web Apps, Mobile Apps, API Apps
- Introduction to Azure Kubernetes Service (AKS) for container management
- Azure Functions for serverless computing

4. Azure Networking

- Introduction to Azure Virtual Networks (VNets)
- Subnets, IP addressing, and network security groups (NSGs)
- Azure VPN Gateway and ExpressRoute
- Azure Load Balancer and Application Gateway
- DNS in Azure
- Introduction to Azure Traffic Manager

5. Azure Storage Solutions

- Overview of Azure Storage services
- Understanding Blob, File, Queue, and Table storage
- Managing and accessing Azure Blob Storage
- Azure Disk Storage (Managed vs Unmanaged)
- Configuring shared access signatures (SAS) and access policies

- Azure Storage security and encryption

6. Azure Databases

- Introduction to Azure SQL Database

- Setting up and managing Azure SQL databases

- Azure Cosmos DB for NoSQL solutions

- Azure Database for MySQL and PostgreSQL

- Database backups, replication, and scaling options

- Introduction to Azure Database Migration Service

7. Azure Identity and Access Management (IAM)

- Overview of Azure Active Directory (Azure AD)

- Managing users, groups, and roles in Azure AD

- Azure AD Identity Protection and Multi-factor Authentication (MFA)

- Role-Based Access Control (RBAC) in Azure

- Azure AD Connect and integrating on-premise AD with Azure AD

8. Azure Security Services

- Introduction to Azure Security Center

- Configuring Azure Key Vault for secrets management

- Azure Firewall and Network Security Groups (NSGs)

- Azure DDoS Protection and advanced threat detection

- Securing applications and data in Azure

9. Azure Monitoring and Management Tools

- Introduction to Azure Monitor and Log Analytics

- Setting up alerts and notifications

- Azure Application Insights for application performance monitoring

- Managing resources with Azure Portal, CLI, and PowerShell

- Automating tasks with Azure Automation and Azure Logic Apps

10. Azure DevOps and CI/CD Pipelines

- Introduction to DevOps and continuous integration/continuous delivery (CI/CD)

- Azure DevOps: Repos, Pipelines, Boards, and Artifacts

- Building CI/CD pipelines with Azure Pipelines

- Integrating Azure DevOps with GitHub and other repositories

- Managing and deploying applications using Azure DevOps

11. Azure AI and Machine Learning

- Overview of Azure AI and ML services

- Introduction to Azure Cognitive Services (Vision, Speech, Language)

- Building, training, and deploying ML models with Azure Machine Learning

- Using Azure Bot Service for creating intelligent bots

- Implementing AI solutions using Azure services

12. Azure Internet of Things (IoT)

- Introduction to Azure IoT Hub and IoT Central

- Connecting IoT devices to Azure

- Data collection and processing with IoT Hub

- Managing IoT devices with Azure Device Provisioning Service

- Analyzing IoT data with Azure Stream Analytics and Azure Data Lake

13. Azure Data Services and Big Data

- Introduction to Azure Data Lake Storage

- Using Azure Synapse Analytics for big data solutions

- Data transformation with Azure Data Factory

- Real-time analytics with Azure Stream Analytics

- Azure Databricks for data engineering and machine learning

14. Azure Cost Management and Optimization

- Understanding Azure pricing models (Pay-as-you-go, Reserved instances)

- Setting up Azure Budgets and cost alerts

- Azure Cost Management and Billing tools

- Optimizing resources for cost-efficiency

- Monitoring and managing usage with Azure Advisor

15. Azure Migration Services

- Introduction to Azure Migrate

- Assessing on-premise environments for migration

- Migrating VMs, databases, and applications to Azure

- Hybrid cloud solutions with Azure Arc and Azure Stack