

GCP - Google Cloud Platform - Course content

GCP Content designed to clear **Associate Cloud engineer** and **Professional cloud Architect** certification (Check below links for details)

<https://cloud.google.com/certification/cloud-engineer>

<https://cloud.google.com/certification/cloud-architect>

<https://cloud.google.com/certification/cloud-digital-leader>

Trainer Profile

Experience: **15+ years in various IT technologies, Delivered GCP architect training for 500 plus candidates from various training institutes and corporate clients like wipro, Capgemini and multiple startups.**

Core skills:

- ▯ **Cloud Platforms (GCP and AWS) + Devops tools, Jenkins, GIT, Terraform**
- ▯ **Redhat Linux , Windows, Solaris**
- ▯ **Networking,Storage and Monitoring**

Certifications

- ▯ **Professional Cloud Architect (GCP)**
- ▯ **Cloud Digital Leader (GCP)**
- ▯ **Associate solution architect (AWS)**
- ▯ **Redhat Certified Openstack administrator**
- ▯ **Redhat Certified System Administrator (Version 7)**
- ▯ **Redhat Certified Engineer (Version 7)**

Day 1 : Why Cloud? And why GCP? (1 hour)

- What is traditional IT environment and how it works?
- Servers, storage, network in traditional IT
- What is cloud computing?
- Basic architecture of cloud computing
- Difference between traditional IT and Cloud computing
- Advantages of cloud computing
- Deployment Model and service model
- SAAS, PAAS and IAAS
- Private, Public and hybrid Cloud
- Why google cloud? And its exclusive benefits
- GCP locations
- Gartners Magic quadrant and market share

Day 1 : Cloud computing and Basic concepts (1 hour)

- Different cloud providers
- Regions and zones
- GCP interfaces
- **Google cloud shell overview (LAB)**
- How to create GCP account
- **GCP console overview and navigations (LAB)**
- Organizations, folders, project and resources
- **Setting up Billing and alerts (LAB)**

Day 2 : IAM (Identity and Access management) (2 hours)

- Basic concepts of IAM

- Organizations, Roles, members, service account, policy
- Policy hierarchy
- Understanding of different roles and permission
- IAM Best practices
- **Assigning various roles and test (LAB)**
- **Create service account and assign role (LAB)**
- Practice Questions

Day 3 & 4 : Compute Engine (6 hours)

- Overview of Virtual machine
- Life cycles of VM instances
- Access options
- **Creation of Linux and windows VM instances (LAB)**
- Different Machine types
- Preemptible and sole tenant VMs
- Images
- Machine images
- Live migration and auto restart
- Types of disks, Local SSD, persistent disk and balanced persistent disk
- **Adding new disk and mount in OS (LAB)**
- **Deleting VM and recreate using disk (LAB)**
- Snapshots
- firewall Rules
- Pricing criteria and discounts
- **Creating snapshot and snapshot schedules (LAB)**
- **Recover using snapshot (LAB)**
- **Compute engine activities in gcloud shell (LAB)**
- Practice Questions

Day 5 : Storage: Google cloud Storage (GCS) (4 hour)

- Overview of object storage (GCS)
- Features and use cases of GCS
- Structure of GCS

- Bucket name standards
- **Creation of bucket and upload object (LAB)**
- **Setting IAM and ACL permission on bucket (LAB)**
- Storage classes
- Versioning
- Life cycle policies
- Pricing
- **Versioning and Life cycle policies (LAB)**
- **GCS using gcloud (LAB)**
- Practice Questions

Day 6 : Load Balancing and Autoscaling (4 hour)

- Overview and features of GCP load balancer
- Types of load balancers
- Global and regional load balancers
- External and internal load balancers
- technology behind LB
- Internal/external https load balancing
- Internal TCP/UDP load balancing
- SSL/TCP proxy load balancing
- Components of LB
- Auto scaling
- Managed and unmanaged instance groups
- **Create external http global load balancer with autoscaling (LAB)**

Day 7 & 8 : VPC (Virtual private cloud) (6hour)

- Overview and features of VPC
- Types of VPC – default /automode and custom VPC
- VPC Components
- Internal and external IPs

- Routes
- Firewall
- Shared VPC
- VPC peering
- NAT Gateway
- Pricing criteria
- **Creation of Auto mode VPC (LAB)**
- **Creation of Custom VPC (LAB)**
- **Creating subnets (LAB)**
- **Distributing VM instances in different subnets (LAB)**
- **Creation of firewall rules (LAB)**
- **VPC peering (LAB)**
- **NAT gateway (LAB)**
- Practice Questions

Day 9 : Cloud SQL (2 hour)

- Overview of relational and nonrelational database
- Types of cloud sql databases
- Cloud mysql
- Cloud postgresql
- Sql server
- Components of mysql
- HA sql
- **Create SQL instance (LAB)**
- **Create HA sql (LAB)**
- Replication
- Backups

Day 9 : Cloud spanner

- Overview of cloud spanner
- Comparison with traditional databases
- Features
- Architecture - regional and global
- Replication
- Backup and restore
- **Creation of cloud spanner instance, loading database and query (LAB)**
- Practice Questions

Day 10 : Bigdata and other database/storage services (3hour)

- **Cloud firestore/Datastore**
- Data model of firestore
- Data, document and collection
- **Dataproc**
- Overview and features of dataproc
- Use cases
- Customers
- **MemCache (Redis)**
- Introduction to Redis
- Introduction to Memcache
- **Creating Memcache Instance**

- **Bigtable**
- Challenges of transitional data handling
- Overview and features of bigtable
- **Creating a cluster (LAB)**

- Use cases
- **Big query**
- What is data warehousing
- Features
- Pricing criteria
- **Data flow**
- Overview of data streaming
- Architecture of data flow
- Features
- **Cloud Pub/Sub**
- Overview of messaging and injection
- How pub/sub works
- Features
- Topics subscription and message
- Use cases
- **Creation of topic and publish (LAB)**

Day 11 : Compute services – others (2 hour)

App Engine

- Overview of App engine
- Service, versions of app engine
- Standard and flexible environments
- Architecture
- Types of scaling
- **Create app engine using python code (LAB)**
- **Deploy new version of App engine**
- **Test Autoscaling in App engine**

Cloud functions

- Overview and use cases of cloud functions
- Features and use cases

- Creation of cloud functions
- **Create function to blur offensive images (LAB)**

Cloud Run

- Cloud run on containerization
- Service and revisions
- Use cases
- **Creating cloud Run instance and run hello world (LAB)**

Day 12 : Management tools (2 hours)

Cloud monitoring and logging

- Overview of cloud monitoring and logging
- Metrix, logs
- Log management
- Error reporting
- Health check monitoring and Alert mechanism
- **Creating Metrix and alerts (LAB)**
- **Setting up monitoring on different resources (LAB)**

Cloud deployment manager

- Overview of deployment manager
- Working with deployment manager
- **Create instance using Deployment manager (LAB)**

Day 13 &14 : GKE (Google Kubernetes Engine) (4 hours)

- What is a microservice
- What is a container
- What is docker and docker images
- Container optimized OS and Container registry
- **Run wordpress on docker (LAB)**
- **Create a Microservice, then image and run on docker (LAB)**
- what is Kubernetes
- Kubernetes Architecture
- Understanding of nodes
- Understanding of cluster
- **Create Kubernetes cluster (LAB)**
- **Run wordpress on Kubernetes and expose outside (LAB)**
- Understanding pods
- Understanding services
- Understanding replication controllers
- Understanding deployments
- Understanding yaml files
- Understanding **Kustomize**
- Managing deployments using **Kustomize**
- **Create guestbook application which include frontend deployment, backed redis master and slave deployments (LAB)**
- **Test scale up and scale down of pods (LAB)**
- **Upgrade and downgrade pod version (LAB)**
- Practice Questions

Wrap up session (2 hour)

- **Project explanation**
- guidelines for Resume upgrade and interview questions
- **Solve practice questions of Associate Cloud Engineer Exam**
- **Solve practice questions of Professional Cloud Architect Exam**