

# Kubernetes Cluster Administration



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# Course Details

- ✓ Duration -
- ✓ Format -
- ✓ Training Type – Classroom Training

## Kubernetes Cluster Administration

Gain hands-on expertise in deploying and managing containerized applications using Kubernetes (K8s).  
Learn to build, scale, and secure production-grade clusters.

### Kubernetes Cluster Administration

#### MODULE 1: INTRODUCTION TO KUBERNETES & CONTAINERIZATION

- What is Kubernetes & Why Use It?
- Kubernetes Architecture: Master, Nodes, Pods.
- Core Concepts: Containers, Docker, K8s CLI.
- Setup Using Minikube / KIND / kubeadm.





## MODULE 2: PODS, DEPLOYMENTS & SERVICES

- Creating and Managing Pods.
- ReplicaSets and Deployments.
- Rolling Updates and Rollbacks.
- ClusterIP, NodePort, LoadBalancer Services.



## MODULE 3: CONFIGMAPS, SECRETS & ENV VARS

- Application Configuration Management .
- Using ConfigMaps & Secrets Securely.
- Injecting Environment Variables into Containers.

## MODULE 4: NETWORKING & STORAGE IN K8s

- Kubernetes Networking Model.
- CNI Plugins (Flannel, Calico).
- Persistent Volumes (PV), Persistent Volume Claims (PVC).
- Storage Classes and Dynamic Provisioning.



## MODULE 5: ACCESS CONTROL & SECURITY

- RBAC (Role-Based Access Control).
- Service Accounts & Namespaces.
- Network Policies & Pod Security Policies.
- TLS, Certificates, and Secrets Management.



## MODULE 6: MONITORING, LOGGING & SCALING

- Autoscaling with HPA .
- Monitoring with Prometheus & Grafana.
- Logging with Fluentd / ELK.
- Health Checks: Liveness & Readiness Probes.

## MODULE 7: PROJECT WORK & CERTIFICATION PREP

- Real-World Deployment Simulation.
- Application Migration to K8s.
- Final Cluster Assessment.
- Interview Practice & CKA (Certified Kubernetes)





**NEED MORE DETAILS ? :  
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