

Google Cloud Administration – Advanced / DevOps (3 Months)

Duration: 3 Months (~120 Hours)

Mode: Live Online / Classroom

Tools & Technologies: Cloud Build, Cloud Source Repositories, Cloud Deploy, Cloud Functions, Cloud Run, GKE, Anthos, Terraform on GCP, Cloud Monitoring

Certifications Prepared: Google Professional Cloud Architect, Google Professional DevOps Engineer

Syllabus

Week 1: Infrastructure as Code (IaC)

- Deployment Manager basics
- Terraform on GCP: providers, state, modules
- Hands-on: Deploy VPC + VM using Terraform
- Assignment

Week 2: CI/CD with Google Cloud Build

- Cloud Source Repositories overview
- Cloud Build triggers, build steps
- Artifact Registry for container images
- Hands-on: CI pipeline for Node.js app
- Assignment

Week 3: Deployment Strategies

- Cloud Deploy pipelines
- Blue-Green, Rolling, Canary deployments
- Cloud Run deployment options
- Hands-on: Deploy containerized app with Cloud Deploy
- Assignment

Week 4: Kubernetes with GKE

- GKE cluster setup (zonal vs regional)
- Workload management (Deployments, Services)
- Scaling & autoscaling in GKE
- Hands-on: Deploy microservices in GKE with autoscaling
- Assignment
- Mock Interview 1

Week 5: Serverless Computing

- Cloud Functions: triggers, event-driven apps
- Cloud Run for containers (serverless containers)
- Pub/Sub for event distribution
- Hands-on: Event-driven workflow with Pub/Sub + Functions
- Assignment

Week 6: Monitoring & Security

- Cloud Monitoring deep dive
- Cloud Logging with log-based metrics
- Identity-Aware Proxy (IAP)
- Hands-on: Monitor GKE app with Cloud Monitoring
- Assignment

Week 7: Governance & Cost Management

- Budgets & Billing alerts
- Resource hierarchy policies
- Security Command Center basics
- Hands-on: Configure budget alerting
- Assignment

Week 8: Capstone Project & Interview Prep

- Project: CI/CD pipeline for GKE-based microservices app
- Assignment
- Mock Interview 2

Learning Outcomes

- Build CI/CD pipelines using Cloud Build, Cloud Deploy, and Artifact Registry
- Automate infrastructure provisioning with Terraform and Deployment Manager
- Deploy and manage microservices using Kubernetes Engine (GKE)
- Leverage serverless solutions with Cloud Functions and Cloud Run
- Prepare for Professional Cloud Architect and Professional DevOps Engineer exams