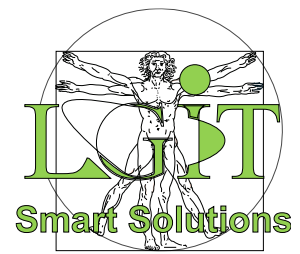# Developing Solutions for Microsoft Azure: AZ-204T00

Course Overview

This course teaches developers how to create end-to-end solutions in Microsoft Azure. Students will learn how to implement Azure compute solutions, create Azure Functions, implement, and manage web apps, develop solutions utilizing Azure storage, implement authentication and authorization, and secure their solutions by using Key Vault and Managed Identities. Students will also learn how to connect to and consume Azure services and third-party services, and include event- and message-based models in their solutions. The course also covers monitoring, troubleshooting, and optimizing Azure solutions.

Audience Profile

Students in this course are interested in Azure development or in passing the Microsoft Azure Developer Associate certification exam.

Prerequisites

To be successful in this course, learners should have the following:

- Hands-on experience with Azure IaaS and PaaS solutions, and the Azure Portal.
- Experience writing in an Azure supported language at the intermediate level. (C#, JavaScript, Python, or Java)
- Ability to write code to connect and perform operations on, a SQL or NoSQL database product. (SQL Server, Oracle, MongoDB, Cassandra or similar)
- Experience writing code to handle authentication, authorization, and other security principles at the intermediate level.
- A general understanding of HTML, the HTTP protocol and REST API interfaces.

Duration: 30 hrs (10 x 3hrs)

Course Outline

Module 1: Create Azure App Service web apps

Learn how Azure App Service functions and how to create and update an app. Explore App Service authentication and authorization, configuring app settings, scale apps, and how to use deployment slots.

Lessons
- Explore Azure App Service
- Configure web app settings
- Scale apps in Azure App Service
- Explore Azure App Service deployment slots

Module 2: Implement Azure functions

Learn how to create and deploy Azure Functions. Explore hosting options, bindings, triggers, and how to use Durable Functions to define stateful workflows.

Lessons
- Explore Azure Functions
- Develop Azure Functions
- Implement Durable Functions

Module 3: Develop solutions that use Blob storage

Learn how to 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.

Lessons
- Explore Azure Blob storage
- Manage the Azure Blob storage lifecycle
- Work with Azure Blob storage

Module 4: Develop solutions that use Azure Cosmos DB

Learn how to create Azure Cosmos DB resources with the appropriate consistency levels, choose and create a partition key, and perform data operations by using the .NET SDK V3 for Azure Cosmos DB.

Lessons
- Explore Azure Cosmos DB
- Implement partitioning in Azure Cosmos DB
- Work with Azure Cosmos DB

Module 5: Implement infrastructure as a service solutions

Learn how to create and deploy virtual machine, deploy resources using Azure Resource Manager templates, and manage and deploy containers.

Lessons
- Provision virtual machines in Azure
- Create and deploy Azure Resource Manager templates
- Manage container images in Azure Container Registry
- Run container images in Azure Container Instances

Module 6: Implement user authentication and authorization

Learn how to implement authentication and authorization to resources by using the Microsoft identity platform, Microsoft Authentication Library, shared access signatures, and use Microsoft Graph.

Lessons
- Explore the Microsoft identity platform
- Implement authentication by using the Microsoft Authentication Library
- Implement shared access signatures
- Explore Microsoft Graph

Module 7: Implement secure cloud solutions

Learn how to deploy apps more securely in Azure by using Azure Key Vault, managed identities, and Azure App Configuration.

Lessons
- Implement Azure Key Vault
- Implement managed identities
- Implement Azure App Configuration

Module 8: Implement API Management

Learn how the API Management service functions, how to transform and secure APIs, and how to create a backend API.

Lessons
- Explore API Management

Module 9: Develop event-based solutions

Learn how to build applications with event-based architectures by integrating Azure Event Grid and Azure Event Hubs into your solution.

Lessons
- Explore Azure Event Grid
- Explore Azure Event Hubs

Module 10: Develop message-based solutions

Learn how to build applications with message-based architectures by integrating Azure Service Bus and Azure Queue Storage into your solution.

Lessons

- Discover Azure message queues

Module 11: Instrument solutions to support monitoring and logging

Learn how to instrument apps to enable Application Insights to monitor performance and help troubleshoot issues.

Lessons

- Monitor app performance

Module 12: Integrate caching and content delivery within solutions

Learn how to improve the performance and scalability of your applications by integrating Azure Cache for Redis and Azure Content Delivery Network into your solution.

Lessons

- Develop for Azure Cache for Redis
- Develop for storage on CDNs