

## Google Cloud Administration – Basics (3 Months)

**Duration:** 3 Months (~120 Hours)

**Mode:** Live Online / Classroom

**Tools & Technologies:** Google Cloud Console, Cloud SDK (gcloud CLI), IAM, VPC, Compute Engine, Cloud Storage, Stackdriver, Cloud SQL

**Certifications Prepared:** Google Cloud Digital Leader, Google Associate Cloud Engineer

## Syllabus

### Week 1: Introduction to Google Cloud

- Cloud computing models (IaaS, PaaS, SaaS), Shared Responsibility Model
- Google Cloud global infrastructure (Regions, Zones, Edge Locations)
- Navigating Cloud Console & Cloud SDK (gcloud CLI, gsutil)
- Resource Hierarchy: Organization, Folders, Projects
- Hands-on: Create & manage GCP project using Console + CLI
- Assignment

### Week 2: Identity & Access Management (IAM)

- IAM basics: roles, permissions, service accounts
- Predefined vs custom roles
- IAM policies & hierarchy
- Hands-on: Configure IAM roles for users & service accounts
- Assignment

### Week 3: Networking Fundamentals

- Virtual Private Cloud (VPC): subnets, routes, firewalls
- Shared VPC, VPC Peering
- Cloud NAT, Cloud VPN, Interconnect
- Hands-on: Build secure multi-tier VPC
- Assignment

### Week 4: Compute Services

- Compute Engine (VMs): machine types, images, disks
- Instance Groups & Autoscaling
- Load Balancing (HTTP(S), TCP/UDP, Internal)
- Hands-on: Deploy scalable web app with load balancer
- Assignment

- Mock Interview 1

### **Week 5: Storage Services**

- Cloud Storage: buckets, classes (Standard, Nearline, Coldline, Archive)
- Lifecycle policies & versioning
- Cloud Filestore basics
- Hands-on: Static website hosting in Cloud Storage
- Assignment

### **Week 6: Monitoring & Logging**

- Cloud Monitoring: metrics, dashboards, alerts
- Cloud Logging basics
- Error Reporting & Trace
- Hands-on: Configure monitoring & alerting for VM instance
- Assignment

### **Week 7: Databases**

- Cloud SQL (MySQL, PostgreSQL)
- Cloud Spanner overview
- Cloud Firestore basics (NoSQL)
- Hands-on: Deploy Cloud SQL & connect to web app
- Assignment

### **Week 8: Capstone Project & Interview Prep**

- Project: Deploy 3-tier application (Compute Engine + Cloud Storage + Cloud SQL + Monitoring)
- Assignment
- Mock Interview 2

### **Learning Outcomes**

- Understand Google Cloud core infrastructure services (Compute, Storage, Networking, Databases)
- Manage IAM roles and policies for secure access control
- Deploy VMs, storage, and networking solutions on GCP
- Monitor and optimize workloads with Cloud Monitoring & Logging
- Prepare for Google Cloud Digital Leader and Associate Cloud Engineer exams