

**Building AI-Powered Workflows with Azure Document Intelligence, NLP, & Vision**

**Course Number:** MOC-AI-3000C  
**Duration:** 3 days

**Overview**

This Azure AI course teaches attendees how to build AI-powered workflows that extract data, understand language, and analyze images. Attendees learn how to capture data from typed or hand-written forms, build a solution for custom form types, and integrate that solution into an Azure Cognitive Search pipeline. Students then learn how to implement natural language processing (NLP) solutions that use language models to interpret the semantic meaning of written or spoken language. Finally, attendees leverage Azure AI Vision's multiple services to support common computer vision scenarios.

**Note:** This 3-day course combines the Microsoft official courses Develop Solutions with Azure AI Document Intelligence ([AI-3002](file:////training/develop-solutions-with-azure-ai-document-intelligence)), Develop Natural Language Processing Solutions with Azure AI Services ([AI-3003](file:////training/develop-natural-language-processing-solutions-with-azure-ai-services)), and Create Computer Vision Solutions with Azure AI Vision Training ([AI-3004](file:////training/create-computer-vision-solutions-with-azure-ai-vision)).

**Prerequisites**

* Familiarity with Azure and the Azure portal
* Experience programming with C# or Python

**Materials**

All Microsoft Azure AI training students receive Microsoft official courseware.

For all Microsoft Official Courses taught in their entirety that have a corresponding certification exam, an exam voucher is included for each participant.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computers for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will work well.

**Objectives**

* Design a solution that analyzes your business forms using Azure AI Document Intelligence
* Create a solution that analyzes common documents using Document Intelligence
* Create a solution that analyses different custom form types by using Document Intelligence
* Include an Azure AI Document Intelligence service as a custom skill in an Azure AI Search pipeline
* Use the Azure AI Language service to create intelligent apps and services that extract semantic information from text
* Build applications where users ask questions using natural language and receive appropriate answers
* Build a custom text classification project
* Build a custom entity recognition solution to extract entities from unstructured documents
* Create intelligent apps and services that can translate text between languages
* Create apps that are capable of speech recognition and speech synthesis
* Return translations of the transcription in one or more other languages
* Use pre-trained models to analyze images and extract insights and information
* Classify images by training a custom model with Azure AI Vision
* Explore detecting human faces, analyzing facial features and emotions, and identifying individuals
* Use the Image Analysis API for optical character recognition (OCR)
* Extract insights from video, including face identification, text recognition, object labels, scene segmentations, and more

**Outline**

* Introduction
* Plan an Azure AI Document Intelligence Solution
  + Understand AI Document Intelligence
  + Plan Azure AI Document Intelligence resources
  + Choose a model type
* Use Prebuilt Form Recognizer Models
  + Understand prebuilt models
  + Use the General Document, Read, and Layout models
  + Use financial, ID, and tax models
  + Analyze a document using Azure AI Document Intelligence
* Extract Data from Forms with Azure Document Intelligence
  + What is Azure Document Intelligence?
  + Get started with Azure Document Intelligence
  + Train custom models
  + Use Azure Document Intelligence models
  + Use the Azure Document Intelligence Studio
  + Extract data from custom forms
* Create a Composed Form Recognizer Model
  + Understand composed models
  + Assemble composed models
  + Create a composed model
* Build a Form Recognizer Custom Skill for Azure Cognitive Search
  + Understand Azure AI Search enrichment pipelines
  + Build an Azure AI Document Intelligence custom skill
  + Build and deploy an Azure AI Document Intelligence custom skill
* Analyze Text with Azure AI Language
  + Provision an Azure AI Language resource
  + Detect language
  + Extract key phrases
  + Analyze sentiment
  + Extract entities
  + Extract linked entities
  + Analyze text
* Create Question Answering Solutions with Azure AI Language
  + Understand question answering
  + Compare question answering to Azure AI Language understanding
  + Create a knowledge base
  + Implement multi-turn conversation
  + Test and publish a knowledge base
  + Use a knowledge base
  + Improve question answering performance
  + Create a question answering solution
* Build a Conversational Language Understanding Model
  + Understand prebuilt capabilities of the Azure AI Language service
  + Understand resources for building a conversational language understanding model
  + Define intents, utterances, and entities
  + Use patterns to differentiate similar utterances
  + Use pre-built entity components
  + Train, test, publish, and review a conversational language understanding model
  + Build an Azure AI services conversational language understanding model
* Create a Custom Text Classification Solution
  + Understand types of classification projects
  + Understand how to build text classification projects
  + Classify text
* Create a Custom Named Entity Extraction Solution
  + Understand custom named entity recognition
  + Label your data
  + Train and evaluate your model
  + Extract custom entities
* Translate Text with Azure AI Translator Service
  + Provision an Azure AI Translator resource
  + Understand language detection, translation, and transliteration
  + Specify translation options
  + Define custom translations
  + Translate text with the Azure AI Translator service
* Create Speech-Enabled Apps with Azure AI Services
  + Provision an Azure resource for speech
  + Use the Azure AI Speech to Text API
  + Use the text to speech API
  + Configure audio format and voices
  + Use Speech Synthesis Markup Language
  + Create a speech-enabled app
* Translate Speech with the Azure AI Speech Service
  + Provision an Azure resource for speech translation
  + Translate speech to text
  + Synthesize translations
  + Translate speech
* Analyze Images
  + Provision an Azure AI Vision resource
  + Analyze an image
  + Generate a smart-cropped thumbnail and remove background
  + Analyze images with Azure AI Vision
* Image Classification with Custom Azure AI Vision Models
  + Understand custom model types
  + Create a custom project
  + Label and train a custom model
  + Classify images with an Azure AI Vision custom model
* Detect, Analyze, and Recognize Faces
  + Identify options for face detection analysis and identification
  + Understand considerations for face analysis
  + Detect faces with the Azure AI Vision service
  + Understand capabilities of the face service
  + Compare and match detected faces
  + Implement facial recognition
  + Detect, analyze, and identify faces
* Read Text in Images and Documents with the Azure AI Vision Service
  + Explore Azure AI Vision options for reading text
  + Use the Read API
  + Read text in images
* Analyze Video
  + Understand Azure Video Indexer capabilities
  + Extract custom insights
  + Use Video Analyzer widgets and APIs
  + Analyze video
* Conclusion