AZ 300 Microsoft Azure Architect Technologies Training

Section1: Introduction to Microsoft Azure and Its Services

Learning Objective: In this module you will learn about the Creation of a Free Tier Azure Account, accessing Azure Services through Azure Portal and Azure Storage Service. You will gain knowledge of ARM Templates and learn to use them for deploying Azure resources.

Topics:

- Azure Subscriptions
- Azure Resources
- Azure Free Tier Account
- Azure Resource Manager
- Azure Resource Manager Template
- Azure Storage
- Types of Azure Storage

Real-time Practicals:

- Create a free tier azure account
- Create a web app service using Azure Portal
- Create and Deploy ARM templates
- Manage Azure Storage account using Storage Explorer
- Manage Azure Cost and Billing Service

Section 2: Azure Virtual Machines and Networking

Learning Objective: In this module you will learn to deploy and manage Azure Virtual Machines. You will learn to create and deploy an Azure Storage account, Azure Blobs and Azure Managed Disks. You will learn about Azure Virtual Networks and all its related concepts like NIC, NSG, Subnets etc. in this module.

Topics:

- Azure Resource Manager Virtual Machine
- Virtual Machines in ARM Template
- Overview of Azure Virtual Machine
- Azure Managed Disks
- Azure Blob Storage

- Networking in Azure
- Subnets, NIC, NSG, IP Addresses, DNS

Real-time Practicals:

- Create Windows and LINUX Virtual Machines
- Create BLOB Storage using Azure Portal
- Create VM with Storage Account and Managed Disks
- Configure Azure Virtual Network

Section 3: Azure VMSS and Availability Zones

Learning Objective: In this module you learn about Azure Availability Sets and its features. You will also learn about various Availability Zones and Virtual Machine Scale Sets, Azure Load Balancer a and Azure Application Gateway.

Topics:

- Resiliency
- Azure Availability Sets
- Azure Availability Zone
- Autoscaling
- Virtual Machine Scale Set
- Fault Domain
- Update Domain
- Load Balancer
- Application Gateway
- Azure Disk Encryption

Real-time Practicals:

- Create a Virtual Machine Scale Set
- Configure VMSS and add custom usage alerts
- Cofigure VM for Redundancy
- Create Application Gateway

Section 4: Azure App Services and Its Features

Learning Objective: This module deals with the aspects such as Deploying and Managing Web Apps, App Service Security, and Azure App Service Plan. You will learn to create, deploy and configure Function App and Logic App.

Topics:

- Azure App Service Web Apps
- App Service Security
- Serverless Computing Concepts
- Function Apps
- Azure Event Grid
- Azure Service Bus
- Azure App Service Logic App
- Using Shell Commands to create Web App
- Background Tasks
- Swagger tool

Real-time Practicals:

- Create an App Service Plan
- Create a Web App Instance
- Use shell commands to create an App Service Web App
- Create a Continuous WebJob

Section 5: Advanced Azure Hybrid Connectivity and Site Recovery

Learning Objective: This module deals with the Azure Hybrid Connectivity and its related concepts. You will also implement VNet Peering, P2S and S2S connectivity. You will also learn about VPN Gateway, ExpressRoute and BGP Protocol.

Topics:

- Hybrid Connectivity
- VNet S2S VPN
- VNet Peering
- Service Chaining
- Azure VPN Gateway
- Policy Based Gateway
- Route Based Gateway
- Swagger tool

- Gateway Connections
- Express Route
- VNet Routing
- User Defined Route
- Border Gateway Protocol

Real-time Practicals:

- Create a Virtual Network Gateway
- Design User Defined Routes
- Migrate On-Premise Machines to Azure using Azure Site Recovery

Section 6: Azure Storage Solution and Design Patterns

Learning Objective: This module deals with the aspects such as Azure Architecture Center, Cloud design patterns, competing consumers pattern, Cache-aside pattern. You will learn about Azure Storage Service and Database features.

Topics:

- Azure Architecture Center
- Cloud design patterns
- Cache-aside pattern
- Sharding Pattern
- Azure SQL DB
- Azure Elastic Pool
- Azure Data Lakes
- Azure Data Factory
- Azure Cosmos DB

Real-time Practicals:

- Create and Deploy Azure Data Lake
- Create and Deploy Azure Cosmos DB

Section 7: Azure Kubernetes Service

Learning Objective: This module provides an in-depth knowledge of Azure Service Fabric as a distributed systems platform that makes it easy to package, deploy, and manage scalable and reliable micro services and containers. You will also explore Kubernetes Service (AKS) in Azure.

Topics:

- Application Environment Components
- Docker
- DockerFile
- Docker Image
- Azure Container Registry
- Azure Container Instance
- Orchestration
- Azure Kubernetes Service
- Diagnostics Logs

Real-time Practicals:

- Create and Deploy Docker Image from DockerFile
- Deploy an Application in ACI
- Deploy an Application in AKS

Section 8: Azure Active Directory and Role Based Access Control

Learning Objective: This module deals with aspects such as Access Control and RBAC. You will learn about implementing authentication and authorization in applications. Also, you will learn to conceptualize the data security using End-to-end encryption, Azure confidential computing, Azure Key Vault, SSL and TLS communications.

Topics:

- Access Control
- Role Based Access Control
- Authentication in applications (certificates, Azure AD, Azure AD Connect, token-based)
- Multi-factor authentication (MFA)

- Claims-based authorization
- Role-based access control (RBAC) authorization
- End-to-end encryption
- Azure confidential computing
- SSL and TLS communications
- Azure Key Vault
- Configure Fraud alerts
- Bypass option, trusted IPs
- Managed Service Identity
- Service Principal authentication

Real-time Practicals:

- Implement authentication using certificates, Azure AD, Azure AD Connect, and tokens
- Implement Multi-factor authentication (MFA)
- Implement Claims-based authorization
- Implement RBAC authorization
- Implement secure data for end-to-end encryption
- Implement secure data for implementing SSL and TLS communications.
- Use Azure Key Vault to manage cryptographic keys

Section 9: Azure Messaging Service (Events, Hubs, Queue and Bus)

Learning Objective: In this module you will learn to configure a message-based integration architecture, develop methodology for Asynchronous Processing and create apps for Autoscaling.

Topics:

- Azure Messaging Service
- Azure Service Bus
- Azure Events Hub
- Azure Events Grid
- Azure Notifications Hub
- Auto Scale Ruling in Azure
- Transient Fault Handling

Real-time Practicals:

- Create a Service Bus Queue
- Deploy Service Bus Topics and Subscriptions
- Design and Implement Azure Service Bus
- Enable Auto Scale based on CPU Metrics Or Schedule
- Implement Multi-factor authentication (MFA)

Section 10: Azure Monitoring and Insights Service

Learning Objective: In this module you will learn about Monitoring Azure Services. You will learn about Azure alerts, metrics services. You will also get an overview on Azure Log analytics, App Insights service, Azure Activity Log and Azure Service Health.

Topics:

- Azure Monitoring
- Azure Analytics
- Azure Alerts
- Azure Resource Metrics
- Azure Activity Log
- Service Health
- Azure Log Analytics
- Azure App Insights

Real-time Practicals:

- Create and Deploy Alert Rules for Azure Resources
- Analyze the data in your metric database
- Create and Configure Azure Log Analytics
- Deploy Azure App Insights Service