



**Enterprise Computing Solutions - Education Services**

## **TRAINING OFFERING**

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## 20532: Developing Microsoft Azure Solutions

CODE:	LENGTH:	PRICE:
MS-20532	40 Hours (5 days)	\$2,695.00

### Description

This course is intended for students who have experience building vertically scaled applications. Students should also have experience with the Microsoft Azure platform and a basic understanding of the services offered in Azure. This course offers students the opportunity to take an existing web application and expand its functionality as part of moving it to Azure. The course does not require any existing experience with the ASP.NET platform. This course focuses on the architectural considerations and decisions necessary when building a highly available solution in the cloud. This course also prepares the students for the 70-532: Developing Microsoft Azure Solutions certification exam. This course is often taught as part of the MS: Azure Developer and Infrastructure Solution Boot Camp.

### Objectives

After completing this course, students will be able to:

- review the services available in the Azure platform and the Management Portals used to manage the service instances.
- create a Virtual Machine using the Azure Management Portal and create an image of the VM.
- create an Azure Web Site and publish an existing ASP.NET web application to the site.
- create an Azure SQL server and database.
- describe and identify the common practices and patterns for building resilient and scalable web applications that will be hosted in Azure.
- create an Azure Cloud Service project in Visual Studio 2013 and debug locally.
- create a background process using a Azure Worker Role.
- create an Azure Table Storage table and manage the table data using the .NET API for Azure Storage.
- create Azure Files SMB file share and store documents.
- create an Azure Storage Queue instance to store requests.
- create an Azure Service Bus queue instance to store requests.
- create an Azure Service Bus namespace and use the namespace to connect a cloud web application to the local WCF service.
- create a Virtual Machine using the existing SQL template and connect this Virtual Machine to the existing application.
- create a test environment using PowerShell and the Azure Service Management CmdLets.
- integrate ASP.NET Identity for the administration portal with Azure Active Directory.
- deploy the web application projects to Azure.

### Audience

The candidates targeted by this training have basic experience in implementing and monitoring Microsoft Azure solutions. Candidates are also proficient with the development tools, techniques and approaches used to build application solutions.

### Prerequisites

Before attending this course, students must be able to:

- Compare the services available in the Azure platform.
- Configure and deploy web applications.
- Create Azure WebSites using the gallery.
- Deploying and monitoring Azure WebSites.
- Create and configure Azure Virtual Machines.
- Describe the relationship between Cloud Services and Virtual Machines.
- Deploy existing Cloud Service packages.
- Create and manage a Storage account.
- Manage blobs and containers in a Storage account.
- Create, configure and connect to a SQL Databases instance.
- Identify the implications of importing a SQL Standalone database.

Manage users, groups and subscriptions in an Azure Active Directory instance.  
Create a virtual network.  
Implement a point to site network.

## Programme

### Module 1: OVERVIEW OF THE MICROSOFT AZURE PLATFORM

This module reviews the services available in the Azure platform and the Management Portals used to manage the service instances.

#### Lesson

Azure Services

Management Portals

Lab : Using the Azure Preview Portal

Connect to the Azure Portals

Create a Web Site in Azure

Configure the Web Site Template

After completing this module, students will be able to create a Web Site using both the Azure Management and Preview Portals.

### Module 2: Establishing a Development Environment using Azure Virtual Machines

This module describes the Virtual Machine hosting options available in Azure. Students will be able to deploy custom workloads to an Azure Virtual Machine, manage the VM and images and also monitor VMs.

#### Lesson

Constructing Azure Virtual Machines

Azure Virtual Machine Workloads

Migrating Azure Virtual Machine Instances

Using Remote Desktop Protocol (RDP) to Connect to a Virtual Machine

Lab : Creating an Azure Virtual Machine for Development & Testing

Create a Resource Group using Azure

Create a Development Virtual Machine in Azure

Configure the Virtual Machine for Development

After completing this module, students will be able to create a Virtual Machine using the Azure Management Portal and create an image of the VM.

### Module 3: Hosting Web Applications on the Azure Platform

In this module, students will be able to create and host a simple website using Azure Web Sites. Students will learn how to monitor and manage the website using the Management Portal.

#### Lesson

Azure Web Sites

Hosting Web Applications in Azure

Configuring an Azure Web Site

Publishing an Azure Web Site

Monitoring and Analyzing Running Azure Web Sites

Lab Overview

Lab : Creating an ASP.NET Web Site Using Azure Websites

Create an Azure Web Site

Deploy an ASP.NET Web Application to an Azure Web Site

Configure an Azure Web Site

After completing this module, students will be able to create an Azure Web Site and publish an existing ASP.NET web application to the site.

### Module 4: Storing SQL Data in Azure

In this module, students will learn how to use Azure SQL Databases to store and retrieve data.

#### Lesson

Azure SQL Database Overview

Managing SQL Databases in Azure

Using Azure SQL Databases with SQL Server Data Tools

Migrating Data to Azure SQL Databases

Replication and Recovery of Azure SQL Database Instances

Lab : Storing Event Data in Azure SQL

Create an Azure SQL Databases Instance

Using Entity Framework with Azure SQL Databases

After completing this module, students will be able to create an Azure SQL server and database. They will also be able to use Entity Framework Code First to migrate tables to Azure.

## Module 5: Designing Cloud Applications For Resiliency

In this module, students will understand and identify the common practices and patterns for building resilient and scalable web applications that will be hosted in Azure.

### Lesson

Design Considerations for Scale with Cloud Applications

Application Design Practices for Highly Available Applications

Building High Performance Applications using ASP.NET

Common Cloud Application Patterns

Application Analytics

Caching Application Data

Lab : No lab

After completing this module, students will be able to describe and identify the common practices and patterns for building resilient and scalable web applications that will be hosted in Azure.

## Module 6: Managing Cloud Services in Azure

In this module, students will learn how to use Cloud Service Worker Roles and Web Sites Web Jobs to process data in the background. Students will also be able to use Cloud Service Cache Roles to store data in the cache.

### Lesson

Overview of Cloud Services

Cloud Service Web Roles

Customizing Cloud Service Configurations

Updating and Managing Cloud Service Deployments

Cloud Service Worker Role

Cloud Service Worker Role Processing

Analyzing Application Cloud Service Role Instances

Lab : Creating Azure Web Roles Using Visual Studio 2013

Create an Azure Cloud Service project

Create an Azure Cloud Service Web Role from an existing project

Configure the properties of an Azure Cloud Service project

Debug an Azure Cloud Service project

Lab : Creating a Background Process Using Azure Worker Roles

Create a C# Class Library

Add the Class Library to a Cloud Service Project

Debug Worker Roles in a Cloud Service Project

After completing this module, students will be able to create a background process using a Azure Worker Role.

## Module 7: Storing NoSQL Data in Azure

In this module, students will learn how to store data in Azure Table Storage.

### Lesson

Azure Storage Overview

Azure Storage Tables Overview

Table Entity Transactions

Azure DocumentDB

Lab : Storing Attendee Registration Data in Azure Table Storage

Populating the Sign-In Form with Registrant Names

Updating the Events Website to use Storage Tables

Verifying that the Events Web Site is using Azure Storage Tables for Registrations

After completing this module, students will be able to create an Azure Table Storage table and manage the table data using the .NET API for Azure Storage.

## Module 8: Storing and Consuming Files from Azure Storage

In this module, students will be able to store and access multimedia files in Azure using Blob Storage.

### Lesson

Azure Storage Blobs

Controlling Access to Storage Blobs & Containers

Monitoring Storage Blobs

Configuring Azure Storage Accounts

Azure Files

Uploading and Migrating Storage Data

Lab : Storing Generated Documents in Azure Blob Storage

Implement Azure Storage Blobs

Populating the Container with Files and Media

Retrieving Files and Media from the Container

Specifying Permissions for the Container

Lab : Creating File Shares using Azure Files

Implement Azure Files

Populating the File Share with Media

After completing this module, students will be able to create Azure Files SMB file share and store documents related to the event website.

## Module 9: Designing a Communication Strategy using Queues and Service Bus

In this module, students will use Azure Queue Storage to queue data for asynchronous processing. Students will also be able to identify the Service Bus offerings and identify which ones to use in appropriate scenarios. Students will be able to use the Azure Service Bus Relay to connect on-premise services with client applications.

### Lesson

Queue Mechanisms in Azure

Azure Storage Queues

Handling Storage Queue Messages

Azure Service Bus

Azure Service Bus Queues

Azure Service Bus Relay

Azure Service Bus Notification Hubs

Lab : Using Storage Queues to Manage Requests Between Web Applications in Azure

Using Azure Queue Storage for Document Generation

Verify the Requests are Created and Consumed

Lab : Using Service Bus to Manage Communication Between Web Applications in Azure

Create an Azure Service Bus Namespace

Use Service Bus Queues for Document Generation

Verify the Requests are Created and Consumed

Use Service Bus Relay to Connect a WCF Service and Client[s]

After completing this module, students will be able to create an Azure Storage Queue instance to store requests. They will also create an Azure Service Bus queue instance to store requests. Students will then create an Azure Service Bus namespace and use the namespace to connect a cloud web application to the local WCF service.

## Module 10: Managing Infrastructure in Azure

In this module students will explore the Infrastructure components in Azure. Students will be able to describe Virtual Networks and understand the relationship between the VNets and the different services offered in Azure. Students will also be able to add Cloud Services and Virtual Machines to VNets. Finally students will scale multiple instances of services in a VNet. Lessons

Azure Virtual Networks

Highly Available Azure Virtual Machines

Customize Azure Virtual Machine Networking

Lab : Managing Multiple Virtual Machines in a Virtual Network

Create the Database Virtual Machine

Create the Application Web Site

Connect the Test Application to the SQL Server Virtual Machine

Modify the Database Virtual Machine

After completing this module, students will be able to create a Virtual Machine using the existing SQL template and connect this Virtual Machine to the existing application.

## Module 11: Automating Integration with Azure Resources

In this module, students will explore the options for Automating their interactions with Azure Resources using PowerShell, Client Libraries or the REST API. Students will also explore the two sets of modules available for PowerShell automation.

### Lesson

Azure SDK Client Libraries

Virtual Machine Configuration Management

Scripting Azure Service Management using PowerShell

Azure REST Interface

Azure Resource Manager

Lab : Automating the Creation of a Test Environment using PowerShell

Prepare Azure PowerShell Environment

Use PowerShell to Create and Access a Web Site Instance

Use a Resource Template to Create Multiple Pre-Configured Resources

After completing this module, students will be able to create a test environment using PowerShell and the Azure Service Management CmdLets.

## Module 12: Securing Azure Web Applications

In this module, students will be able to use Azure Active Directory to implement security in a Cloud web application.

### Lesson

Azure Active Directory

Introduction to Identity Providers

Azure AD Directories

Azure AD Multi-Factor Authentication

Azure Role-Based Access Control

Lab : Integrating Azure Active Directory with the Events Administration Portal

Create an Azure AD Directory

Secure an Existing ASP.NET Web Application

Integrate Azure AD with ASP.NET Identity

After completing this module, student will be able to integrate ASP.NET Identity for the administration portal with Azure Active Directory.

## Module 13: Maintaining and Monitoring Web Solutions in Azure

In this module, students will learn how to deploy web applications to Azure by using WebDeploy and Service Packages. Lessons  
Deployment Strategies for Web Applications

Deploying Azure Services

Continuous Integration

Monitoring Cloud Applications

Lab : Deploying the Events Web Application to Azure

Create the Target Azure Services for Deployment

Manage Configuration Settings for a Cloud Web Application

Deploy the Web Applications to Azure

Monitor the Web Applications in Azure

After completing this module, students will be able to deploy the web application projects to Azure.

## Session Dates

On request. Please [Contact Us](#)

## Additional Information

[This training is also available as onsite training. Please contact us to find out more.](#)