

# AZ-204: Developing Solutions for Microsoft Azure

## Course description

This course teaches IT Professionals how to manage their Azure subscriptions, secure identities, administer the infrastructure, configure virtual networking, connect Azure and on premises sites, manage network traffic, implement storage solutions, create, and scale virtual machines, implement web apps and containers, back up and share data, and monitor your solution.

## Audience

This course is for Azure Developers. They design and build cloud solutions such as applications and services. They participate in all phases of development including solution design, development and deployment, and testing and maintenance. They partner with cloud solution architects, cloud DBAs, cloud administrators, and clients to implement the solution.

## Learning objectives

After completing this course, students will be able to:

- Deploy and update apps in Azure App Service, implement App Service authentication and authorization, configuring app settings, scale apps, and how to use deployment slots.
- Create and deploy Azure Functions and utilize bindings and triggers to interact with other Azure services.
- Create Azure Blob storage resources, manage data through the blob storage lifecycle, and work with containers and items by using the Azure Blob storage client library V12 for .NET.
- Develop solutions integrating Azure Cosmos DB resources with the appropriate consistency levels, and perform data operations by using the .NET SDK V3 for Azure Cosmos DB.
- Implement authentication and authorization to resources by using the Microsoft identity platform, Microsoft Authentication Library, shared access signatures, and use Microsoft Graph.
- Securely deploy apps in Azure by using Azure Key Vault, managed identities, and Azure App Configuration.
- Implement the Azure API Management service to transform and secure APIs, and how to create a backend API.
- Build applications with event-based architectures by integrating Azure Event Grid and Azure Event Hubs into their solutions.
- Build applications with message-based architectures by integrating Azure Service Bus and Azure Queue Storage into their solutions.
- Explain how Azure Monitor operates, how Application Insights collects events and metrics, and how to instrument apps to monitor and troubleshoot issues.
- Improve the performance and scalability of applications by integrating Azure Cache for Redis and Azure Content Delivery Network into solutions.

# Course Outline

	Module	Lab
0: Course Introduction 30 minutes	<ul style="list-style-type: none"><li>• Introductions</li><li>• Prerequisites</li><li>• Certifications</li><li>• Exam</li><li>• Course Outline</li></ul>	Slides only
<b>01: Implement Azure App Service web apps</b>	<b>Module 1:</b> Explore Azure App Service <b>Module 2:</b> Configure web app settings <b>Module 3:</b> Scale apps in Azure App Service <b>Module 4:</b> Explore Azure App Service deployment slots	Lab 01: Build a web application on Azure platform as a service offerings
<b>02: Implement Azure Functions</b>	<b>Module 1:</b> Explore Azure Functions <b>Module 2:</b> Develop Azure Functions	Lab 02: Implement task processing logic by using Azure Functions
<b>03: Develop solutions that use Blob storage</b>	<b>Module 1:</b> Explore Azure Blob storage <b>Module 2:</b> Manage the Azure Blob storage lifecycle <b>Module 3:</b> Work with Azure Blob storage	Lab 03: Retrieve Azure Storage resources and metadata by using the Azure Storage SDK for .NET
<b>04: Develop solutions that use Azure Cosmos DB</b>	<b>Module 1:</b> Explore Azure Cosmos DB <b>Module 2:</b> Work with Azure Cosmos DB	Lab 04: Construct a polyglot data solution
<b>05: Implement containerized solutions</b>	<b>Module 1:</b> Manage container images in Azure Container Registry <b>Module 2:</b> Run container images in Azure Container Instances <b>Module 3:</b> Implement Azure Container Apps	Lab 05: Deploy compute workloads by using images and containers
<b>06: Implement user authentication and authorization</b>	<b>Module 1:</b> Explore the Microsoft identity platform <b>Module 2:</b> Implement authentication by using the Microsoft Authentication Library <b>Module 3:</b> Implement shared access signatures <b>Module 4:</b> Explore Microsoft Graph	Lab 06: Authenticate by using OpenID Connect, MSAL, and .NET SDKs

<b>07: Implement secure cloud solutions</b>	<b>Module 1:</b> Implement Azure Key Vault <b>Module 2:</b> Implement managed identities <b>Module 3:</b> Implement Azure App Configuration	Lab 07: Access resource secrets more securely across services
<b>08: Implement API Management</b>	<b>Module 1:</b> Explore API Management	08 -Exercise: Route custom events to web endpoint by using Azure CLI
<b>09: Develop event-based solutions</b>	<b>Module 1:</b> Explore Azure Event Grid <b>Module 2:</b> Explore Azure Event Hubs	Lab 09: Publish and subscribe to Event Grid events
<b>10: Develop message-based solutions</b>	<b>Module 1:</b> Discover Azure message queues	Lab 10: Asynchronously process messages by using Azure Service Bus Queues
<b>11: Troubleshoot solutions by using Application Insights</b>	<b>Module 1:</b> Monitor app performance	Lab 11: Monitor services that are deployed to Azure
<b>12: Implement caching for solutions</b>	<b>Module 1:</b> Develop for Azure Cache for Redis <b>Module 2:</b> Develop for storage on CDNs	Lab 12: Enhance a web application by using the Azure Content Delivery Network