

KOENIG SOLUTIONS • COURSE OUTLINE

Designing and Implementing an Azure AI Solution on Edge Devices

Learn to design, deploy and secure Azure AI solutions on IoT Edge and Azure Sphere devices, from IoT Hub to live video analytics.

4 Days

32 HOURS

14

MODULES

42

TOPICS

Break: 15 + 45 + 15 minutes; Session: 405 minutes/day

COURSE OVERVIEW

This course covers Azure IoT services and architecture, including IoT Hub configuration, device connectivity and telemetry. It then moves into deploying modules to edge devices, using Azure Functions for event-driven processing, and running Azure AI services such as image recognition and anomaly detection on the edge. MLOps practices and CI/CD pipelines for edge AI deployments are introduced, followed by Azure Sphere architecture, security and image classification. The course concludes with building secure IoT solutions across Azure Sphere, Azure RTOS and Azure IoT Central, and creating image and object detection solutions using Live Video Analytics and the YOLO model.

WHO THIS COURSE IS FOR

IoT Developers

Edge AI Engineers

Solutions Architects

IoT Security Engineers

Machine Learning Engineers

DevOps Engineers

PREREQUISITES

- Azure AI Fundamentals (AI-900)

LEARNING OBJECTIVES

- Master effective prompting using ChatGPT, Bard & Copilot
- Apply prompting for various HR related day today activities
- Utilize image prompting for human resource engagement
- Ensure ethical AI practices by enhancing prompt reliability

14 Modules, 42 Topics

01

Introduction to Azure IoT

TOPICS

- Provides an overview of Azure Internet of Things (IoT) services
- Covers IoT architecture, device connectivity, and data ingestion
- Introduces concepts like telemetry, device twins, and IoT protocols

02

Introduction to Azure IoT Hub

TOPICS

- Focuses on Azure IoT Hub, a central component for managing IoT devices
- Explains device registration, message routing, and security features
- Demonstrates how to create and configure an IoT Hub

03

Deploy a Pre-Built Module to the Edge Device

TOPICS

- Walks through deploying pre-built modules (containers) to edge devices
- Discusses module deployment strategies and lifecycle management
- Includes practical examples using Azure IoT Edge

04

Introduction to Azure Functions for IoT

TOPICS

- Explores serverless computing with Azure Functions
- Shows how to trigger functions based on IoT events
- Covers use cases like data transformation and real-time processing

05

Run Azure AI Services on IoT Edge

TOPICS

- Integrates AI capabilities into edge devices using Azure services
- Discusses scenarios like image recognition, anomaly detection, and predictive maintenance
- Highlights Azure Cognitive Services and custom AI models

06

Introduction to MLOps for IoT Edge

TOPICS

- Introduces MLOps (Machine Learning Operations) for edge AI
- Covers model versioning, deployment pipelines, and monitoring
- Emphasizes best practices for managing AI models in production

07

Implement CI/CD for IoT Edge

TOPICS

- Focuses on continuous integration and deployment for edge solutions
- Sets up CI/CD pipelines for deploying modules to edge devices
- Ensures efficient updates and quality control

08

Introduction to Azure Sphere

TOPICS

- Presents Azure Sphere, a secure platform for IoT devices
- Covers hardware architecture, security features, and development tools
- Discusses how Azure Sphere integrates with Azure services

09

Image Classification Using Azure Sphere

TOPICS

- Practical module on building an image classification solution
- Demonstrates deploying a custom AI model to an Azure Sphere device
- Includes training, inference, and integration with Azure IoT Hub

10

Develop Secure IoT Solutions for Azure Sphere with IoT Hub

TOPICS

- Expands on security practices for Azure Sphere
- Integrates Azure IoT Hub for device management and communication
- Ensures end-to-end security for IoT deployments

11

Develop Secure IoT Solutions for Azure Sphere, Azure RTOS and Azure IoT Central

TOPICS

- Extends security considerations to Azure RTOS and Azure IoT Central
- Discusses secure communication, device provisioning, and monitoring
- Provides guidance for building robust and secure IoT solutions

12

Create an Image Recognition Solution with Azure IoT Edge and Azure AI Services

TOPICS

- Practical hands-on module combining IoT Edge and AI services
- Walks through creating an image recognition system using pre-trained models
- Includes deployment to edge devices and real-world use cases

13

Void Detection on Edge Devices with Live Video Analytics Using Own Images and Video

TOPICS

- Focuses on real-time video analytics at the edge
- Demonstrates object detection using custom images and videos
- Leverages Live Video Analytics capabilities

Object Detection on Edge Devices with Live Video Analytics Using YOLO Model

TOPICS

- Explores object detection using the YOLO (You Only Look Once) model
- Shows how to deploy YOLO for real-time inference on edge devices
- Use cases include surveillance, safety, and retail applications

NOTES

- Unofficial Courseware - Reference material/ppt along with lab files/exercises will be provided
- Unofficial Courseware - Azurepass will be provided to perform labs

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

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✉ info@koenig-solutions.com