Develop AI agents on Azure Training

Duration: **1 Day**

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info@bilginc.com
bilginc.com

Develop AI Agents on Azure is a comprehensive, hands-on course designed for learners who want to build intelligent AI agents on Microsoft Azure. The program explores how next-generation intelligent applications can be designed, developed and orchestrated using Azure AI Foundry, Microsoft Foundry Agent Service and the Microsoft Agent Framework.

AI agents go beyond conventional applications by being able to reason towards goals, use tools, take actions and collaborate with other agents. This course examines how these capabilities can be implemented on Azure and gives learners practical experience building both single-agent and multi-agent solutions.

Throughout the program, participants learn how to create agents with Microsoft Foundry Agent Service, manage development and testing through the Microsoft Foundry extension in Visual Studio Code, and extend agent capabilities with built-in and custom tools. The course also covers MCP-based tool integration, collaborative agent architectures, orchestration with Microsoft Agent Framework and agent discovery and communication through the A2A protocol.

Practical exercises and module-level assessments help learners move beyond theory and gain the confidence required to design production-ready AI agent solutions for real-world business and technical use cases.

Prerequisites

Participants should have:

- A basic understanding of programming concepts such as functions, APIs and data structures
- Familiarity with cloud computing concepts and Microsoft Azure fundamentals
- An interest in building AI-driven applications using modern development tools

Previous experience with Azure services or AI workloads is useful, but not required.

Who Should Attend

This course is designed for:

- Developers building intelligent applications on Microsoft Azure
- Data scientists and machine learning practitioners extending existing solutions with AI agents
- IT professionals and solution architects designing scalable AI-driven systems
- Engineers adopting agent-based approaches for automation, orchestration and collaboration

It is also suitable for anyone looking to improve their ability to create interactive and extensible AI agents for business or personal projects.

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What You Will Learn

By the end of the course, learners will be able to:

- Explain what AI agents are and how they are used in modern intelligent applications.
- Develop AI agents using Microsoft Foundry Agent Service and Azure AI Foundry.
- Build, test and deploy AI agents using the Microsoft Foundry extension in Visual Studio Code.
- Extend AI agents with built-in, custom and MCP-hosted tools.
- Design and implement multi-agent solutions using connected and orchestrated agents.
- Use the Microsoft Agent Framework to create, extend and orchestrate Azure AI agents.
- Enable agent discovery and communication using the A2A protocol.

Training Outline

Module 1: Get Started with AI Agent Development on Azure

This module introduces AI agents as a core building block for next-generation applications on Microsoft Azure.

- Introduction to AI agents and intelligent applications
- Understanding what AI agents are
- How agents differ from traditional applications
- Options for developing AI agents on Azure
- Overview of Microsoft Foundry Agent Service
- Exercise exploring AI agent development concepts and tools
- Module assessment and summary

Module 2: Develop an AI Agent with Microsoft Foundry Agent Service

This module provides practical guidance for creating functional AI agents with Foundry Agent Service.

- Introduction to agent development with Foundry
- Understanding AI agent capabilities and behaviours
- Creating agents with Microsoft Foundry Agent Service
- Configuring agents for real-world scenarios
- Exercise building an AI agent with Foundry Agent Service
- Module assessment and summary

Module 3: Develop AI Agents with the Microsoft Foundry Extension in Visual Studio Code

This module focuses on developer workflows for building and managing AI agents in Visual Studio Code.

- Introduction to the Microsoft Foundry extension
- Getting started with agent development in Visual Studio Code
- Developing and testing agents locally
- Extending agent capabilities with integrated tools
- Exercise building an AI agent with the Foundry extension
- Module assessment and summary

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Module 4: Integrate Custom Tools into Your Agent

This module explores how AI agents can be extended beyond built-in capabilities using custom tools.

- Introduction to agent extensibility
- Understanding when custom tools are required
- Options for implementing custom agent tools
- Integrating custom tools into agent workflows
- Exercise building an AI agent with custom tools
- Module assessment and summary

Module 5: Develop a Multi-Agent Solution with Microsoft Foundry Agent Service

This module introduces collaborative AI patterns and connected agents.

- Introduction to multi-agent solutions
- Understanding connected agents
- Agent collaboration patterns
- Designing a multi-agent solution with Foundry Agent Service
- Exercise developing a multi-agent application with Foundry
- Module assessment and summary

Module 6: Integrate MCP Tools with Azure AI Agents

This module examines how MCP-hosted tools can provide dynamic tool access for AI agents.

- Introduction to MCP tools
- Dynamic tool access
- Understanding MCP tool discovery
- MCP server and client architectures
- Integrating agent tools through MCP
- Using Azure AI agents with MCP servers
- Exercise connecting MCP tools to Azure AI agents
- Module assessment and summary

Module 7: Develop an AI Agent with Microsoft Agent Framework

This module introduces the Microsoft Agent Framework SDK for building Azure AI agents.

- Introduction to Microsoft Agent Framework
- Understanding agents built with the framework
- Creating an Azure AI agent with Microsoft Agent Framework
- Adding tools to Azure AI agents
- Exercise developing an Azure AI agent with the Agent Framework SDK
- Knowledge check and summary

Module 8: Orchestrate a Multi-Agent Solution Using Microsoft Agent Framework

This module focuses on coordinating multiple agents through different orchestration patterns.

- Introduction to agent orchestration
- Understanding orchestration concepts within the Agent Framework
- Concurrent orchestration

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- Sequential orchestration
- Group chat orchestration
- Handoff orchestration
- Magentic orchestration
- Exercise developing a multi-agent solution
- Knowledge check and summary

Module 9: Discover Azure AI Agents with A2A

This module introduces the A2A protocol for remote agent discovery and communication.

- Introduction to A2A
- Remote agent collaboration
- Defining an A2A agent
- Implementing an agent executor
- Hosting an A2A server
- Connecting to an A2A agent
- Exercise connecting to remote Azure AI agents using A2A
- Module assessment and summary