

MS-AZ2005: DEVELOP GENERATIVE AI SOLUTIONS USING AZURE OPENAI AND THE SEMANTIC KERNEL SDK



DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
1 Day	Intermediate	Azure	Instructor-led	NA

INTRODUCTION

Learn how to use the Semantic Kernel SDK to build intelligent applications that automate tasks and perform natural language processing.

AUDIENCE PROFILE

The AZ-2005 course is designed for developers and AI enthusiasts who have experience in programming, particularly with C#. It's ideal for those looking to expand their skills by incorporating modern AI capabilities into their applications. Whether you're developing a simple chatbot or a complex AI system, this course provides the foundational knowledge and practical skills needed to leverage Azure OpenAI and the Semantic Kernel SDK.

PREREQUISITES

Before attending this course, delegates must have:

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

COURSE OBJECTIVES

After completion of this course, you will be able to:

- Build Your Kernel: Understand the Semantic Kernel and learn how to create and configure your own kernel
- Create Plugins for Semantic Kernel: Explore and utilize built-in plugins, optimize language model prompts, and develop custom plugins.
- Give Your AI Agent Skills: Implement native functions and integrate them into your AI agents to enhance their capabilities
- Combine Prompts & Functions: Learn to use functions within prompts and create nested functions for complex tasks.
- Automatic Function Calling: Develop the ability to automatically invoke functions based on user inputs and context.
- Guided Project - Create an AI Travel Agent: Apply your skills in a hands-on project to build an AI travel agent, including creating a currency converter, routing user intent, and providing context cues.

COURSE CONTENT

Module 1: Build your kernel
This module introduces the Semantic Kernel SDK. Learn how the kernel connects code to large language models to extend functionality with generative artificial intelligence.

Lessons

- Introduction
- Why use semantic kernel.
- How to build your kernel.
- Exercise - Create your endpoint.
- Exercise - Build a kernel object.
- Knowledge check.
- Summary.

Learning Objectives

- Understand the purpose of Semantic Kernel.
- Understand prompting basics.
- Learn techniques for more effective prompts.

Module 2: Run prompts with Semantic Kernel
This module explores Semantic Kernel SDK plugins. Learn how plugins to the SDK are used to accomplish customized tasks and create intelligent applications.

Lessons

- Introduction
- Optimize language model prompts
- Use semantic kernel prompt templates

- Exercise - Use Semantic Kernel prompt templates
 - Use Handlebars prompt templates
 - Exercise - Use Handlebars prompt templates
 - Store chat history
 - Exercise - Store chat history
 - Knowledge check
 - Summary
- Learning Objectives
- Understand the purpose of Semantic Kernel plugins
 - Learn how to use premade plugins
 - Learn how to create your own plugins

Module 3: Create Semantic Kernel plugins

This module explores native functions in the Semantic Kernel SDK. Learn how native functions can accomplish customized tasks, effectively giving your AI agent a "skill."

Lessons

- Introduction
- Understand native plugins
- Exercise - Create native functions
- Configure function choices
- Exercise - Configure available functions
- Knowledge check
- Summary

Learning objectives

- Understand native functions in the Semantic Kernel SDK.
- Learn how to create native function plugins.
- Learn how to combine prompts with native functions.

Module 4: Apply filters on functions

This module demonstrates how to combine functions and prompts with the Semantic Kernel SDK. Nesting functions within prompts can allow your code to complete tasks large language models can't typically complete on their own.

Lessons

- Introduction
- Understand prompt injections
- Exercise - Apply trust filters
- Filter invoked functions
- Exercise - Add a filter service to the kernel
- Knowledge check
- Summary

Learning Objectives

- Practice creating plugins with the Semantic Kernel SDK.
- Learn how to combine prompts with native functions.

Module 5: Guided project - Create an AI travel agent

This module guides you through the steps required to develop a proof-of-concept AI Travel assistant

with the Semantic Kernel SDK. By the end of this module, you complete a small chatbot application.

Lesson

- Introduction.
- Prepare for guided project.
- Exercise - Create a currency converter.
- Exercise – Create travel itinerary.
- Exercise - Provide context cues.
- Knowledge check.
- Summary.

Learning objectives

- Create plugins for the Semantic Kernel.
- Create prompts to elicit the best responses from the large language model (LLM).
- Manipulate LLM responses to guide the execution of code.
- Automatically invoke the correct plugins to complete tasks.

ASSOCIATED CERTIFICATIONS & EXAM

There is no Associated certification or Exam for this course, however, there is an assessment to achieve your Applied Skills credential. ([Assessment Link](#))