

## **Site Reliability Engineering and Devops**

### **Objective:**

Many IT organizations experience a disconnect between developers, who focus on agility, and operators, who focus on stability. Site Reliability Engineering (SRE) is how Google bridges the gap between development and operations while also providing mission-critical production support. In this course, you'll learn the fundamentals and best practices of SRE, the importance of adopting an SRE culture, and how SRE can improve collaboration between IT and business leaders—and help the entire organization succeed.

### **What students will learn:**

- Why SRE is important to the success of an organization's IT transformation project
- The relationship between DevOps and SRE
- The pillars of DevOps
- How SRE practices align to DevOps pillars
- The value SRE can provide to an organization
- The technical and cultural fundamentals of SRE
- Where SRE can be applied within IT operations
- The skills an SRE needs
- The different types of SRE team implementations

### **Course Content:**

#### **Module 1: Developing A Google SRE**

- Welcome to Developing a Google SRE Culture
- Devops, SRE why they exist
- SLOs with Consequences
- Make Tomorrow Better than Today
- Regulate Workload
- Apply SRE in Your Organization

#### **Module 2 : Google Cloud Infrastructure: Design and Process**

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

### **Module 3: Architecting With Google Kubernetes Engine**

- Introduction to Containers and Kubernetes
- Kubernetes Architecture
- Kubernetes Operations
- Deployments and Jobs
- Google Kubernetes Engine (GKE) Networking
- Persistent Data and Storage
- Access Control and Security in Kubernetes and GKE
- GKE Logging and Monitoring
- Using GCP Managed Storage Services with GKE

### **Module 4: Logging Monitoring and Observability in Google Cloud**

- Introduction to Google Cloud Operations Suite
- Monitoring Critical Systems
- Alerting Policies
- Advanced Logging and Analysis
- Working with Cloud Audit Logs
- Configuring Google
- Cloud Services for Observability
- Monitoring Google Cloud Network
- Investigating Application Performance Issues

### **Module 5: Getting started with Terraform for Google Cloud**

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