Develop AI apps and agents on Azure (AI103) Training

Duration: **4 Day**

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Overview

Artificial Intelligence is evolving from standalone machine learning models into intelligent systems capable of reasoning, planning, interacting with users, and executing complex workflows. This course provides software developers and AI engineers with the practical knowledge required to design, build, deploy, and manage enterprise-grade AI applications using Microsoft Azure's AI ecosystem.

Participants will explore the complete lifecycle of modern AI application development, including large language models, AI agents, multimodal processing, retrieval-based knowledge systems, and cloud-native deployment strategies. Through practical workshops and real-world implementation scenarios, learners will gain experience building intelligent applications that combine Azure AI services with modern software engineering practices.

By the end of the course, participants will understand how to transform traditional cloud applications into scalable AI-powered solutions capable of delivering intelligent user experiences.

Prerequisites

Participants are recommended to have experience with:

- Python programming
- REST API development
- Azure fundamentals
- Cloud application development
- Basic software architecture concepts

Previous experience with Generative AI or AI agents is helpful but not essential.

Who Should Attend

This course is suitable for professionals responsible for designing and developing intelligent cloud applications, including:

- Software Developers
- AI Engineers
- Cloud Developers
- Solution Architects
- Full Stack Developers
- Application Engineers
- Technical Consultants
- Development teams implementing Azure AI solutions

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What You Will Learn

Upon successful completion, participants will be able to:

- Build Generative AI applications using Azure AI services.
- Develop task-oriented AI agents.
- Integrate external APIs and business data into AI workflows.
- Implement Retrieval-Augmented Generation (RAG) architectures.
- Process structured and unstructured content.
- Create multimodal AI experiences.
- Deploy secure and scalable AI applications.
- Apply responsible AI principles throughout the development lifecycle.

Outline

Module 1 – Modern AI Application Architecture

This module introduces the building blocks of intelligent cloud applications.

Topics

- Evolution of AI-powered software
- Azure AI ecosystem
- Large Language Models
- Cloud-native AI architecture
- Selecting AI services
- Designing scalable AI solutions

Practical Lab

- Creating a foundational AI application

Module 2 – Building Generative AI Solutions

Participants learn how to create applications powered by modern language models.

Topics

- Working with foundation models
- Prompt design strategies
- Context management
- Response generation
- Output optimisation
- AI workflow design

Practical Lab

- Developing a document assistant

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- Improving prompt quality

Module 3 – Developing Intelligent AI Agents

This module focuses on creating AI agents capable of planning and executing complex tasks.

Topics

- Agent design principles
- Planning and reasoning
- Memory management
- Tool invocation
- Multi-step execution
- Agent orchestration

Practical Lab

- Building an enterprise AI assistant
- Implementing autonomous workflows

Module 4 – Enterprise Knowledge Integration

Learn how to connect AI applications with business information and external systems.

Topics

- Retrieval-Augmented Generation
- Enterprise knowledge repositories
- Vector search concepts
- API integration
- Context enrichment
- Knowledge retrieval optimisation

Practical Lab

- Building an AI knowledge assistant
- Connecting enterprise data sources

Module 5 – Conversational and Multimodal AI

Participants develop intelligent applications capable of understanding multiple forms of input.

Topics

- Conversational AI design
- Natural language understanding

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- Text generation
- Image analysis
- Multimodal reasoning
- Document intelligence

Practical Lab

- Creating a multimodal chatbot
- Analysing documents and images

Module 6 – Deploying AI Solutions on Azure

This module focuses on operationalising AI applications within cloud environments.

Topics

- Azure deployment strategies
- Model serving
- API management
- Performance optimisation
- Scaling AI workloads
- Monitoring and logging

Practical Lab

- Deploying an AI application to Azure
- Configuring operational monitoring

Module 7 – Secure and Responsible AI Development

Participants explore governance, security, and operational best practices for enterprise AI.

Topics

- Responsible AI principles
- Security and identity management
- Data protection
- Compliance considerations
- Model evaluation
- Continuous improvement

Practical Lab

- Implementing governance controls
- Evaluating AI application quality

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Practical Learning

Throughout the course participants will:

- Build Generative AI applications.
- Develop intelligent AI agents.
- Integrate enterprise knowledge sources.
- Create Retrieval-Augmented Generation solutions.
- Implement multimodal AI workflows.
- Deploy cloud-based AI services.
- Monitor application performance.
- Apply responsible AI and security practices.
- Develop production-ready Azure AI solutions.

Skills Gained

Upon completion of this course, participants will be able to design, develop, deploy, and maintain intelligent AI applications on Microsoft Azure. They will understand how to combine large language models, AI agents, enterprise knowledge retrieval, multimodal capabilities, and cloud-native services to deliver secure, scalable, and production-ready AI solutions that address real-world business challenges.