O&B ACADEMY

COURSE SYLLABUS

DEVOPS-201A

Professional Kubernetes for Developers

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Professional Kubernetes for Developers

OVERVIEW

Skill Level	:	Intermediate
Suitable for	:	Experienced developers who want to design, develop, build, and deploy applications on Kubernetes
Duration	:	4 Days

In this course, students will learn how to design, develop, build, and deploy their applications in a manner that is resilient and highly scalable when run on top of Kubernetes.

Throughout the course, students will also learn patterns and tools within the Kubernetes ecosystem.

PREREQUISITES

- DEVOPS-101 — Docker & Kubernetes Fundamentals
- DEVOPS-102 — Linux Fundamentals
- DEVOPS-103 — Git Fundamentals

Recommended:

JAVA-302 — Enterprise Microservices with Istio

LEARNING OUTCOMES

- Learn how to set up and manage a Kubernetes cluster, including networking, storage, and security configurations, which is crucial for both developers when designing applications and administrators when managing the infrastructure.

- Understand how to integrate Kubernetes into a DevOps workflow, including continuous integration and continuous deployment (CI/CD) practices with tools like Jenkins, GitLab CI, or GitHub Actions.

COURSE OUTLINE

Cloud Native Architecture

- Microservices Architecture
- The Twelve-Factor Application

Docker and Kubernetes Recap

- Docker and Kubernetes Recap (from DEVOPS-101)

Continuous Integration and Continuous Deployment

- Authoring, Deploying and Publishing Helm Charts
- GitOps and ArgoCD
- GitLab DevOps
- Private Registries

Deployment Patterns

- Sidecar Containers
- CRDs and Operator Pattern

Networking, Operations, Monitoring and Observability

- Exposing Metrics
- Inspecting Application Logs
- Consuming Metrics with Prometheus
- Visualizing Metrics with Grafana
- OpenTracing with Jaeger

Kubernetes Ecosystem

- Cloud Native Computing Foundation (CNCF)
- Differences: AWS EKS vs GCP GKE vs Azure AKS vs Tanzu?
- Tanzu Application Platform (TAP)
- Visualization Tools
- Custom Ingress Controllers

Microservices and Service Mesh

- Microservices Recap
- Deploying Microservices on Kubernetes
- Istio Gateway and Service Mesh

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Engineering for the Real World

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