Course Outline: 20533D

Module 1: Introduction to Azure

This module introduces cloud solutions in general and then focuses on the services that Azure offers. The module goes on to describe the portals that you can use to manage Azure subscriptions and services before introducing the Azure PowerShell modules and Azure Command Line Interface (CLI) as scripting technologies for managing Azure. Finally, the module provides explanations and guidance for the use of the classic and Azure Resource Manager deployment models.

Lessons
- Cloud technology overview
- Overview of Azure
- Managing Azure with the Azure portal
- Managing Azure with Windows PowerShell
- Managing Azure with Azure CLI
- Overview of Azure deployment models
- Managing and monitoring Azure resources

Lab : Managing Microsoft Azure
- Using the Azure portals
- Using the Azure Resource Manager features in the Azure portal
- Using Azure PowerShell
- Using Azure CLI

After completing this module, students will be able to:
- Identify suitable apps for the cloud.
- Identify the services and capabilities that Azure provides.
- Use Azure portals to manage Azure services and subscriptions.
- Use Azure PowerShell and Azure CLI to manage Azure services and subscriptions.
- Use Azure Resource Manager to manage Azure resources.
- Use Azure management services to manage and monitor Azure resources.

Module 2: Implementing and managing Azure networking

This module explains how to plan virtual networks in Azure and implement and manage virtual networks. It also explains how to configure cross-premises connectivity and connectivity between virtual networks in Azure. Additionally, it explains how to configure an Azure virtual network and provides an overview of Azure classic networking.

Lessons
- Overview of Azure networking
- Implementing and managing virtual networks
- Configuring an Azure virtual network
- Configuring virtual network connectivity
- Overview of Azure classic networking

Lab : Using a deployment template and Azure PowerShell to implement Azure virtual networks
- Creating an Azure virtual network by using a deployment template
- Creating a virtual network by using Azure PowerShell
- Creating a virtual network by using Azure CLI

Lab : Configuring VNet peering
- Using the Azure portal to configure VNet peering

- Configuring VNet peering–based service chaining
- Validating virtual network connectivity

After completing this module, students will be able to:
- Plan virtual networks in Azure.
- Implement and manage virtual networks.
- Configure cross-premises connectivity and connectivity between virtual networks in Azure.
- Configure an Azure virtual network.
- Describe Azure classic networking.

Module 3: Implementing virtual machines

This module introduces the fundamentals of Azure VMs, and discusses the different ways in which you can deploy and manage them.

Lessons
- Overview of Azure VMs
- Planning deployment of Azure VMs
- Deploying Azure VMs
- Overview of classic Azure VMs

Lab : Deploying Azure VMs
- Creating Azure VMs by using the Azure portal, Azure PowerShell, and Azure CLI
- Validating Azure VM deployment

Lab : Deploying Azure VMs by using Azure Resource Manager templates
- Using Visual Studio and an Azure Resource Manager template to deploy Azure VMs
- Using Azure PowerShell and an Azure Resource Manager template to deploy Azure VMs
- Using Azure CLI and an Azure Resource Manager template to deploy Azure VMs

After completing this module, students will be able to:
- Describe the main characteristics of Azure VMs.
- Plan for Azure VM deployments.
- Deploy Azure VMs.
- Describe the main characteristics of classic Azure VMs.

Module 4: Managing Azure VMs

This module explains how to configure and manage Azure VMs, including configuring virtual machine disks and monitoring Azure VMs.

Lessons
- Configuring Azure VMs
- Managing disks of Azure VMs
- Managing and monitoring Azure VMs
- Managing classic Azure VMs

Lab : Managing Azure VMs
- Implementing Desired State Configuration (DSC)
- Implementing Storage Spaces–based volumes

After completing this module, students will be able to:
- Configure Azure VMs.
- Manage Azure VM disks.
- Manage and monitor Azure VMs.
- Manage classic Azure VMs.

Module 5: Implementing Azure App Service

This module explains the different types of apps that you can create by using the Azure App Service, and how you can select an App Service plan and deployment method for apps in Azure. It also explains how to use Microsoft Visual Studio, File Transfer Protocol (FTP) clients, Azure PowerShell, and Azure CLI to deploy Azure web and mobile apps. Additionally, the module explains how to configure web apps and use the Azure WebJobs feature to run custom tasks. It also explains how to monitor the performance of web apps and create and configure mobile apps. Lastly, this module explains how to use Azure Traffic Manager to distribute requests between two or more app services.

Lessons
- Introduction to App Service
- Planning app deployment in App Service
- Implementing and maintaining web apps
- Configuring web apps
- Monitoring web apps and WebJobs
- Implementing mobile apps
- Implementing Traffic Manager

Lab : Implementing web apps
- Creating web apps
- Deploying web apps
- Managing web apps
- Implementing Traffic Manager

After completing this module, students will be able to:
- Explain the different types of apps that you can create by using App Service.
- Create a service plan and select a deployment method for App Service apps in Azure.
- Use Visual Studio, FTP clients, Azure PowerShell, and Azure CLI to deploy web and mobile apps to Azure.
- Configure web apps and use the Azure WebJobs feature to run custom tasks.
- Monitor the performance of web apps.
- Create and configure mobile apps.
- Use Azure Traffic Manager to distribute requests between two or more app services.

Module 6: Planning and implementing storage, backup, and recovery services

This module explains how to plan and implement storage, backup, and recovery services. It explains how to choose appropriate Azure Storage options to address business needs and how to implement and manage Azure Storage. It also explains how to improve web-application performance by implementing Azure Content Delivery Networks (CDNs). Lastly, this module explains how to protect cloud-resident and on-premises workloads by using Azure Backup and Azure Site Recovery.

Lessons
- Planning storage
- Implementing and managing Azure Storage
- Implementing Azure CDNs
- Implementing Azure Backup
- Planning and implementing Azure Site Recovery

Lab : Planning and implementing Azure Storage
- Creating and configuring Azure Storage
- Using Azure File storage

- Protecting data with Azure Backup

After completing this module, students will be able to:
- Choose appropriate Azure Storage options to address business needs.
- Implement and manage Azure Storage.
- Improve web application performance by implementing Azure CDNs.
- Protect cloud-resident and on-premises workloads by using Azure Backup and Azure Site Recovery.

Module 7: Implementing containers in Azure

This module explains how to implement containers in Azure. It starts by introducing the concept of containers and presents different options for implementing containers on Windows and Linux Azure VMs. Next, it explains container orchestration in the context of Azure Container Service (ACS) and describes how to use ACS to deploy Docker Swarm, Kubernetes, and DC/OS clusters.

Lessons
- Implementing Windows and Linux containers in Azure
- Implementing Azure Container Service

Lab : Implementing containers on Azure VMs
- Implementing Windows and Linux containers in Azure
- Deploying containers to Azure VMs
- Deploying multicontainer applications with Docker Compose to Azure VMs
- Implementing Azure Container Registry

Lab : Implementing Azure Container Service
- Creating an ACS cluster
- Managing an ASC cluster

After completing this module, students will be able to:

- Implement Windows and Linux containers in Azure.
- Implement Azure Container Service.

Module 8: Implementing Azure Cloud Services

This module explains how to plan and deploy Azure Cloud Services. It also explains how to manage and maintain Azure Cloud Services.

Lessons
- Planning and deploying Azure Cloud Services
- Managing and maintaining Azure Cloud Services

Lab : Implementing Azure Cloud Services
- Deploying a cloud service
- Configuring deployment slots and Remote Desktop Protocol (RDP)
- Monitoring cloud services

After completing this module, students will be able to:
- Plan and deploy Azure Cloud Services.
- Explain how to manage and maintain Azure Cloud Services.

Module 9: Implementing Azure Active Directory

This module explains how to implement Azure AD. It explains how to create and manage Azure AD tenants. It also explains how to configure single sign-on (SSO) for cloud applications and resources,

and implement Azure Role-Based Access Control (RBAC) for cloud resources. Lastly, it explains the functionality of Azure AD Premium, and how to implement Azure Multi-Factor Authentication.

Lessons
- Creating and managing Azure AD tenants
- Configuring application and resource access with Azure AD
- Overview of Azure AD Premium

Lab : Implementing Azure AD
- Administering Azure AD
- Configuring SSO
- Configuring Multi-Factor Authentication
- Configuring SSO from a Windows 10–based computer

After completing this module, students will be able to:
- Create and manage Azure AD tenants.
- Configure SSO for cloud applications and resources, and implement RBAC for cloud resources.
- Explain the functionality of Azure AD Premium and implement Azure Multi-Factor Authentication.

Module 10: Managing an Active Directory infrastructure in a hybrid environment

This module explains how to manage Active Directory in a hybrid environment. It explains how to extend an on-premises Active Directory domain to Azure infrastructure as a service (IaaS) environments and synchronize user, group, and computer accounts between on-premises AD DS and Azure AD. This module also explains how to set up SSO by using federation and pass-through authentication between on-premises Active Directory and Azure AD.

Lessons
- Extending an on-premises Active Directory domain to Azure IaaS
- Implementing directory synchronization by using Azure AD Connect
- Implementing SSO in hybrid scenarios

Lab : Implementing and managing Azure AD synchronization
- Configuring directory synchronization
- Synchronizing directories

After completing this module, students will be able to:
- Extend an on-premises Active Directory domain to Azure IaaS environments.
- Synchronize user, group, and computer accounts between on-premises AD DS and Azure AD.
- Set up SSO by using federation and pass-through authentication between on-premises Active Directory and Azure AD.

Module 11: Implementing Azure-based management and automation

This module explains how to implement Azure-based management and automation. It explains how to implement Microsoft Operations Management Suite (OMS) solutions and Azure Automation. The module also describes how to create different types of Azure Automation runbooks and implement Azure Automation–based management by using runbooks.

Lessons
- Implementing OMS
- Implementing Azure Automation
- Implementing Automation runbooks

- Implementing Azure Automation–based management

Lab : Implementing Automation

- Configuring Automation accounts
- Creating runbooks

After completing this module, students will be able to:

- Implement OMS solutions.
- Implement Azure Automation.
- Implement different types of Azure Automation runbooks.
- Implement Azure Automation–based management.