



Designing and Implementing a Microsoft Azure AI Solutions (AI-102T00)

COURSE OVERVIEW

AI-102 Designing and Implementing an Azure AI Solution is intended for software developers wanting to build AI infused applications that leverage Azure Cognitive Services, Azure Cognitive Search, and Microsoft Bot Framework. The course will use C# or Python as the programming language.

WHO WILL BENEFIT FROM THIS COURSE?

Software engineers concerned with building, managing and deploying AI solutions that leverage Azure Cognitive Services, Azure Cognitive Search, and Microsoft Bot Framework. They are familiar with C# or Python and have knowledge on using REST-based APIs to build computer vision, language analysis, knowledge mining, intelligent search, and conversational AI solutions on Azure.

PREREQUISITES

Before attending this course, students must have:

- Knowledge of Microsoft Azure and ability to navigate the Azure portal
- Knowledge of either C# or Python
- Familiarity with JSON and REST programming semantics

COURSE OBJECTIVES

Students will learn to:

- Prepare to develop AI solutions on Azure
- Create and consume Cognitive Services
- Secure Cognitive Services
- Monitor Cognitive Services
- Deploy cognitive services in containers
- Extract insights from text with the Language service
- Translate text with the Translator service
- Create speech-enabled apps with the Speech service
- Translate speech with the speech service
- Build a Language Understanding model
- Publish and use a Language Understanding app
- Build a question answering solution
- Create a bot with the Bot Framework SDK
- Create a Bot with the Bot Framework Composer
- Analyze images



- Analyze video
- Classify images
- Detect objects in images
- Detect, analyze, and recognize faces
- Read Text in Images and Documents with the Computer Vision Service
- Extract data from forms with Form Recognizer
- Create an Azure Cognitive Search solution
- Create a custom skill for Azure Cognitive Search
- Create a knowledge store with Azure Cognitive Search

COURSE OUTLINE

Module 1: Prepare to develop AI solutions on Azure

- Define artificial intelligence
- Understand AI-related terms
- Understand considerations for AI Engineers
- Understand considerations for responsible AI
- Understand capabilities of Azure Machine Learning
- Understand capabilities of Azure Cognitive Services
- Understand capabilities of the Azure Bot Service
- Understand capabilities of Azure Cognitive Search

Module 2: Create and consume Cognitive Services

- Provision Cognitive Services resources in an Azure subscription.
- Identify endpoints, keys, and locations required to consume a Cognitive Services resource.
- Use a REST API to consume a cognitive service.
- Use an SDK to consume a cognitive service.

Module 3: Secure Cognitive Services

- Consider authentication for Cognitive Services
- Manage network security for Cognitive Services

Module 4: Monitor Cognitive Services

- Monitor Cognitive Services costs
- Create alerts
- View metrics
- Manage diagnostic logging

Module 5: Deploy cognitive services in containers

- Create Containers for Reuse
- Deploy to a Container
- Secure a Container
- Consume Cognitive Services from a Container

Module 6: Extract insights from text with the Language service

- Detect language
- Extract key phrases
- Analyze sentiment



- Extract entities
- Extract linked entities

Module 7: Translate text with the Translator service

- Provision a Translator resource
- Understand language detection, translation, and transliteration
- Specify translation options
- Define custom translations

Module 8: Create speech-enabled apps with the Speech service

- Provision an Azure resource for the Speech service
- Use the Speech-to-Text API to implement speech recognition
- Use the Text-to-Speech API to implement speech synthesis
- Configure audio format and voices
- Use Speech Synthesis Markup Language (SSML)

Module 9: Translate speech with the speech service

- Provision Azure resources for speech translation.
- Generate text translation from speech.
- Synthesize spoken translations.

Module 10: Build a Language Understanding model

- Provision Azure resources for Language Understanding
- Define intents, utterances, and entities
- Use patterns to differentiate similar utterances
- Use pre-built entity components
- Train, test, publish, and review a Language Understanding model

Module 11: Publish and use a Language Understanding app

- Understand capabilities of a Language Understanding app
- Process predictions from a Language Understanding app
- Deploy a language-understanding app in a container

Module 12: Build a question-answering solution

- Understand question answering
- Compare question answering to language understanding
- Create a knowledge base
- Implement multi-turn conversation
- Test and publish a knowledge base
- Consume a knowledge base
- Implement active learning
- Create a question-answering bot

Module 13: Create a bot with the Bot Framework SDK

- Understand principles of bot design
- Use the Bot Framework SDK to build a bot
- Deploy a bot to Azure



Module 14: Create a Bot with the Bot Framework Composer

- Understand dialogs
- Plan conversational flow
- Design the user experience
- Create a bot with the Bot Framework Composer

Module 15: Analyze images

- Provision a Computer Vision resource
- Analyze an image
- Generate a smart-cropped thumbnail

Module 16: Analyze video

- Describe Video Analyzer for Media capabilities
- Extract custom insights
- Use Video Analyzer for Media widgets and APIs

Module 17: Classify images

- Provision Azure resources for Custom Vision
- Understand image classification
- Train an image classifier

Module 18: Detect objects in images

- Provision Azure resources for Custom Vision
- Understand object detection
- Train an object detector
- Consider options for labeling images

Module 19: Detect, analyze, and recognize faces

- Identify options for face detection, analysis, and identification
- Understand considerations for face analysis
- Detect faces with the Computer Vision service
- Understand the capabilities of the Face service
- Compare and match detected faces
- Implement facial recognition

Module 20: Read Text in Images and Documents with the Computer Vision Service

- Read text from images with the Read API
- Use the Computer Vision service with SDKs and the REST API
- Develop an application that can read printed and handwritten text

Module 21: Extract data from forms with Form Recognizer

- Identify how Form Recognizer's layout service, prebuilt models, and custom service can automate processes
- Use Form Recognizer's Optical Character Recognition (OCR) capabilities with SDKs, REST API, and Form Recognizer Studio
- Develop and test custom models

Module 22: Create an Azure Cognitive Search Solution

- Create an Azure Cognitive Search Solution
- Develop a search application



Module 23: Create a custom skill for Azure Cognitive Search

- Implement a custom skill for Azure Cognitive Search
- Integrate a custom skill into an Azure Cognitive Search skillset

Module 24: Create a knowledge store with Azure Cognitive Search

- Create a knowledge store from an Azure Cognitive Search pipeline
- View data in projections in a knowledge store

WHY TRAIN WITH SUNSET LEARNING INSTITUTE?

Sunset Learning Institute (SLI) has been an innovative leader in developing and delivering authorized technical training since 1996. Our goal is to help our customers optimize their technology Investments by providing convenient, high quality technical training that our customers can rely on. We empower students to master their desired technologies for their unique environments.

What sets SLI apart is not only our immense selection of trainings options, but our convenient and consistent delivery system. No matter how complex your environment is or where you are located, SLI is sure to have a training solution that you can count on!

Premiere World Class Instruction Team

- All SLI instructors have a four-year technical degree, instructor level certifications and field consulting work experience
- Sunset Learning has won numerous Instructor Excellence and Instructor Quality Distinction awards since 2012

Enhanced Learning Experience

- The goal of our instructors during class is ensure students understand the material, guide them through our labs and encourage questions and interactive discussions.

Convenient and Reliable Training Experience

- You have the option to attend classes live with the instructor, at any of our established training facilities, or from the convenience of your home or office
- All Sunset Learning Institute classes are guaranteed to run – you can count on us to deliver the training you need when you need it!

Outstanding Customer Service

- You will work with a dedicated account manager to suggest the optimal learning path for you and/or your team
- An enthusiastic student services team is available to answer any questions and ensure a quality training experience

Interested in Private Group Training?

[Contact Us](#)