

KOENIG SOLUTIONS • COURSE OUTLINE

Azure Kubernetes Service (AKS)

Learn to deploy, secure and scale containerised applications on Azure Kubernetes Service, from cluster setup to networking.

5 Days

40 HOURS

11

MODULES

30

TOPICS

26

HANDS-ON LABS

COURSE OVERVIEW

The Azure Kubernetes Service (AKS) course is designed to educate learners on deploying, managing, and scaling containerized applications using Kubernetes on Azure. It begins with Module 1: Core Concepts, where students gain foundational knowledge about container orchestration, Kubernetes, and its architecture. As the course progresses, learners will delve into Module 2: Create Azure AKS Cluster, learning how to set up an Azure managed Kubernetes environment and explore it using Kubectl and the Azure CLI. Throughout the course, participants will also learn to manage resources, schedule workloads, understand Application lifecycle management, and configure environment variables. Module 7: Storage teaches about Persistent storage using Azure Disks, a crucial aspect of stateful applications. Security in Module 8 covers Active Directory integration for AKS, a key component for Azure DevOps Kubernetes deployment strategies. Advanced topics include Autoscaling in Module 9, Logging and monitoring in Module 10, and networking in Kubernetes in Module 11. By the end of the course, learners will be well-versed in leveraging AKS for robust, efficient, and secure Kubernetes deployments in the Azure cloud.

Who Should Attend

The Azure Kubernetes Service (AKS) course offers in-depth training on managing containerized applications with Kubernetes on Azure.

DevOps Engineers

Cloud Solutions Architects

IT Professionals with a focus on Azure environments

Software Developers interested in deploying applications on AKS

System Administrators looking to manage containerized infrastructures

Kubernetes Administrators aiming to integrate with Azure services

Technical Team Leads overseeing deployment strategies

Infrastructure Engineers transitioning to cloud-native solutions

Security Professionals responsible for cloud security

Network Engineers involved in Kubernetes networking solutions

IT Project Managers overseeing cloud-based projects

Technical Support Staff specializing in Azure ecosystems

IT Students and enthusiasts seeking knowledge in container orchestration

LEARNING OBJECTIVES

- Explain container orchestration and Kubernetes architecture
- Create and explore an AKS cluster using Kubectl and Azure CLI
- Manage pods, replication controllers, replica sets and services
- Apply manual scheduling, taints, tolerations and node affinity
- Configure deployment strategies such as blue/green and canary
- Implement persistent storage with Azure Disks and storage classes
- Configure Active Directory authentication and role-based access control
- Configure Kubernetes networking, ingress and namespaces

11 Modules, 30 Topics

01

Core Concepts

TOPICS

Overview of Container Orchestration · Introduction to Kubernetes · Understanding Kubernetes Architecture

02

3 Labs

Installation, Configuration & Validation

TOPICS

Introduction to Azure AKS Cluster

03

4 Labs

Managing Resources

TOPICS

- Understanding Pods, Labels & Selectors
- Understanding Replication Controller & Replica Set
- Understanding Services - ClusterIP, NodePort & LoadBalancer

04

2 Labs

Scheduling

TOPICS

Manual Scheduling of Pods · Taint and Tolerations

05

2 Labs

Application Lifecycle Management

TOPICS

Overview of Deployment · Deployment Strategies - Blue/Green & Canary

06

2 Labs

Environment Variable

TOPICS

Plain Key · Config Map · Secret

07

2 Labs

Storage

TOPICS

Understanding Volume Management in AKS · Types of Volumes Provisioning · Persistent Volumes · Persistent Volume Claim · Understanding Storage Class

08

4 Labs

Security

TOPICS

- Introduction to Active Directory Authentication for AKS admins
- Understanding Role, ClusterRole, RoleBinding & ClusterRoleBinding

09

2 Labs

Autoscaling

TOPICS

Introduction to Cluster Autoscaler · Introduction to Horizontal Pod Autoscaler

10

2 Labs

Logging and Monitoring

TOPICS

- Understand how to Monitor Application and Cluster Components

11

3 Labs

Networking in Kubernetes

TOPICS

Understand Basics of Kubernetes Networking · Understand CNI · Understand Pod Networking Concepts · Understanding DNS of K8s · Understanding Ingress · Understanding Namespace & Use-Cases

HANDS-ON LABS

Practise What You Learn

#	MODULE	ACTIVITY
02	Installation, Configuration & Validation	■ Create AKS Cluster ■ Explore AKS Cluster using Kubectl ■ Setup Azure CLI on Local Desktop
03	Managing Resources	■ Managing Pods ■ Managing Labels & Selector ■ Deploying Replication Controller & Replica Set ■ Creating & Managing Service
04	Scheduling	■ Using Manual Scheduling or Taints and Tolerations ■ Node Selector and Node Affinity
05	Application Lifecycle Management	■ Deploying Applications as Deployment ■ Implementing Deployment Strategies on Deployments
06	Environment Variable	■ Using Plain Keys, Config Map & Generic Secret as Environment Variables ■ Mount Environment Variable as Volumes

#	MODULE	ACTIVITY
07	Storage	■ Using PV & PVC to attach Persistent Volume to a Pod using Azure Disk ■ Use AKS Provisioned Storage Class instead of Custom Storage Class
08	Security	■ Create AD Group and User and Enable AD for AKS ■ Access Azure AKS Cluster Resources using Azure AD User ■ Managing Roles and Role Binding ■ Managing Cluster Role and Cluster Role Binding
09	Autoscaling	■ Create AKS Cluster with Autoscaling enabled using Azure AKS ■ Create Horizontal Pod Autoscaler
10	Logging and Monitoring	■ Understand how to Read Application & Cluster Component Logs ■ Deploying Prometheus & Grafana to Monitor K8s Cluster
11	Networking in Kubernetes	■ Configure and Manage Ingress Rule ■ Creating Namespace & Deploying K8s resources in Different Namespaces ■ Load Balancer Service

WHAT IS INCLUDED

Everything You Need to Succeed

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

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