

5 Days

## CKA-Certified Kubernetes Administrator

**Duration: 5 Days [40 hours]**

Certified Kubernetes Administrator online training course is developed for the Kubernetes Administrators who needed learning concepts of developing the Kubernetes ecosystem. Certified Kubernetes Administrator certification course will validate that these professionals have the skills, knowledge, and competency to perform the functions and responsibilities of Kubernetes administrators. The Certified Kubernetes Administrator Certification demonstrates on the skills required to be a recognized Kubernetes Administrator in industry.

## Course Details

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### Course Outline

#### Module 1 – Core Concepts

- Overview of Container Orchestration
- Introduction to Kubernetes
- Kubernetes Architecture

#### Module 2 – Installation, Configuration & Validation

- Design a Kubernetes Cluster
- Installation of Kubernetes Master and Nodes
- Choose a Network Solution
- Verify Installation

#### Module 3 – Managing Resources

- Managing Pods
- Managing Labels & Selector
- Managing Replication Controller & Replica Set
- Managing Service

#### Module 4 – Scheduling

- Manual Scheduling
- Taint and Tolerations
- Node Selector
- Node Affinity
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#### Module 5 – Application Lifecycle Management

- Overview of Deployment
- Deployment Strategies
- Managing Deployment
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#### Module 6 – Environment Variable

- Plain Key

- Config Map
- Secret
- Mount Variable as Volume

#### Module 7 – Storage

- Volumes
- Persistent Volumes
- Persistent Volume Claim

#### Module 8 – Security

- Kubernetes Authentication
- Managing Users in Kubernetes
- Service Account
- Managing Roles and Role Binding
- Managing Cluster Role and Cluster Role Binding
- Security Context

#### Module 9 – Cluster Maintenance

- OS Upgrade
- Upgrade Cluster Version
- Static Pod
- ETCD Backup
- Cron Job

#### Module 10 – Logging and Monitoring

- Understand how to Monitor all Cluster Components
- Understand how to Monitor Applications
- Manage Cluster Components Logs
- Manage Application Logs
- Prometheus Tool

#### Module 11 – Networking in Kubernetes

- Kubernetes Networking
- Understand CNI
- Understand Pod Networking Concepts
- Configure DNS
- Configure and Manage Ingress Rule
- Namespace
- Metal Load Balancer

#### Module 12 – Troubleshooting

- Troubleshoot ETCD Failure
- Troubleshoot Kubelet Failure
- Troubleshoot Container Runtime Failure
- Troubleshoot Scheduler Failure

#### Module 13 – High Availability Cluster

- Multi-Master Setup

## Pre Requisite

- Linux Introduction and Docker administration training or
- Working experience on Linux and container Technology.

Date - May 02, 2025