

KOENIG SOLUTIONS · COURSE OUTLINE

AKS for Beginners and Advanced

Learn to design, deploy, secure and manage Kubernetes clusters on Azure Kubernetes Service, from core concepts to networking and disaster recovery.

6 Days

8 HOURS A DAY

14

MODULES

33

TOPICS

28

HANDS-ON LABS

COURSE OVERVIEW

This comprehensive Azure Kubernetes Service course, covering container orchestration, cluster design, installation, resource and application management, security, networking, maintenance, logging, and monitoring on Azure, is designed to equip learners with the skills needed to successfully clear the Certified Kubernetes Administrator exam.

WHO THIS COURSE IS FOR

Kubernetes Administrators

Cloud Engineers

DevOps Engineers

System Administrators

Infrastructure Architects

PREREQUISITES

- Basic knowledge of Linux
- Basic knowledge of Containers

TOOLS AND REQUIREMENTS

- Kubernetes Version: Latest
- Lab Requirement: Customer Azure Account Required

LEARNING OBJECTIVES

- Explain container orchestration and Kubernetes architecture
- Configure and validate an AKS cluster using Azure CLI
- Manage pods, replica sets and services in AKS
- Implement deployment strategies such as blue/green and canary
- Configure environment variables using config maps and secrets
- Manage persistent volumes, volume claims and storage classes
- Apply role-based access control and Azure AD authentication
- Configure autoscaling, networking, ingress and monitoring in AKS

14 Modules, 33 Topics

01

Core Concepts

TOPICS

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

02

Installation, Configuration & Validation

TOPICS

Introduction to Azure AKS Cluster

2 Labs

03

Managing Resources

TOPICS

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

4 Labs

04

Application Lifecycle Management

TOPICS

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

2 Labs

05

Environment Variable

TOPICS

Plain Key · Config Map · Secret

Lab

06

Storage

TOPICS

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

2 Labs

07

Security

TOPICS

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

4 Labs

08**2 Labs**

Autoscaling

TOPICS

Introduction to Cluster Autoscaler · Introduction to Horizontal Pod Autoscaler

09**2 Labs**

Logging and Monitoring

TOPICS

- Understand how to Monitor Application and Cluster Components

10**3 Labs**

Networking

TOPICS

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

11**Lab**

High Availability in AKS

TOPICS

- Free and Standard tiers for AKS cluster management
- Use Azure Front Door to route traffic between multiple AKS clusters

12**Lab**

Deploy to AKS Using Azure DevOps

TOPICS

- **Initial setup:** Create a project, a service connection, add files, create ACR+AKS

13**2 Labs**

AKS Access and Identify

TOPICS

AKS Authorization and Authentication · Admin vs User
- Security concerns

14**2 Labs**

Disaster Recovery

TOPICS

Introduction to Velero

Practise What You Learn

#	MODULE	ACTIVITY
02	Installation, Configuration & Validation	- Create AKS Cluster - Setup Azure CLI on Local Desktop
03	Managing Resources	- Managing Pods - Managing Labels & Selector - Deploying Replica Set - Creating & Managing Service
04	Application Lifecycle Management	- Deploying Applications as Deployment - Implementing Deployment Strategies on Deployments
05	Environment Variable	Using Plain Keys, Config Map & Generic Secret as Environment Variables
06	Storage	- Using PV & PVC to attach Persistent Volume to a Pod using Azure Disk - Use AKS Provisioned Storage Class instead of Custom Storage Class
07	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
08	Autoscaling	- Create AKS Cluster with Autoscaling enabled using Azure AKS - Create Horizontal Pod Autoscaler
09	Logging and Monitoring	- Understand how to Read Application & Cluster Component Logs - Deploying Prometheus & Grafana to Monitor K8s Cluster
10	Networking	- Configure and Manage Ingress Rule - Creating Namespace & Deploying K8s resources in Different Namespaces - Load Balancer Service
11	High Availability in AKS	Availability Zones in AKS
12	Deploy to AKS Using Azure DevOps	Use a preconfigured Pipeline to build/push to ACR and deploy to AKS
13	AKS Access and Identify	- Generate kubeconfig for admins - Generate kubeconfig for users
14	Disaster Recovery	- Creating AKS cluster backup using Velero - Restore an AKS cluster from backup

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)

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