

Azure Administrator

Prepared for M&T Bank

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Course Overview:

This Azure Administrator course is designed to equip IT professionals with the skills and knowledge required to excel in the role of Azure Administrator. Participants will gain a comprehensive understanding of Azure services and administration techniques in order to effectively perform duties related to provisioning, managing, maintaining, and monitoring Azure cloud environments. This course will also prepare the participant for the AZ-104: Azure Administrator Associate certification exam.

Objectives:

By the end of the course, participants will be able to:

- Understand the core concepts of Azure IaaS, PaaS and SaaS services
- Successfully create, configure, and manage Azure Virtual Networks
- Implement Load Balancing Solutions to optimize application performance and availability
- Use Azure Portal, PowerShell, and Azure CLI for managing tasks
- Choose between Azure SQL Database and Storage Account and apply appropriate options
- Deploy and manage Web Applications in PaaS Services
- Understand the concept of Azure Functions and serverless computing
- Implement Authentication and Authorization using Azure Active Directory
- Provide access to user access to Azure Subscription in Azure Active Directory
- Create policies and budget for Azure Subscriptions
- Manage Azure Backup
- Create and manage Infrastructure as Code (IaC) using Terraform

Prerequisites:

Participants are expected to possess a foundational understanding of infrastructure construction for deploying diverse application types. Prior experience in roles such as operating system administration, networking, storage, security, or related fields is recommended.

Course Duration

16 Half-Days

Course Delivery

Virtual Instructor Led

Topic-by-Day Glance

Azure Administration Topics	Day
AZ-900: Azure Fundamentals	1, 2
Manage Resource Groups	3
Azure Virtual Networking	3, 4
Load Balancing Solutions	5
PowerShell and Azure CLI	6
Azure Virtual Machine	6
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Azure Active Directory	12
Manage Azure Subscriptions and RBAC	13
Azure Governance Solutions	13
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Course Outline

AZ-900: Azure Fundamentals

- Describe cloud computing
- Describe the benefits of using cloud services
- Describe cloud service types
- Describe the core architectural components of Azure
- Describe Azure compute and networking services

- Describe Azure storage services
- Describe Azure identity, access, and security
- Describe cost management in Azure
- Describe features and tools in Azure for governance and compliance
- Describe features and tools for managing and deploying Azure resources

Configuring and Managing Azure Virtual Networks

- Overview of Azure Networking
- Virtual Network Benefits
- Understanding Network Resources
- Implementing and managing virtual networking
- Setup Network Security Group
- Monitoring and troubleshooting Network Connectivity

Load Balancing Solutions

- Understanding and creating Availability Set
- Understanding Availability Zones
- Load Balancing
 - Configuring external and internal Azure Load balancer
 - Load Balancing Rules
 - Implementing front end IP configuration
- Azure Traffic Manager

Azure Storage Service

- About Storage Service and Account
- Creating a Storage Account
- Working with Blob Storage
 - Types of Blobs (Block, Append, Page)
 - Container and Metadata
 - Soft Copy
 - Azure Storage Explorer
 - Transfer Data using AzCopy
 - Programming Blob Storage
 - Async Blob Copy
 - Import and Export Service
 - Implementing and configuring CDN
 - Configure Custom Domain
 - Scale Blob Storage
 - Storage Service Encryption

- Manage Access / Securing Storage
 - Create and Manage Shared Access Signature
 - Account SAS vs Service SAS
 - Using Stored Access Policies
 - Regenerating Keys
 - Encrypt Keys using Azure Key Vault integration
- Working with Table Storage
- Azure Queues Storage
- Azure SMB File Storage
 - Common usage of File Storage
 - Shares, Directory and File
 - Managing Using Azure Portal
- Configure diagnostics, monitoring and analytics
 - Capturing Metrics Data
 - Analyzing Diagnostic Data
 - Capturing Logs
 - Retention Policies and Logging Levels
 - Analyzing Logs
 - Enabling Monitoring
 - Enabling Alerts

Managing Resource Groups

- Use Azure policies for resource groups
- Configuring resource locks
- Configuring resource policies
- Implement and set tagging on resource groups
- Move resources across resource groups
- Removing resource groups

Managing Azure with PowerShell and Azure CLI

- Installing the required modules
- Login to Azure Portal
- Managing Resource Group
- Managing App Service Plans and App Service Web Apps
- Creating and configuring a Storage Account
- Managing Storage Accounts using PowerShell
- Azure CLI Introduction and Setup
- Creating Resources
- Listing and Formatting output

- Interactive Mode

Azure Virtual Machine

- Introduction to Azure Virtual Machines
- About Virtual Machine Workloads
- Creating a Windows Virtual Machine using Portal
- Virtual Machine Disk
- Generalizing VM and capturing VM Images
- Working with Disk Snapshot
- VM Disk Types
- VM Sizes in Azure
- Configuring VM Disk Encryption
- Performing configuration management.
- Virtual Machine Scale Sets
- Configuring VM monitoring, alerts, and diagnostic/monitoring log storage locations

Managing Data in Azure SQL Database

- Overview of SQL Database
- Azure SQL Managed Instance
- Comparing SQL Azure Database to Azure / On-Premise SQL Server
- Creating and Using SQL Server and SQL Database Services
- Azure SQL Database Tools
- Migrating on premise database to SQL Azure
- Dynamic Data Masking
- Transparent Data Encryption
- Planning the deployment of an Azure SQL Database
- Elastic Pools
- Dynamic Data Masking
- Configuring SQL Database Auditing
- Exporting and Importing of Database using .bacpac
- Managing Business Continuity / Data Recovery
- Backup and Recovery options in SQL Database
- Active GEO-Replication
- Monitoring Azure SQL Database and Alerting

Implementing and Managing App Services – Web Apps

- Introduction to App Services - Web Apps
- App Service - Application Types

- Deploying Web Apps
- App Service plans
 - Creating App Service Plan
 - Migrating Web Apps between App Service plans
 - Creating a Web App within an App Service plan
- Managing App Services
 - Configuring a custom domain name
 - Enabling SSL/TLS for your custom domain
 - Understanding Deployment Slots and Rollback deployments
- Configuring Web Apps for scale and resilience
 - Horizontal and Vertical Scaling of a Web App
 - Configuring auto-scale
 - Changing the size of an instance

Azure Functions

- Overview and use case of Azure Functions

Azure App Services - Logic Apps

- Introduction to App Services - Logic Apps
- Triggers and Actions
- Creating a Simple Logic App
- Handling array of Items using for-each and condition
- Logic App with variables
- High level overview of the following Development topics will be provided.
 - About Enterprise Application Pack
 - Adding a Custom Function with Azure Function
 - Creating Custom Connectors
 - Using Custom API in Logic App
- Azure Functions vs Logic Apps

Implementing Azure Backup

- Overview of Azure Backup
- Configuring VM backup
- Creating Recovery Services Vault
- Defining and Implementing backup policies
- Performing VM restore
- Performing backup operation
- Configuring and reviewing backup reports

Managing Azure Subscriptions and RBAC

- Understanding Azure Subscriptions
- Configuring Role Based Access Control
- RBAC using Portal
- RBAC using PowerShell and CLI
- Custom Roles for RBAC
- Managing Subscription Policies
- Locking Resources
- Checking Resources Limits
- Resource Tags

Managing and Securing Identities using Azure Active Directory

- Introduction to Azure AD
- Azure AD Editions
- Managing Active Directories
- Adding a custom domain name to Azure AD
- Managing Azure AD Users, Groups and Devices
- Adding Partner Users from other organization
- Configure Windows 10 with Azure AD domain join
- Synchronizing On-Premise AD Identities with Azure AD
- Azure AD Connect
- Azure AD User Sign-In Options

Azure Key Vault

- Secrets vs Keys
- Accessing Keys and Secrets
- Use cases for Key Vault

Managing Azure Governance

- Managing Subscription Policies
- Azure Blueprints
- Locking Resources
- Checking Resources Limits
- Resource Tags

Azure Monitoring and Log Analytics Workspace

- Azure Monitor Overview
- Monitoring Metrics

- Monitoring Logs
- Log Analytic Workspace
- Collecting data from a Azure VM / Windows computer
- Azure Activity Logs
- Azure Diagnostics Logs
- Application Insight

IaC using Terraform Templates

- Overview of Terraform
- Terraform Files Structure
- Terraform Commands
- Writing HCL with the Azure Provider
- Working with Terraform Enterprise (user/developer personal)
- Using Terraform in GitLab Pipelines
- Using Private Module Registries
- Writing modules