

Course Name	Designing and Implementing an Azure AI Solution on Edge Devices
Course Duration	4 Day (32 hours)
Time Division/day	Break: 15 + 45 + 15 mins Session: 405 mins/day
Pre-requisites	Azure AI Fundamentals (AI-900)
Course Outcomes	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

Important Note:

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

Module	Content
Module 01	Introduction to Azure IoT
	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.
Module 02	Introduction to Azure IoT Hub
	Focuses on Azure IoT Hub, a central component for managing IoT devices ¹ . Explains device registration, message routing, and security features. Demonstrates how to create and configure an IoT Hub.
Module 03	Deploy a pre-built module to the Edge device
	Walks through deploying pre-built modules (containers) to edge devices. Discusses module deployment strategies and lifecycle management. Includes practical examples using Azure IoT Edge.
Module 04	Introduction to Azure Functions for IoT
	Explores serverless computing with Azure Functions. Shows how to trigger functions based on IoT events ⁴ . Covers use cases like data transformation and real-time processing.
Module 05	Run Azure AI services on IoT Edge
	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.
Module 06	Introduction to MLOps for IoT Edge
	Introduces MLOps (Machine Learning Operations) for edge AI. Covers model versioning, deployment pipelines, and monitoring. Emphasizes best practices for managing AI models in production.
Module 07	Implement CI/CD for IoT Edge
	Focuses on continuous integration and deployment for edge solutions ⁶ . Sets up CI/CD pipelines for deploying modules to edge devices. Ensures efficient updates and quality control.

Module 08	Introduction to Azure Sphere
	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.
Module 09	Image classification using Azure Sphere
	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.
Module 10	Develop secure IoT Solutions for Azure Sphere with IoT Hub
	Expands on security practices for Azure Sphere. Integrates Azure IoT Hub for device management and communication. Ensures end-to-end security for IoT deployments.
Module 11	Develop secure IoT solutions for Azure Sphere, Azure RTOS and Azure IoT Central
	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
Module 12	Create an image recognition solution with Azure IoT Edge and Azure AI services
	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.
Module 13	Void detection on Edge devices with Live Video Analytics using own images and video
	Focuses on real-time video analytics at the edge. Demonstrates object detection using custom images and videos. Leverages Live Video Analytics capabilities.
Module 14	Object detection on Edge devices with Live Video Analytics using YOLO model
	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.