

Cloud DevOps Engineer

Course Outline

Module 1: Google Cloud Fundamentals: Core Infrastructure

Topics Covered:

- Introducing Google Cloud
- Resources and Access in the Cloud
- Virtual Machines and Networks in the Cloud
- Storage in the Cloud
- Containers in the Cloud
- Applications in the Cloud
- Developing and Deploying in the Cloud
- Logging and Monitoring in the Cloud

Hands-On Labs:

- Cloud Storage: Qwik Start - Cloud Console
- Cloud Storage: Qwik Start - CLI/SDK
- Cloud IAM: Qwik Start
- Cloud Monitoring: Qwik Start
- Cloud Functions: Qwik Start - Console
- Cloud Functions: Qwik Start - Command Line
- Google Cloud Pub/Sub: Qwik Start - Console
- Google Cloud Pub/Sub: Qwik Start - Command Line
- Google Cloud Pub/Sub: Qwik Start – Python

Module 2: Developing a Google SRE Culture

Topics Covered:

- DevOps, SRE, and Why They Exist
- SLOs with Consequences
- Make Tomorrow Better than Today
- Regulate Workload
- Apply SRE in Your Organization

Module 3: Reliable Google Cloud Infrastructure: Design and Process

Topics Covered:

- Defining Services
- Microservice Design and Architecture
- DevOps Automation
- Choosing Storage Solutions
- Google Cloud and Hybrid Network Architecture
- Deploying Applications to Google Cloud
- Designing Reliable Systems
- Security
- Maintenance and Monitoring

Hands-On Labs:

- Cloud Source Repositories: Qwik Start
- Managing Deployments Using Kubernetes Engine

- Troubleshooting Workloads on GKE for Site Reliability Engineers
- Continuous Delivery with Jenkins in Kubernetes Engine
- Identifying and Resolving Application Latency for Site Reliability Engineers
- Debugging Applications for Site Reliability Engineers
- Using Cloud Error Reporting to Remediate Workload Issues on GKE

Module 4: Logging, Monitoring and Observability in Google Cloud

Topics Covered:

- Introduction to Monitoring in Google Cloud
- Avoiding Customer Pain
- Alerting Policies
- Monitoring Critical Systems
- Configuring Google Cloud Services for Observability
- Advanced Logging and Analysis
- Monitoring Network Security and Audit Logs
- Managing Incidents
- Investigating Application Performance Issues
- Optimizing the Costs of Monitoring

Hands-On Labs:

- Cloud Monitoring: Qwik Start
- Monitoring Multiple Projects with Cloud Monitoring
- Monitoring and Logging for Cloud Functions
- Reporting Application Metrics into Cloud Monitoring
- Creating and Alerting on Logs-based Metrics
- Autoscaling an Instance Group with Custom Cloud Monitoring Metrics

Module 5: Getting Started with Terraform for Google Cloud

Topics Covered:

- Introduction to Terraform for Google Cloud
- Terms and Concepts
- Writing Infrastructure Code for Google Cloud
- Organizing and Reusing Configuration with Terraform Modules
- Introduction to Terraform State

Hands-On Labs:

- Terraform Fundamentals
- Infrastructure as Code with Terraform
- Interact with Terraform Modules
- Managing Terraform State
- Deploy Kubernetes Load Balancer Service with Terraform