Microsoft Azure Administrator with Hybrid Cloud

Duration: 3 Months

Training Hours: 96 Hours (8 Hours/Week)

Prerequisites

- Basic knowledge of Windows Operating System
- Basic Networking Concepts (IP Addressing, DNS, Subnetting)
- No prior cloud experience required

MONTH 1 – Azure Fundamentals & Virtual Machine Administration

Week 1 – Microsoft Azure Fundamentals

Module 1: Azure Cloud Foundations

What You'll Learn

Build a solid understanding of Microsoft Azure by learning cloud concepts, Azure subscriptions, resource organization, identity management, and account security.

Topics Covered

- Introduction to Microsoft Azure
- Cloud Computing Concepts
- Pay-As-You-Go Pricing Model
- IaaS Overview
- Azure Global Infrastructure

- Azure Regions
- Availability Zones
- Azure Free Tier Account
- Azure Subscription Verification
- Azure Account
- Azure Subscription
- Azure Resource Groups
- Azure Tags
- Azure Support Plans
- Azure Help & Support

Practical Labs

- Create Azure Free Trial Account
- Verify Azure Subscription
- Create Resource Groups
- Organize Resources using Tags
- Explore Azure Portal

Week 2 – Identity & Access Management

Module 2: Microsoft Entra ID & Azure Security

What You'll Learn

Learn how Azure secures cloud environments using Microsoft Entra ID (Azure AD), RBAC, Multi-Factor Authentication, and Identity & Access Management.

Topics Covered

- Microsoft Entra ID
- Identity & Access Management (IAM)
- Multi-Factor Authentication (MFA)
- User Management
- Microsoft Entra ID Roles
- Azure RBAC
- Owner Role
- Contributor Role
- Difference between RBAC & Entra Roles
- Management Groups
- Azure Governance

Practical Labs

- Configure Entra ID
- Enable MFA
- Create Users
- Assign RBAC Roles
- Configure Administrative Access

Week 3 – Azure Compute & Virtual Machines

Module 3: Azure Virtual Machine Administration

What You'll Learn

Deploy and manage Azure Virtual Machines while understanding virtualization concepts, networking, availability options, and virtual infrastructure.

Topics Covered

- Virtualization Overview
- Availability Zones
- Availability Sets
- Fault Domains
- Update Domains
- Proximity Placement Groups
- Azure Virtual Networks
- Virtual Network (VNet)
- Subnets
- Public IP
- Private IP
- Azure Virtual Machine Creation
- Virtual Machine Networking

Practical Labs

- Create Windows VM
- Create Linux VM
- Configure Virtual Network
- Configure Public & Private IP
- Configure Availability Options

Week 4 – Virtual Machine Administration & Security

Module 4: Azure VM Management

What You'll Learn

Perform day-to-day Azure VM administration, troubleshoot virtual machines, configure networking, storage, and secure workloads using Network Security Groups.

Topics Covered

- Stop vs Deallocate
- Auto Shutdown
- Boot Diagnostics
- VM Resize
- Serial Console
- Password Reset
- VM Network Interface (NIC)
- Reset NIC
- Public IP Management
- Network Security Groups (NSG)
- Inbound Rules
- Outbound Rules
- Rule Priority
- Azure Locks

Practical Labs

- Resize Virtual Machines
- Configure Auto Shutdown
- Configure NSG Rules
- Reset Password
- Test Connectivity
- Secure Azure VMs

Skills Gained After Month 1

Students will be able to:

- Understand Microsoft Azure architecture.
- Configure Azure subscriptions and governance.

- Manage Microsoft Entra ID.
- Secure Azure resources using RBAC and MFA.
- Deploy Windows & Linux Virtual Machines.
- Configure Azure Networking.
- Implement Network Security Groups.
- Perform Azure VM administration.

MONTH 2 – Azure Storage, Networking & Business Continuity

Week 5 – Azure Storage Administration

Module 5: Azure Storage & Disk Management

What You'll Learn

Learn Azure storage architecture, managed disks, snapshots, replication, storage accounts, and backup strategies for enterprise workloads.

Topics Covered

- Managed Disks
- OS Disk
- Data Disk
- Temporary Disk
- HDD vs SSD
- LRS
- ZRS
- Storage Account Types
- Storage Performance
- Access Tiers
- Storage Replication
- Storage Endpoints
- Shared Access Signature (SAS)
- Storage Access Keys
- Azure File Share
- Private Endpoints

Practical Labs

- Create Storage Accounts
- Attach Data Disks
- Resize Data Disks
- Configure Storage Security
- Create File Shares

Week 6 – Backup, Disaster Recovery & Cost Optimization

Module 6: Business Continuity

What You'll Learn

Protect Azure workloads using Backup, Site Recovery, Snapshots, and Disaster Recovery while optimizing cloud costs.

Topics Covered

- Azure Backup
- Backup Replication Types
- VM Backup
- VM Restore
- Snapshot Backup
- Snapshot Restore
- Restore Individual Files
- Soft Delete
- Azure Site Recovery
- Recovery Services Vault
- Failover Operations
- Reservation Plans
- Savings Plans
- Spot Virtual Machines
- Azure Pricing Calculator
- Azure Budget

Practical Labs

- Configure Azure Backup
- Restore Virtual Machines
- Configure Site Recovery
- Perform Failover
- Configure Budgets

Week 7 – Azure Networking

Module 7: Enterprise Azure Networking

What You'll Learn

Implement enterprise networking by configuring private networking, NAT Gateway, VPN connectivity, ExpressRoute, Azure Bastion, and Route Tables.

Topics Covered

- Private Subnets
- NAT Gateway
- VNet Peering
- Azure Bastion
- Route Tables
- User Defined Routes (UDR)
- Azure Site-to-Site VPN
- VPN Gateway
- FortiGate Firewall
- Azure ExpressRoute

Practical Labs

- Configure NAT Gateway
- Configure VNet Peering
- Deploy Azure Bastion
- Create Site-to-Site VPN
- Configure Route Tables

Week 8 – High Availability & Scaling

Module 8: Azure Load Balancing

What You'll Learn

Deploy highly available applications using Azure Load Balancer, Traffic Manager, and Virtual Machine Scale Sets.

Topics Covered

- Public Load Balancer
- Private Load Balancer
- Basic vs Standard Load Balancer
- IIS Installation
- Azure Traffic Manager
- Routing Methods
- DNS Failover
- Virtual Machine Scale Sets
- Scale In
- Scale Out
- Auto Scaling

Practical Labs

- Configure Load Balancer
- Configure Traffic Manager
- Deploy Scale Set
- Test High Availability

Skills Gained After Month 2

Students will be able to:

- Configure Azure Storage.
- Manage Azure Backups.
- Implement Disaster Recovery.
- Configure VPN Connectivity.
- Deploy Load Balancers.
- Configure Scale Sets.
- Optimize Azure Costs.
- Design Highly Available Azure Infrastructure.

MONTH 3 – Hybrid Cloud, Monitoring & Automation

Week 9 – Hybrid Identity & Cloud Migration

Module 9: Hybrid Cloud Integration

What You'll Learn

Integrate on-premises Active Directory with Microsoft Entra ID and migrate workloads from physical servers and other cloud platforms to Azure.

Topics Covered

- Microsoft Entra Connect
- Password Hash Synchronization
- Single Sign-On (SSO)
- Hybrid Identity
- Azure Migration
- Physical Server Migration
- AWS to Azure Migration
- GCP to Azure Migration

Practical Labs

- Configure Hybrid Identity
- Enable SSO
- Synchronize Active Directory
- Perform Azure Migration

Week 10 – Azure Monitoring & Governance

Module 10: Azure Monitoring & Compliance

What You'll Learn

Monitor Azure infrastructure, enforce governance policies, and automate administrative tasks using PowerShell.

Topics Covered

- Azure Monitor
- Azure Policy
- Resource Monitoring
- Alerts
- Azure PowerShell
- VM Automation
- Storage Automation

- AZCopy
- Cross-Region Snapshot Transfer

Practical Labs

- Configure Azure Monitor
- Create Azure Policies
- Create Azure Resources using PowerShell
- Transfer Snapshots using AZCopy

Week 11 – Infrastructure Automation

Module 11: Infrastructure as Code

What You'll Learn

Automate Azure deployments using ARM Templates and understand infrastructure provisioning best practices.

Topics Covered

- Azure Resource Manager (ARM)
- ARM Templates
- Infrastructure as Code (IaC)
- Template Deployment
- Resource Automation
- Azure Deployment Best Practices

Practical Labs

- Deploy ARM Templates
- Automate Resource Deployment
- Validate Infrastructure

Week 12 – Capstone Project & Career Readiness

Module 12: Enterprise Azure Deployment

What You'll Learn

Apply all concepts by designing and deploying a complete Azure enterprise environment while preparing for job interviews and Azure Administrator roles.

Capstone Project

Students will deploy a production-ready Azure environment including:

- Azure Subscription & Governance
- Resource Groups
- Microsoft Entra ID
- RBAC & MFA
- Virtual Networks & Subnets
- Windows & Linux Virtual Machines
- NSG Configuration
- Managed Disks
- Storage Accounts
- Azure Backup
- Site Recovery
- VPN Gateway
- Azure Bastion
- Load Balancer
- Traffic Manager
- VM Scale Sets
- Azure Monitor
- Azure Policy
- Hybrid Active Directory
- ARM Template Deployment
- Azure Migration Scenario

Career Preparation

- Azure Administrator Resume Building
- Interview Questions & Practical Scenarios
- Azure Best Practices
- Real-World Enterprise Architecture Discussion

Course Outcomes

Upon successful completion of this course, learners will be able to:

- Deploy and manage Microsoft Azure infrastructure.
- Configure Microsoft Entra ID, IAM, and RBAC.
- Deploy and administer Windows and Linux Virtual Machines.

- Configure Azure Virtual Networks, NSGs, VPN Gateway, and ExpressRoute.
- Implement Azure Backup, Site Recovery, and disaster recovery strategies.
- Deploy highly available applications using Load Balancer, Traffic Manager, and VM Scale Sets.
- Manage Azure Storage, Managed Disks, and File Shares.
- Monitor and govern Azure resources using Azure Monitor and Azure Policy.
- Implement hybrid cloud solutions with Microsoft Entra Connect and Single Sign-On.
- Automate Azure deployments using PowerShell and ARM Templates.
- Migrate workloads from on-premises, AWS, and GCP to Azure.