

# Cloud Engineer

## Content

### **Module 1: Preparing for Your Associate Cloud Engineer Journey**

- Introduction
  - Setting Up a Cloud Solution Environment
  - Planning and Configuring a Cloud Solution
  - Deploying and Implementing a Cloud Solution
  - Ensuring Successful Operation of a Cloud Solution
  - Configuring Access and Security
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### **Module 2: Google Cloud Fundamentals: Core Infrastructure Theory**

- 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**

- A Tour of Google Cloud Hands-on Labs
  - Compute Engine: Qwik Start - Windows
  - Getting Started with Cloud Shell and gcloud
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### **Module 3: Essential Google Cloud Infrastructure: Foundation Theory**

- Interacting with Google Cloud
- Virtual Networks
- Virtual Machines

#### **Hands-On**

- Creating a Virtual Machine
  - Set Up Network and HTTP Load Balancers
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## **Module 4: Essential Google Cloud Infrastructure: Core Services Theory**

- Introduction
- Identity and Access Management (IAM)
- Storage and Database Services
- Resource Management
- Resource Monitoring

### **Hands-On**

- Cloud Storage: Qwik Start - Cloud Console
  - Cloud Storage: Qwik Start - CLI/SDK
  - Cloud IAM: Qwik Start
  - Cloud Monitoring: Qwik Start
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## **Module 5: Elastic Google Cloud Infrastructure: Scaling and Automation Theory**

- Introduction
- Interconnecting Networks
- Load Balancing and Autoscaling
- Infrastructure Automation
- Managed Services

### **Hands-On**

- Multiple VPC Networks
  - Introduction to SQL for BigQuery and Cloud SQL
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## **Module 6: Reliable Google Cloud Infrastructure: Design and Process Theory**

- Introduction
- 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**

- Cloud Functions: Qwik Start - Console
  - Google Cloud Pub/Sub: Qwik Start - Console
  - Google Cloud Pub/Sub: Qwik Start - Command Line
  - Deployment Manager - Full Production [ACE]
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## **Module 7: Getting Started with Google Kubernetes Engine Theory**

- Introduction to Google Cloud
- Introduction to Containers and Kubernetes
- Kubernetes Architecture
- Introduction to Kubernetes Workloads

### **Hands-On**

- Kubernetes Engine: Qwik Start
  - Managing Deployments Using Kubernetes Engine
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## **Module 8: Getting Started with Terraform for Google Cloud Theory**

- 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**

- Terraform Fundamentals
- Infrastructure as Code with Terraform
- Interact with Terraform Modules
- Managing Terraform State