

Microsoft Certified: Azure AI Apps and Agents Developer Associate (AI-103)

This AI-103 training prepares you for the Azure AI Apps and Agents Developer Associate exam. You'll learn how to plan and manage AI solutions in Azure AI Foundry, build generative AI apps with RAG and agentic workflows, implement computer vision and multimodal pipelines, analyze text and speech, and extract information from documents using OCR and semantic search. You'll also configure multi-agent systems with memory, tool integration, and approval workflows. Security, responsible AI, and production monitoring are covered throughout. Once you complete this course, you'll be equipped to design, build, deploy, and evaluate production-ready AI applications and multi-agent solutions on Azure.

[CBT Nuggets course material](#) →

WEEK 1

Microsoft Foundry Platform Foundations

Azure AI & Microsoft Foundry Fundamentals

Understand Models and Agents

Prompts vs Context

AI Search Capabilities

Foundry Agents

CHALLENGE

Designing and Automating AI Infrastructure

Introducing Infrastructure Design for Foundry Agents

Understand Where AI Fits

Understand and Evaluate Azure Compute Options

Make a Model Deployment

Make an Agent Deployment

Concepts of Integration with CI/CD

CHALLENGE

Building Generative Apps with the Foundry SDK

Getting Started with the Foundry SDK

The Point of the Foundry SDK

Scaffold a Basic App and Install the SDK

Send a Prompt to Foundry

Make the App Multi-Turn

Build and Call a (mock) Tool

Build a (mock) RAG Pipeline

CHALLENGE

Retrieval and Grounding Pipelines

Introducing RAG Pipelines

Understand RAG Pipelines

Indexes and Azure AI Search

Chunking, Embedding, and Vector Searches

Compare Vector Search, Keyword Search, and Hybrid Search

Standard RAG vs Agentic RAG

CHALLENGE

Document and Content Extraction

Introducing Text Extraction

Understand the Kinds of Text Extraction

Choosing How to Extract

Create a Document Intelligence App

Make the Data Structured

Work with Messy Text Extraction

CHALLENGE

Implementing RAG and Tool-Augmented Flows

Build a RAG from the Ground Up

Understand the Plan of Attack

Scaffold the Index

Scaffold the Embedding App

Scaffold the Search App

Build the End-to-End RAG Flow

CHALLENGE

Optimizing and Evaluating Generation Quality

Introducing Evaluations

Understand Why We Need Evaluations

Write a Better Prompt

Create the Evaluation Dataset

Consider an Evaluation Criteria

Extend the RAG App to Collect and Run Evaluations

CHALLENGE

Building Agents in Foundry

Introducing Agents

Understanding Agents

Deploy the Agent in Foundry

Give Your Agent Tools

Build a Custom Tool

Register a Custom Tool

Test the App's Tool Call

Knowledge vs Memory

Build the App End-to-End

CHALLENGE

Multi-Agent Orchestration and Observability

Introducing the Microsoft Agent Framework

Understand the Multi-Agent Orchestration Premise

Compare Orchestration Methods

Deploy the New Agents

Refactor the Agent Application (Sequential)

Add Routing Overrides and Human Approvals

Make the App Observable

CHALLENGE

Text Analysis with Language Models

Introducing Text Analysis

Understand Text Analysis

Explore Language Analysis in Foundry

Scaffold a Basic Extraction App

Classify Text

Translate Text

CHALLENGE

Speech and Audio for Agents

Introducing Live Speech in Azure AI

Understand the Voice Architectures

Scaffold the Azure Speech Resource - Speech-to-Text

Now Build Text-to-Speech

Explore the Code

Add Your LLM to the Cascade

Now Make the App Conversational

Create a Live Voice App with the Foundry Voice Agent

CHALLENGE

Image and Video Generation and Editing

Introducing Content Generation

Understand What is Involved with Content Generation

Generate Images from Text

Build an App to Generate Images Locally

Edit Images in Your App

Generate Video Clips in Foundry

Extend the App to Handle Video

CHALLENGE

Multimodal Understanding and Visual Safety

Introducing Video Analysis

Understand Image and Video Analysis

Scaffold a Basic Image Analysis Python App

Test the App

Deploy a Custom Content Analyzer

Analyze a Video

Content Safety

CHALLENGE

Securing, Governing, and Monitoring AI Workloads

Introducing Application Security Principles

Understand Role Based Access Controls

Secure Network Access

Configure Guardrails

Monitor Application Insights

Scaling an Application

CHALLENGE