

**Develop AI agents using Azure OpenAI and the Semantic Kernel SDK (AZ-2005)**

**Course Number:** MOC-AZ-2005  
**Duration:** 1 day

**Overview**

This Official Microsoft Official Applied Skills course, Develop AI agents using Azure OpenAI and the Semantic Kernel SDK (AZ-2005), teaches learners how to build intelligent applications that automate tasks and perform natural language processing.

**Prerequisites**

* Experience programming in C#
* Visual Studio Code IDE installed
* Familiarity with Azure and the Azure portal
* Access to Azure OpenAI Services

**Materials**

All Microsoft training students receive Microsoft official courseware.

For all Microsoft Official Courses taught in their entirety that have a corresponding certification exam, an exam voucher is included for each participant.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computers for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Use the Semantic Kernel SDK to build intelligent applications that automate tasks and perform natural language processing
* Extend functionality with generative artificial intelligence
* Use plugins for building customized tasks and creating intelligent applications
* Understand how native functions can accomplish customized tasks, effectively giving your AI agent a "skill"
* Combine functions and prompts with the Semantic Kernel SDK
* Use the Semantic Kernel to invoke functions to complete a user's request automatically
* Complete a small chatbot application.

**Outline**

* Build Your Kernel
  + Introduction to the Semantic Kernel SDK
  + Understanding the purpose of the Semantic Kernel
  + Reasons for using the Semantic Kernel
  + Steps to build your kernel
  + Hands-on exercises:
    - Creating an endpoint
    - Building a kernel object
* Create Plugins for Semantic Kernel
  + Exploration of Semantic Kernel SDK plugins
  + Understanding how plugins customize tasks and create intelligent applications
  + Hands-on exercises:
    - Using built-in plugins
    - Writing your own prompt
    - Using personas in prompts
    - Saving prompts to files
* Give
  + Exploration of native functions in the Semantic Kernel SDK
  + Understanding how native functions enable AI agents to complete custom tasks
  + Hands-on exercise:
    - Creating native functions
* Combine Prompts and Functions
  + Demonstration of combining functions and prompts within the Semantic Kernel SDK
  + Understanding how nesting functions enables code to execute tasks beyond the typical capabilities of large language models
  + Hands-on exercise:
    - Using nested functions for song suggestions
* Automatic Function Calling
  + Introduction to automatic function invocation in the Semantic Kernel SDK
  + Understanding how to use the Semantic Kernel to automatically call functions based on user requests
  + Hands-on exercises:
    - Two exercises on automatic function invocation
* Guided Project - Create an AI Travel Agent
  + Step-by-step guidance to develop a proof-of-concept AI travel assistant
  + Use of the Semantic Kernel SDK to build a small chatbot application
  + Hands-on exercises:
    - Creating a currency converter
    - Routing user intent
    - Providing context cues