

Kubernetes Foundations

Course Modules

1 Introduction to Containers

- What and Why Containers
- Building images
- Running containers
- Debugging containers
- Registry and image management

2 Kubernetes Fundamentals

- Why Kubernetes?
- YAML
- Pods
- Services
- Deployments

3 Kubernetes Architecture & Troubleshooting

- Cluster architecture
- Cluster components
- Namespaces
- Debugging 101

4 Deployment Management

- Application deployment strategies
- Controlling active deployments

5 Pod and Container Configurations

- Resource requests, limits, and quotas
- Probes

6 Kubernetes Networking

- Pod networking
- Services deep dive
- Ingress controllers

7 Kubectl and Resource Organization

- kubeconfig
- Namespaces deep dive
- Labels
- Node/Pod affinity
- Taints/Tolerations

8 Stateful Applications

- Persistent storage
- StatefulSets

9 Dynamic Application Configuration

- Docker dynamic configuration
- ConfigMaps
- Secrets

10 Additional Workloads

- Jobs
- CronJobs
- DaemonSets

11 Security

- Service accounts
- Role-Based access control
- Network policies
- SecurityContext