



Information Technology

Kubernetes Administration - The Complete Guide

Course Introduction

Kubernetes Administration - The Complete Guide

Welcome to "Kubernetes Administration - The Complete Guide," a five-day course designed to equip professionals with the skills needed to manage and administer Kubernetes clusters effectively. As Kubernetes adoption grows, organizations require skilled administrators who can ensure the stability, scalability, and security of their clusters. This course covers essential topics such as cluster setup, resource management, security, and troubleshooting, enabling you to become a proficient Kubernetes administrator.

Through hands-on labs and real-world scenarios, you will gain practical experience managing Kubernetes clusters, from initial setup to advanced administration tasks. You will explore key topics such as node management, resource allocation, and disaster recovery, ensuring that you are well-prepared to handle real-world challenges. Additionally, the course emphasizes best practices for designing scalable, resilient, and secure Kubernetes environments, making it ideal for both beginners and experienced practitioners.

By the end of this course, you will have the skills and confidence to manage Kubernetes clusters effectively, ensuring the smooth operation of your organization's cloud-native applications. Whether you are a system administrator, DevOps engineer, or cloud architect, this course equips you with the expertise needed to excel in Kubernetes-based projects and drive innovation within your team.

Target Audience

This course is ideal for system administrators, DevOps engineers, and cloud architects involved in Kubernetes-based projects. It is particularly beneficial for professionals preparing for Kubernetes administration roles or those looking to deepen their Kubernetes expertise.

Learning Objectives

- Understand Kubernetes cluster architecture and components.
- Set up and manage Kubernetes clusters.
- Allocate and manage cluster resources effectively.
- Secure Kubernetes clusters using RBAC and network policies.
- Troubleshoot common Kubernetes issues.

Course Outline

- **Day 01**

Foundations of Kubernetes Administration

Introduction to Kubernetes Administration

- Definition and importance of Kubernetes in cloud-native development.
- Key components: Nodes, Clusters, and Control Plane.

Setting Up Kubernetes Clusters

- Installing Kubernetes using kubeadm.
- Exploring managed Kubernetes services (GKE, EKS, AKS).

Interactive Session

- Hands-on exercise: Set up a Kubernetes cluster.

- **Day 02**

Resource Management

Allocating Resources

- Configuring CPU and memory limits for pods.
- Managing namespaces and quotas.

Node Management

- Adding and removing nodes from a cluster.
- Monitoring node health and performance.

Practical Exercise

- Allocate resources and manage nodes in a Kubernetes cluster.

• Day 03

Networking and Storage

Kubernetes Networking

- Configuring pod-to-pod communication.
- Setting up Ingress controllers and load balancers.

Persistent Storage

- Configuring PersistentVolumes (PVs) and PersistentVolumeClaims (PVCs).
- Using storage classes for dynamic provisioning.

Role Play

- Set up an Ingress controller and configure persistent storage.

• Day 04

Security and Monitoring

Securing Kubernetes Clusters

- Implementing Role-Based Access Control (RBAC).
- Securing pods with security contexts and network policies.

Monitoring and Logging

- Using tools like Prometheus and Grafana for monitoring.
- Centralized logging with Fluentd and Elasticsearch.

Group Activity

- Secure a Kubernetes cluster and configure RBAC policies.

• Day 05

Advanced Topics and Best Practices

Disaster Recovery

- Backing up and restoring Kubernetes clusters.
- Handling node failures and cluster upgrades.

Troubleshooting

- Debugging pods, nodes, and services.
- Common Kubernetes errors and resolutions.

- Closing Remarks

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 19, 2025	May 23, 2025	5 days	4250.00 \$	UAE - Dubai
July 27, 2025	July 31, 2025	5 days	2150.00 \$	Virtual - Online
Nov. 16, 2025	Nov. 20, 2025	5 days	4250.00 \$	KSA - Riyadh