

# Course 20533C: Implementing Microsoft Azure Infrastructure Solutions



## Course Outline

### 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 Windows PowerShell as a scripting solution for managing Azure. Finally, the module provides explanations and guidance for the use of Azure Resource Manager and Azure management services.

#### Lessons

- Cloud technology overview
- Overview of Azure
- Managing Azure with the Azure portal
- Managing Azure with Windows PowerShell
- Overview of Azure Resource Manager
- Azure management services

#### Lab : Managing Microsoft Azure

- Use the Azure portals.
- Use Azure Resource Manager features via the Azure portal.
- Use Azure PowerShell.

After completing this module, students will be able to:

- Identify suitable apps for the cloud.
- Identify services and capabilities that Microsoft Azure provides.
- Use Azure portals to manage Azure services and subscriptions.
- Use Windows PowerShell to manage Azure services and subscriptions.
- Use Azure Resource Manager to manage Azure resources.
- Use Azure Resource Manager to manage Azure resources.

## **Module 2: Implementing and managing Azure networking**

This module explains how virtual networking provides the glue that brings together VMs, web apps, and storage to enable you to publish a service onto the Internet.

### **Lessons**

- Overview of Azure networking
- Implementing and managing Azure virtual networks
- Configuring Azure virtual networks
- Configuring Azure virtual network connectivity
- Overview of Azure networking in an infrastructure as a service (IaaS )version 1 (v1)

### **Lab : Using a deployment template to implement Azure virtual networks**

- Creating an Azure virtual network by using a deployment template
- Creating a virtual network by using PowerShell
- Configure virtual networks

### **Lab : Configuring connectivity between the IaaS v1 and IaaS version 2 (v2)**

- Using a PowerShell script to Connect IaaS v1 VNet and IaaS v2 VNet
- Configuring a point-to-site VPN

- Using a PowerShell script to connect IaaS v1 VNet and IaaS v2 VNet

After completing this module, students will be able to:

- Plan virtual networks in Azure.
- Implement and manage virtual networks.
- Configure intersite connectivity with virtual networks in Azure.
- Configure networking components.
- Plan virtual networks in IaaS v1.

### **Module 3: Implementing virtual machines**

This module explains how to implement virtual machines.

#### **Lessons**

- Overview of IaaS v2 virtual machines
- Planning for Azure virtual machines
- Deploying Azure IaaS v2 virtual machines
- Authoring Azure Resource Manager templates
- Overview of IaaS v1 virtual machines

#### **Lab : Creating IaaS v2 virtual machines in Azure**

- Creating virtual machines by using the Azure portal and Azure PowerShell
- Validating virtual machine creation

#### **Lab : Deploying IaaS v2 virtual machines by using Azure Resource Manager templates**

- Using Visual Studio and an Azure Resource Manager template to deploy IaaS v2 virtual machines
- Using Azure PowerShell and an Azure Resource Manager template to deploy virtual machines

After completing this module, students will be able to:

- Explain IaaS v2 VMs.
- Plan for Azure Virtual Machines.
- Deploy IaaS v2 VMs.
- Author Azure Resource Manager templates.
- Explain IaaS v1 virtual machines.

#### **Module 4: Managing virtual machines**

This module explains how to manage virtual machines.

##### **Lessons**

- Configuring virtual machines
- Configuring virtual machine disks
- Managing and monitoring Azure virtual machines
- Managing IaaS v1 virtual machines

##### **Lab : Managing Azure virtual machines**

- Configuring availability
- Implementing desired state configuration (DSC)
- Implementing storage space-based volumes

After completing this module, students will be able to:

- Configure virtual machines.
- Configure virtual machine disks.
- Manage and monitor virtual machines

#### **Module 5: Implementing Azure App services**

This module explains how to implement Azure Web 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
- Traffic Manager

## **Lab : Implementing websites**

- Creating web apps
- Deploying a web app
- 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 the Microsoft Azure App Service.
- Select an App Service plan and deployment method for apps in Microsoft Azure.
- Use Microsoft Visual Studio, File Transfer Protocol (FTP) clients, and Azure PowerShell to deploy web and mobile apps to Azure.
- Configure web apps and use the Azure WebJobs feature to schedule 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.

### **Lessons**

- Planning storage
- Implementing and managing storage
- Implementing Azure Content Delivery Networks
- Implementing Azure Backup
- Planning for and implementing Azure Site Recovery

### **Lab : Planning and implementing storage**

- Creating and configuring storage
- Using Azure file storage
- Protecting data with Microsoft Azure Backup

After completing this module, students will be able to:

- Choose appropriate Microsoft Azure Storage options to address business needs.
- Implement and manage Azure Storage.
- Improve web application performance by implementing Azure Content Delivery Networks (CDNs).
- Protect onpremises systems and Azure virtual machines (VMs) by using Azure Backup.
- Describe Azure Site Recovery capabilities.

## **Module 7: Planning and implementing Azure SQL Database**

This module explains how to plan and implement Azure SQL Database.

### **Lessons**

- Planning and deploying Azure SQL Database
- Implementing and managing Azure SQL Database

- Managing Azure SQL Database security
- Monitoring Azure SQL Database
- Managing Azure SQL Database business continuity

### **Lab : Planning and implementing Azure SQL Database**

- Creating, securing, and monitoring an Azure SQL Database
- Migrating a Microsoft SQL Server database to Azure SQL Database
- Restoring a database

After completing this module, students will be able to:

- Identify relational database services in Microsoft Azure.
- Provision, configure, and manage the Azure SQL Database datamanagement service.
- Configure security for Azure SQL Database.
- Monitor Azure SQL Database.
- Manage data recovery and availability for Azure SQL Database.

## **Module 8: Implementing PaaS cloud services**

This module explains how to implement platform as a service (PaaS )cloud services.

### **Lessons**

- Planning and deploying PaaS cloud services
- Managing and maintaining cloud services

### **Lab : Implementing PaaS cloud services**

- Deploying a PaaS cloud services
- Configuring deployment slots and Remote Desktop Protocol (RDP)

- Monitoring cloud services

After completing this module, students will be able to:

- Plan and deploy a platform as a service (PaaS) cloud service in Microsoft Azure.
- Configure PaaS cloud services by using configuration files or the Azure portal.
- Monitor the performance of cloud services and diagnose bottlenecks.

## **Module 9: Implementing Azure Active Directory**

This module explains how to implement Azure AD.

### **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 Active AD
- Configuring SSO
- Configuring Multi-Factor Authentication
- Configuring SSO from a Windows 10–based computer that is joined to Azure AD

After completing this module, students will be able to:

- Create and manage Azure AD tenants.
- Configure single signon (SSO) for cloud applications and resources, and implement Azure RoleBased Access Control (RBAC) for cloud resources.
- Explain the functionality of Azure AD Premium and implement Azure MultiFactor Authentication.



## **Module 10: Managing Active Directory in a hybrid environment**

This module explains how to manage Active Directory in a hybrid environment.

### **Lessons**

- Extending on-premises Active Directory domain to Azure
- Implementing directory synchronization by using Azure AD Connect
- Implementing federation

### **Lab : Implementing and managing Azure AD synchronization**

- Configuring directory synchronization
- Synchronizing directories

After completing this module, students will be able to:

- Extend an onpremises Active Directory domain to Microsoft Azure.
- Synchronize user accounts between onpremises AD DS and Azure AD.
- Set up SSO by using federation between onpremises Active Directory and Azure AD.

## **Module 11: Implementing Azure-based management and automation**

This module explains how to implement Azure-based management and automation.

### **Lessons**

- Implementing Microsoft Operations Management Suite (OMS)
- Implementing Azure Automation
- Implementing Automation runbooks
- Managing Azure Automation

### **Lab : Implementing Automation**

- Configuring Automation accounts
- Creating runbooks

After completing this module, students will be able to:

- Implement Microsoft Operations Management Suite (OMS) solutions.
- Implement the core components of Microsoft Azure Automation.
- Implement different types of Azure Automation runbooks.
- Manage Azure Automation by publishing runbooks and scheduling their execution.

### **Additional Reading**

To help you prepare for this class, review the following resources:

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