M55372A : Microsoft Azure Advanced Administration

Course Outline

Module 1: Implement Azure Active Directory
In this module, you will learn how to secure identities with Azure Active Directory, and implement users and groups.This module includes:

- **Lessons:**
  - Overview of Azure Active Directory
  - Users and Groups
    - Administrative Units
  - Domains and Custom Domains
  - Azure AD Identity Protection
  - Implement Conditional Access
    - Named locations in Conditional Access
  - Configure Guest Users (B2B) in Azure AD
  - Manage Multiple Directories
  - Azure AD Identity Governance
    - Access Reviews
    - Access Packages
    - Privileged Identity Management
- **After completing this module, students will be able to:**
  - Understand how Multiple AAD organisations interact
  - Add Guest Users to Azure AD
  - Configure Location Condition Configuration
  - Configure Privileged Identity Management
  - Implement Conditional Access

Module 2: Implement and Manage Hybrid Identities
In this module, you will learn how to install and configure Azure AD Connect and implement Azure AD Connect Health.This module includes:

- **Lessons:**
  - Install and Configure Azure AD Connect & Cloud Sync
  - Configure Password Sync and Password Writeback
  - Configure Azure AD Connect Health
- **After completing this module, students will be able to:**
  - Implement Azure AD seamless Single Sign-On
  - Perform an Azure AD Connect installation
  - Implement Azure AD Connect Health

Module 3: Implement Virtual Networking
In this module, you will learn about basic virtual networking concepts like virtual networks and subnetting, IP addressing, network security groups, Azure Firewall, and Azure DNS.This module includes:

- **Lessons:**
  - Virtual Networking
  - Virtual Network Peering

  - VPNs
  - Advanced Virtual Networking
- **After completing this module, students will be able to:**
  - Connect services with Virtual Network Peering
  - Configure VNet Peering
  - Understand Service Chaining
  - Modify or delete VNet Peering
  - Site to Site VPN Connections

Module 4: Implement VMs for Windows and Linux
In this module, you will learn about Azure virtual machines including planning, creating, availability and extensions.

- **Lessons:**
  - Select Virtual Machine Size
  - Configure High Availability
    - Availability Sets
    - Availability Zones
    - Proximity Placement Groups
    - Implement Azure Dedicated Hosts
  - Deploy and Configure Scale Sets
  - Configure Azure Disk Encryption
  - Advanced Azure Virtual Machine Administration
    - Virtual Machine Update Management Center
    - Virtual Machine Automanage
    - Virtual Machine Run Command
    - VM Inspector
    - Reset Password
    - Redeploy / Reapply
    - Serial Console
- **After completing this module, students will be able to:**
  - Plan for virtual machine implementations
  - Create virtual machines
  - Configure virtual machine availability, including scale sets
  - Understand High Availability options for VMs in Azure

Module 5: Implement Load Balancing and Network Security
In this module, you will learn about network traffic strategies including network routing and service endpoints, Azure Load Balancer, Azure Application Gateway, and Traffic Manager.

- **Lessons:**
  - Implement Azure Load Balancer
    - Global load balancers
  - Implement an Application Gateway
    - Zone redundant GWs
  - Understand Web Application Firewall
  - Implement Azure Firewall
  - Implement Azure Front Door

- Implementing Azure Traffic Manager
- Implement Network Security Groups and Application Security Groups
- Implement Azure Bastion

- **After completing this module, students will be able to:**
  - Select a Load Balancer solution
  - Configure Application Gateway
  - Implement Azure Firewall
  - Create an Azure Front Door
  - Understand Traffic Manager routing methods
  - Configure Network Security Groups (NSGs)

Module 6: Implement Storage Accounts

In this module, you will learn about basic storage features including storage accounts, blob storage, Azure files and File Sync, storage security, and storage tools.

- **Lessons:**
  - Storage Accounts
  - Blob Storage
  - Storage Security
  - Managing Storage
  - Accessing Blobs and Queues using AAD
- **After completing this module, students will be able to:**
  - Understand Storage Account services and types
  - Configure Blob storage, accounts, containers, and access tiers
  - Implement Shared Access Signatures (SAS)
  - Understand Azure Storage firewalls and virtual networks

Module 7: Implement NoSQL Databases

In this module, you will learn about Azure Table Storage and recommend options for CosmosDB APIs.

- **Lessons:**
  - Configure Storage Account Tables
  - Select Appropriate CosmosDB APIs
- **After completing this module, students will be able to:**
  - Outline the Table Service Data Model
  - Understand options for Azure Cosmos DB
  - Understand high availability using CosmosDB

Module 8: Implement Azure SQL Databases

In this module, you will create an Azure SQL Database single database, create an Azure SQL Database Managed Instance, and review high-availability and Azure SQL database.

- **Lessons:**
  - Configure Azure SQL Database Settings
  - Implement Azure SQL Database Managed Instances
  - High-Availability and Azure SQL Database
- **After completing this module, students will be able to:**
  - Create an Azure SQL Database (single database)
  - Create an Azure SQL Database Managed Instance

- Recommend high-availability architectural models used in Azure SQL Database

Module 9: Automate Deployment and Configuration of Resources
In this module, you will learn about the tools an Azure Administrator uses to manage their infrastructure.

- **Lessons:**
  - Azure Resource Manager Templates
  - Save a Template for a VM
  - Evaluate Location of New Resources
  - Configure a Virtual Hard Disk Template
  - Deploy from a template
  - Create and deploy Bicep Templates
  - Create and Execute an Automation Runbook
- **After completing this module, students will be able to:**
  - Leverage Azure Resource Manager to organise resources
  - Use ARM Templates to deploy resources
  - Create and Execute an Automation Runbook
  - Deploy an Azure VM from a VHD
  - Understand Azure encryption technologies

Module 10: Implement and Manage Azure Governance
In this module, you will learn about managing your subscriptions and accounts, implementing Azure policies, and using Role-Based Access Control.

- **Lessons:**
  - Create Management Groups, Subscriptions, and Resource Groups
  - Overview of Role-Based Access Control (RBAC)
  - Role-Based Access Control (RBAC) Roles
  - Implement and Configure an Azure Policy
  - Azure Blueprints
- **After completing this module, students will be able to:**
  - Understand Resource Group Organisation
  - Understand how RBAC works
  - Create an Azure AD access review
  - Create and manage policies to enforce compliance

Module 11: Manage Security for Applications
In this module, you will learn about Azure Key Vault and implementing authentication using Azure Managed Identities.

- **Lessons:**
  - Azure Key Vault
  - Azure Managed Identity
- **After completing this module, students will be able to:**
  - Explain Key Vault uses such as secrets, key, and certificate management
  - Use Managed Identities with Azure resources

Module 12: Manage Workloads in Azure

In this module, you will learn how to migrate workloads using Azure Migrate, perform VMware agent-based and agent-less migrations, and perform Azure Backup and Azure Site Recovery.

- **Lessons:**
  - Migrate Workloads using Azure Migrate
  - VMware – Agentless Migration
  - VMware – Agent-Based Migration
  - Implement Azure Backup
  - Azure to Azure Site Recovery
  - Implement Azure Update Management
- **After completing this module, students will be able to:**
  - Understand agent-based migration architecture
  - Prepare for Azure migration
  - Prepare an on-premises VMware environment
  - Understand Azure VM backup architecture
  - Manage updates and patches for Azure VMs

Module 13: Implement Container-Based Applications

In this module, you will learn how to run Azure Container instances and how to deploy Kubernetes with AKS.

- **Lessons:**
  - Azure Container Instances
  - Configure Azure Kubernetes Service
  - Networking
  - Node Pools Types and usages
  - Upgrading Clusters
  - Upgrading Nodes
- **After completing this module, students will be able to:**
  - Run Azure Container instances
  - Deploy Kubernetes with AKS

Module 14: Implement an Application Infrastructure

In this module, you will learn how to create an App Service web App for Containers, create and configure an App Service Plan, and create and manage Deployment Slots.

- **Lessons:**
  - Create and Configure Azure App Service
  - Create an App Service Web App for Containers
  - Create and Configure an App Service Plan
  - Configure Networking for an App Service
  - Create and Manage Deployment Slots
  - Implement Logic Apps
  - Implement Azure Functions
- **After completing this module, students will be able to:**
  - Configure an Azure App Service
  - Create an App Service Plan
  - Create a Workflow using Azure Logic Apps
  - Create a Function App

Module 15: Implement Cloud Infrastructure Monitoring

In this module, you will learn about Azure Monitor, Azure Workbooks, Azure Alerts, Network Watcher, Azure Service Health, Azure Application Insights.

- **Lessons:**
  - Azure Infrastructure Security Monitoring
  - Azure Monitor
  - Azure Workbooks
  - Azure Alerts
  - Log Analytics
  - Microsoft Defender for Cloud
  - Network Watcher
  - Azure Service Health
  - Monitor Azure Costs
  - Azure Application Insights
  - Unified Monitoring in Azure
- **After completing this module, students will be able to:**
  - Understand Azure Log Analytics
  - Understand Azure Service Health