

MS-AI103T00: DEVELOP AI APPS AND AGENTS ON AZURE

Duration	Level	Technology	Methodology	Certification
4 Days	Intermediate	Data & AI	Instructor-Led	AI-103

INTRODUCTION

This course is intended for software developers wanting to build AI infused applications that leverage Microsoft Foundry. Topics in this course include developing generative AI apps, building AI agents, and solutions that implement knowledge connections or tools in your agentic applications. This course also covers multimodal capabilities and understanding of complex content.

AUDIENCE PROFILE

This course was designed for software engineers concerned with building, managing and deploying AI solutions that leverage Microsoft Foundry. They are familiar with Python and have knowledge on using APIs and SDKs to build agents and generative AI solutions on Azure.

PREREQUISITES

Before attending this course, students must have:

- Fundamental AI concepts and services in Azure and have programming experience.
- Familiarity with Azure and the Azure portal.
- Programming experience.

COURSE OBJECTIVES

After completing this course, students will be able to:

- Develop generative AI applications using Microsoft Foundry and Azure AI services.
- Build and deploy AI agents that can perform tasks and interact with users intelligently.
- Implement knowledge connections and tool integrations within agentic applications.
- Create natural language AI solutions using Azure AI capabilities.
- Leverage multimodal AI to analyze and extract insights from complex visual and content-based data.

COURSE CONTENT

Module 1: Develop generative AI apps in Azure

Generative artificial intelligence (AI) is becoming more accessible through comprehensive development platforms like Microsoft Foundry. Learn how to build generative AI applications that use language models to interact with your users.

Module 1.1: Plan and prepare to develop AI solutions on Azure

Microsoft Azure offers multiple services that enable developers to build amazing AI-powered solutions. Proper planning and preparation involves identifying the services you'll use and creating an optimal working environment for your development team.

Module 1.2: Select, deploy, and evaluate Microsoft Foundry models

Explore how to select appropriate models from the model catalog using benchmarks, deploy them to endpoints, and evaluate their performance using manual and automated approaches in Microsoft Foundry portal.

Module 1.3: Develop a generative AI chat app with Microsoft Foundry

Use Microsoft Foundry to develop generative AI chat applications with projects and the Responses API.

Module 1.4: Develop generative AI apps that use tools

Tools enable models to perform tasks and interact with external systems, enabling them to extend their capabilities beyond basic chat interactions.

Module 1.5: Optimize generative AI model performance with Microsoft Foundry

Explore complementary strategies to optimize generative AI model performance. Learn how to apply prompt engineering, ground your model with RAG, and fine-tune for consistent behavior—and when to combine these approaches.

Module 1.6: Implement a responsible generative AI solution in Microsoft Foundry

Generative AI enables amazing creative solutions, but must be implemented responsibly to minimize the risk of harmful content generation.

Module 2: Develop AI agents on Azure

Generative Artificial Intelligence (AI) is becoming more functional and accessible, and AI agents are a key component of this evolution. This learning path will help you understand the AI agents, including when to use them and how to build them, using Microsoft Foundry Agent Service and Microsoft Agent Framework. By the end of this learning path, you will have the skills needed to develop AI agents on Azure.

Module 2.1: Develop AI agents with Microsoft Foundry and Visual Studio Code

Learn how to build, test, and deploy AI agents using Microsoft Foundry Agent Service through both the Azure portal and Visual Studio Code extension.

Module 2.2: Integrate custom tools into your agent

Built-in tools are useful, but they may not meet all your needs. In this module, learn how to extend the capabilities of your agent by integrating custom tools for your agent to use.

Module 2.3: Integrate MCP Tools with Azure AI Agents

Enable dynamic tool access for your Azure AI agents. Learn how to connect MCP-hosted tools and integrate them seamlessly into agent workflows.

Module 2.4: Build knowledge-enhanced AI agents with Foundry IQ

Learn how to connect AI agents with enterprise knowledge using Foundry IQ. You'll explore how Retrieval Augmented Generation (RAG) solves the knowledge problem for AI agents, discover how Foundry IQ provides a shared knowledge platform that multiple agents can access, improve retrieval quality through data optimization, and configure agent instructions for consistent, cited responses.

Module 3: Develop natural language solutions in Azure

Natural language solutions use language models to interpret the semantic meaning of written or spoken language, and in some cases respond based on that meaning. You can use Microsoft Foundry to develop AI apps and agents that can analyze text, transcribe and synthesize speech, and translate languages.

Module 3.1: Analyze text with Azure Language in Foundry Tools

Azure Language in Foundry Tools enables you to create intelligent apps and services that extract semantic information from text.

Module 3.2: Develop a text analysis agent with the Azure Language MCP server

Learn how to build an AI agent that uses the Azure Language MCP server to perform text analysis tasks like language detection, entity recognition, and personal information redaction.

Module 3.3: Develop a speech-capable generative AI application

A voice carries meaning beyond words. Learn how to use models that transcribe and synthesize speech.

Module 3.4: Create speech-enabled apps with Azure Speech in Microsoft Foundry Tools

Azure Speech in Microsoft Foundry Tools enables you to build speech-enabled applications. This module focuses on using the

Module 2.5: Integrate your agent with Microsoft 365

Learn how to publish Microsoft Foundry agents to Microsoft Teams and Microsoft 365 Copilot, access workplace data with Work IQ, and test your integrated agents.

Module 2.6: Build agent-driven workflows using Microsoft Foundry

Workflows enable you to orchestrate AI agents and other components to create intelligent applications. Learn how to build and manage workflows using Microsoft Foundry.

Module 2.7: Develop an AI agent with Microsoft Agent Framework

This module provides engineers with the skills to begin building Microsoft Foundry Agent Service agents with Microsoft Agent Framework.

Module 2.8: Orchestrate a multi-agent solution using the Microsoft Agent Framework

Learn how to use the Microsoft Agent Framework SDK to develop your own AI agents that can collaborate for a multi-agent solution.

Module 2.9: Discover Azure AI Agents with A2A

Learn how to implement the A2A protocol to enable agent discovery, direct communication, and coordinated task execution across remote agents.

speech-to-text and text to speech APIs, which enable you to create apps that are capable of speech recognition and speech synthesis.

Module 3.5: Develop a speech agent with the Azure Speech MCP server

Learn how to build an AI agent that uses the Azure Speech MCP server to perform speech-to-text and text-to-speech tasks.

Module 3.6: Develop an Azure Speech Voice Live Agent in Microsoft Foundry

Learn how to develop a Voice Live agent using the Voice Live API and SDK. This module covers the fundamentals of the Voice Live platform, including API integration, SDK usage, and building conversational AI agents.

Module 3.7: Translate text and speech with Microsoft Foundry Tools

The Translator and Speech services enable you to create intelligent apps and services that can translate text and speech between languages.

Module 4: Extract insights from visual data on Azure

Use generative AI, computer vision, and Content Understanding capabilities in Azure to extract insights from visual data, supporting scenarios like image analysis, image and video generation, Content Understanding and enrichment, visual search and classification, digital asset management (DAM), and multimodal AI solutions.

Module 4.1: Develop a vision-enabled generative AI application

A picture says a thousand words, and multimodal generative AI models can interpret images to respond to visual prompts. Learn how to build vision-enabled chat apps.

Module 4.2: Generate images with AI

In Microsoft Foundry, you can use image generation models to create original images based on natural language prompts.

Module 4.3: Generate videos with Microsoft Foundry

Learn how to generate videos from text prompts with Sora 2 in Microsoft Foundry.

Module 4.4: Analyze images with Content Understanding

Learn how to analyze images with Azure Content Understanding.

Module 4.5: Create a multimodal analysis solution with Azure Content Understanding

Use Azure Content Understanding for multimodal content analysis and information extraction.

ASSOCIATED CERTIFICATIONS & EXAM

This course will prepare delegates to write the AI-103: Developing AI Apps and Agents on Azure Exam.

Module 4.6: Create an Azure Content Understanding client application

Use the Azure Content Understanding API for multimodal content analysis and information extraction.

Module 4.7: Extract data with Azure Document Intelligence

Azure Document Intelligence uses OCR and deep learning models to extract text, key-value pairs, tables, and structured data from forms and documents. Learn how to use prebuilt and custom models to automate document processing.

Module 4.8: Create a knowledge mining solution with Azure AI Search

Unlock the hidden insights in your data with Azure AI Search. In this module, you'll learn how to implement a knowledge mining solution that extracts and enriches data, making it searchable and ready for deeper analysis.