

Cloud-Native DevOps & Monitoring (3 Months)

Duration: 3 Months (~120 Hours)

Mode: Live Online / Classroom

Tools & Technologies: Kubernetes, Prometheus, Grafana, ELK/EFK Stack, AWS CloudWatch, Terraform

Certifications Prepared: Certified Kubernetes Administrator (CKA) / CKAD, AWS Certified DevOps Engineer – Professional

Syllabus

Week 1: Kubernetes Advanced Topics

- Namespaces, DaemonSets, StatefulSets
- Resource requests and limits
- Hands-on: Manage stateful applications in Kubernetes
- Assignment

Week 2: Helm Package Manager

- Helm charts, repositories
- Creating custom Helm charts
- Hands-on: Deploy apps with Helm
- Assignment

Week 3: Observability Basics

- Introduction to monitoring and observability
- Cloud-native monitoring concepts
- Hands-on: Monitor app metrics
- Assignment

Week 4: Prometheus & Grafana

- Prometheus architecture and metrics scraping
- Setting up Grafana dashboards
- Hands-on: Visualize metrics with Grafana
- Assignment
- Mock Interview 1

Week 5: Logging with ELK/EFK

- Elasticsearch, Fluentd/FluentBit, Kibana
- Centralized log management
- Hands-on: Setup EFK stack for Kubernetes logs
- Assignment

Week 6: Cloud Monitoring Tools

- AWS CloudWatch basics
- Integration with Prometheus and Grafana
- Hands-on: Monitor Kubernetes cluster with CloudWatch
- Assignment

Week 7: Security in DevOps

- DevSecOps concepts
- Image scanning and vulnerability management
- Hands-on: Implement security checks in CI/CD pipeline
- Assignment

Week 8: Capstone Project & Interview Prep

- Project: Cloud-native deployment with monitoring and logging
- Assignment
- Mock Interview 2

Learning Outcomes

- Leverage Kubernetes for large-scale cloud-native deployments
- Implement monitoring solutions with Prometheus and Grafana
- Use ELK/EFK stack for centralized logging
- Enhance security and observability in DevOps pipelines
- Prepare for CKA/CKAD and AWS Certified DevOps Engineer – Professional