Google Cloud Engineer Course

Course Duration: 40 Hours **Course code: GCE**

1. Course Overview

During this five-day course, you will learn how to design, deploy, and manage scalable and secure applications on Google Cloud Platform (GCP). This course focuses on core infrastructure, networking, compute services, storage solutions, identity management, and monitoring. You will gain hands-on experience in configuring cloud environments, managing resources, and implementing best practices for cloud operations.

2. What you'll learn?

By the end of the course, you will be able to:

- Understand Google Cloud core services and architecture
- Deploy and manage virtual machines using Compute Engine
- Configure storage solutions including Cloud Storage and Persistent Disks
- Design and manage Virtual Private Cloud (VPC) networks
- Implement Identity and Access Management (IAM)
- Deploy and manage containerized applications using GKE
- Monitor, log, and troubleshoot cloud resources
- Automate deployments using Infrastructure as Code (IaC) tools
- Ensure security and compliance in GCP environments

3. Target Audience

This course is ideal for:

- Cloud engineers and administrators
- System administrators and network engineers
- DevOps professionals
- IT professionals transitioning to cloud

- Developers working with cloud infrastructure

4. Pre-Requisites

Before taking this course, you should have:

- Basic understanding of cloud computing concepts
- Familiarity with networking fundamentals
- Basic Linux command-line knowledge
- Understanding of virtualization concepts (recommended)

5. Course content

Module 1: Course Introduction

- Course overview and objectives
- Google Cloud certification path
- Role of a Google Cloud Engineer

Module 2: Introduction to Google Cloud Platform

- Overview of GCP services
- GCP regions and zones
- Resource hierarchy (Organization, Folder, Project)
- Google Cloud Console, CLI, and SDK

Module 3: Identity and Access Management (IAM)

- Understanding IAM roles and policies
- Service accounts and authentication
- Best practices for access control
- Organization policies

Module 4: Compute Engine

- Introduction to virtual machines
- Creating and managing VM instances

- Machine types and custom configurations
- Instance groups and autoscaling
- Preemptible VMs

Module 5: Storage Services

- Cloud Storage (Buckets, Objects, Classes)
- Persistent Disks and Snapshots
- Filestore
- Data lifecycle management

Module 6: Virtual Private Cloud (VPC)

- VPC networks and subnets
- IP addressing and routes
- Firewall rules and tags
- Shared VPC and peering

Module 7: Load Balancing and Networking Services

- Types of load balancers
- HTTP(S), TCP/UDP load balancing
- Cloud DNS
- Cloud CDN

Module 8: Google Kubernetes Engine (GKE)

- Introduction to containers and Kubernetes
- Creating and managing clusters
- Deploying applications on GKE
- Scaling and updates

Module 9: App Engine and Cloud Run

- Platform as a Service (PaaS) concepts

- Deploying applications on App Engine
- Using Cloud Run for serverless containers
- Versioning and traffic splitting

Module 10: Monitoring, Logging, and Operations

- Cloud Monitoring
- Cloud Logging
- Alerts and dashboards
- Troubleshooting issues

Module 11: Security and Compliance

- Security best practices
- Encryption and key management
- Cloud Armor and firewall security
- Identity-aware proxy

Module 12: Automation and Infrastructure as Code

- Introduction to Terraform
- Deployment Manager
- Automating infrastructure
- CI/CD pipelines

Module 13: Cost Management and Optimization

- Pricing models in GCP
- Billing and budgets
- Cost optimization techniques
- Resource management

Module 14: High Availability and Disaster Recovery

- Designing resilient systems

- Multi-region deployments
- Backup strategies
- Failover mechanisms

Module 15: Final Project and Certification Preparation

- Real-world project implementation
- Practice scenarios
- Certification exam tips
- Final assessment and Q&A