KOENIG step forward

Microsoft Solutions Partner
Microsoft Cloud Training Services

KOENIG SOLUTIONS · COURSE OUTLINE

MLOps on Azure: From Data Science to Deployment

Learn to design, train, deploy and operate machine learning solutions on Azure using MLOps practices, Azure DevOps and GitHub Actions.

5 Days	13	54
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course covers designing and provisioning a machine learning solution architecture on Azure, then exploring data, training and evaluating models. It moves into packaging, governance and monitoring of models before deployment, followed by deploying, monitoring and retraining models in production with CI/CD. It introduces MLOps concepts alongside Azure DevOps and GitHub, covering workspace setup, automated workflows with GitHub Actions, branch protection, continuous integration checks, and training, testing and deploying models. It closes with automating model deployment and applying Azure MLOps (V2) Accelerator Solutions across classical ML, computer vision and NLP patterns.

WHO THIS COURSE IS FOR

Data Scientists | **Machine Learning Engineers** | **MLOps Engineers** | **DevOps Engineers** | **Solution Architects** | **AI Developers**

LEARNING OBJECTIVES

- Design a machine learning solution architecture on Azure
- Provision and secure Azure resources for machine learning workloads
- Explore, prepare and featurize data for model training
- Train, evaluate and optimize machine learning models
- Package models and implement governance and lifecycle management
- Deploy and monitor machine learning models in production
- Implement CI/CD pipelines with Azure DevOps and GitHub Actions
- Apply Azure MLOps (V2) Accelerator Solutions across ML patterns

COURSE SYLLABUS

13 Modules, 54 Topics

01

Designing and Preparing a Machine Learning Solution

TOPICS

- Identify and analyze business requirements for a machine learning solution
- Design a machine learning solution architecture
- Select appropriate compute resources for a machine learning solution
- Provision Azure resources for a machine learning solution
- Manage data storage for machine learning workloads
- Implement security and access controls for machine learning resources

02

Exploring Data and Training Models

TOPICS

- Explore and prepare data for machine learning
- Select and apply appropriate data featurization techniques
- Select and train appropriate machine learning models
- Evaluate and compare machine learning models
- Optimize machine learning models for performance

03

Preparing a Model for Deployment

TOPICS

- Package and deploy machine learning models
- Implement model governance and lifecycle management
- Monitor and troubleshoot machine learning models
- Manage and optimize machine learning pipelines
- Implement responsible AI principles

04

Deploying and Retraining a Model

TOPICS

- Deploy machine learning models to production environments
- Implement continuous integration and continuous delivery (CI/CD) for machine learning solutions
- Monitor and manage deployed machine learning models
- Retrain and update machine learning models
- Troubleshoot and debug deployed machine learning models

05

Introduction to MLOps

TOPICS

What is MLOps? · The benefits of MLOps · Key MLOps concepts

06

Introduction to Azure DevOps & GitHub

TOPICS

- **Introduction to CI/CD tools:** Azure DevOps & GitHub
- Azure Boards
- Azure Repos & GitHub
- Azure Pipeline (Build & Release) and GitHub Actions
- Introduction to Infrastructure as a Code (IaaC) in Azure Pipeline
- Azure Artifacts

07

Setting up Your MLOps Environment

TOPICS

Creating an Azure Machine Learning workspace · Connecting to your workspace · Setting up a Git repository

08

Automating Your ML Workflow with GitHub Actions

TOPICS

Creating a GitHub Actions workflow · Triggering your workflow · Monitoring your workflow

09

Protecting Your Main Branch

TOPICS

Creating a branch protection rule · Using branch policies · Enabling required reviews

10

Automating Code Checks

TOPICS

Setting up continuous integration (CI) · Running code checks · Configuring code coverage

11

Training, Testing, and Deploying Models

TOPICS

Creating and managing environments · Training and testing models · Deploying models to Azure

12

Automating Model Deployment

TOPICS

Creating a deployment workflow · Testing your deployment · Monitoring your deployment

13

Project Deployment Using Azure MLOps (V2) Accelerator Solutions

TOPICS

- Introduction and Structure of Accelerator Solutions

SUPPORTED MACHINE LEARNING PATTERNS

- Azure Machine Learning Classical ML Architecture
- Azure Machine Learning Computer Vision Architecture
- Azure Machine Learning NLP Architecture

DEPLOYMENT OF ML SOLUTION USING

- Azure DevOps
- GitHub

NOTES

- GitHub Labs - DP-100 (Module 01 - Module 04): https://github.com/MicrosoftLearning/mslearn-azure-ml
- GitHub Labs - MLOps Labs (Module 05 - Module 11): https://microsoftlearning.github.io/mslearn-mlops/
- GitHub Labs - MLOps (V2) Project (Module 12): https://github.com/Azure/mlops-v2

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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