

# MAI-102: Designing and Implementing a Microsoft Azure AI Solution

## 5-10 Days

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### Overview

MAI-102: Designing and Implementing a Microsoft Azure AI Solution is intended for software developers wanting to build AI infused applications that leverage Azure AI Foundry and other Azure AI services. Topics in this course include developing generative AI apps, building AI agents, and solutions that implement computer vision and information extraction. The course will use C# or Python as the programming language.

### Why the variable days

This gives you the opportunity to expand the course to experience more real-world examples, including your own projects through a mentoring approach. It also allows for guided Hands-On Labs during class time, so the student finishes the exercises with guided help from the instructor and is not left to complete the learning process on their own time.

### Audience Profile

This course was designed for software engineers concerned with building, managing and deploying AI solutions that leverage Azure AI Foundry and other Azure AI services. They are familiar with C# or Python and have knowledge on using REST-based APIs and SDKs to build generative AI, computer vision, language analysis, and information extraction solutions on Azure. This course prepares you for the Microsoft Certification Azure AI Engineer Associate.

### Outline

#### Develop generative AI apps in Azure

- Plan and prepare to develop AI solutions on Azure
- Choose and deploy models from the model catalog in Azure AI Foundry portal
- Develop an AI app with the Azure AI Foundry SDK
- Get started with prompt flow to develop language model apps in the Azure AI Foundry
- Learn about how to use prompt flow to develop applications that leverage language models in the Azure AI Foundry.
- Develop a RAG-based solution with your own data using Azure AI Foundry
- Fine-tune a language model with Azure AI Foundry

- Implement a responsible generative AI solution in Azure AI Foundry
- Evaluate generative AI performance in Azure AI Foundry portal

## **Develop AI agents on Azure**

- Get started with AI agent development on Azure
- Develop an AI agent with Azure AI Foundry Agent Service
- Integrate custom tools into your agent
- Develop an AI agent with Semantic Kernel
- Orchestrate a multi-agent solution using Semantic Kernel
- Develop a multi-agent solution with Azure AI Foundry Agent Service
- Integrate MCP Tools with Azure AI Agents

## **Develop natural language solutions in Azure**

- Analyze text with Azure AI Language
- Create question answering solutions with Azure AI Language
- Build a conversational language understanding model
- Create a custom text classification solution
- Custom named entity recognition
- Translate text with Azure AI Translator service
- Create speech-enabled apps with Azure AI services
- Translate speech with the Azure AI Speech service
- Develop an audio-enabled generative AI application

## **Develop computer vision solutions in Azure**

- Analyze images
- Read text in images
- Detect, analyze, and recognize faces
- Classify images
- Detect objects in images
- Analyze video

## **Develop AI information extraction solutions in Azure**

- Create a multimodal analysis solution with Azure AI Content Understanding
- Create an Azure AI Content Understanding client application
- Use prebuilt Document intelligence models
- Extract data from forms with Azure Document intelligence
- Create a knowledge mining solution with Azure AI Search