

# GCP Professional Cloud Architect

## About Course

**Sunshine Learning & Technologies**, moulded Professional Cloud Architects enable organizations to leverage Google Cloud technologies. With a thorough understanding of cloud architecture and Google Cloud, they design, develop, and manage robust, secure, scalable, highly available, and dynamic solutions to drive business objectives. This course is targeted at efficiently teaching the skills required by the Professional Cloud Architect certification - namely designing, developing and managing dynamic solutions using Google Cloud technologies to drive business objectives. This course is not for beginners. You'll have to have basic experience with GCP and we recommend passing the Google Certified Associate Cloud Engineer certification first. **Sunshine Learning & Technologies**, designed this course will help you in understanding various GCP decision flowcharts that apply to a number of different use cases, also it will solidify your designing, planning and implementing cloud architectures foundations. This course will embed your abilities to identify and control data flows to apply to both exam and realistic situations. It will guide you in assessing different architectural environments through the lens of the official GCP sample case studies. It will empower you to determine, plan, execute, and evaluate the architectures that you build, all the while ensuring your solutions are secure, compliant and reliable. At **Sunshine Learning and Technologies**, our trainer will teach you how to make good trade-offs between different options.

## GCP Professional Cloud Architect Training Curriculum

### GCP Professional Cloud Architect Certification – Getting Started

#### Topics:

- 🔗 Introduction
- 🔗 Course Overview
- 🔗 Introduction to Cloud and GCP - Google Cloud Platform
- 🔗 Creating GCP - Google Cloud Platform – Account

### Google Cloud Regions and Zones

#### Topics:

- 🔗 Why do we need Regions & Zones
- 🔗 Understanding Regions & Zones in GCP - Google Cloud Platform

## Google Compute Engine for Professional Cloud Architect

### Topics:

- 🔗 Section Introduction - Google Compute Engine – GCE
- 🔗 Getting started with Google Compute Engine – GCE
- 🔗 Creating your first Virtual Machine in GCP
- 🔗 Understanding Machine Types and Images in Google Compute Engine – GCE
- 🔗 Commands executed in next step.
- 🔗 Installing HTTP Webserver on Google Compute Engine Virtual Machine
- 🔗 Understanding Internal and External IP Addresses
- 🔗 Playing with a Static IP Addresses
- 🔗 Understanding Static IP Address in GCP - Google Cloud Platform
- 🔗 Startup Script
- 🔗 Simplifying Web Server setup with Compute Engine Startup Script
- 🔗 Simplifying VM creation with Instance Templates
- 🔗 Reducing Launch Time with a Custom Image
- 🔗 Troubleshooting Launch of Apache on GCP Virtual Machine
- 🔗 Playing with Google Cloud Platform (Web) Console
- 🔗 Scenarios - Virtual Machines in Google Cloud Platform

## Instance Groups and Load Balancing for Professional Cloud Architect

### Topics:

- 🔗 Section Introduction - Instance Groups and Load Balancing
- 🔗 Getting Started with Instance Groups
- 🔗 Creating Managed Instance Groups (MIG)
- 🔗 Playing with Managed Instance Groups (MIG)
- 🔗 Updating a Managed Instance Groups (MIG) - Rolling Updates and Restart
- 🔗 Getting Started with Cloud Load Balancing.
- 🔗 Understanding with HTTP, HTTPS, UDP and TCP Protocols
- 🔗 Creating a Load Balancer in GCP – Google Cloud Platform
- 🔗 Understanding Cloud Load Balancing Terminology in GCP
- 🔗 Exploring the Load Balancer in GCP - Google Cloud Platform
- 🔗 Choosing a Load Balancer in GCP - Google Cloud Platform
- 🔗 Exploring Features of Load Balancers
- 🔗 Load Balancing Across MIGs in Multiple Regions
- 🔗 Exploring Microservices Scenarios – Versioning and Multiple Regions.
- 🔗 Optimize Your Cloud Usage

## Google Cloud Compute Engine & Load Balancing for Architects

### Topics:

- 🔗 Section Introduction - Compute Engine and Load Balancing for Architects
- 🔗 Google Cloud Compute Engine & Load Balancing for Architects
- 🔗 What is Availability?
- 🔗 Implementing High Availability for Compute Engine & Load Balancing
- 🔗 What is Scalability, Vertical Scaling and Horizontal Scaling?
- 🔗 Exploring Vertical Scaling and Horizontal Scaling for Compute Engine VMs
- 🔗 Achieving High Availability with Live Migration and Automatic Restart
- 🔗 Exploring GPUs in Google Compute Engine – GCE
- 🔗 Google Cloud Compute Engine & Load Balancing - Security & Performance
- 🔗 Google Cloud Compute Engine & Load Balancing – Resilience
- 🔗 Discounts for Sustained Use in GCP - Google Cloud Platform
- 🔗 Exploring Committed Use Discounts in GCP - Google Cloud Platform
- 🔗 Run Fault Tolerant Non Critical Workloads with Preemptible VMs
- 🔗 Run Fault Tolerant Non Critical Workloads with Preemptible VMs
- 🔗 Understanding Billing for Google Compute Engine - GCE VMs
- 🔗 Google Cloud Compute Engine & Load Balancing for Architects - Cost Eff

## Getting Started with GCloud

### Topics:

- 🔗 Getting Started with GCloud
- 🔗 Understanding Command Structure in Gcloud to play with Services
- 🔗 Cloud Shell - Things to remember

## Getting Started with Google Cloud Platform Managed Services

### Topics:

- 🔗 Getting Started with Managed Services
- 🔗 Getting Started with IAAS and PAAS
- 🔗 Getting Started with Containers and Container Orchestration
- 🔗 Getting Started with Serverless
- 🔗 Getting Started with Google Cloud Platform, GCP Computer Services

## Getting Started with Google Cloud App Engine

### Topics:

- 🔗 Getting Started with Google App Engine (GAE)
- 🔗 Understanding App Engine Environments - Standard & Flexible
- 🔗 Understanding App Engine Component Hierarchy
- 🔗 Comparing App Engine Environments - Standard vs Flexible
- 🔗 Scaling Google App Engine Instances
- 🔗 App Engine - From the Command Line
- 🔗 Playing with App Engine in GCP - Google Cloud Platform
- 🔗 Exploring App Engine in GCP - App, Services and Versions
- 🔗 Splitting Traffic between Multiple versions in App Engine
- 🔗 Create a New Service and Playing with App Engine
- 🔗 Delete App Engine Services

## Google Cloud Kubernetes for Cloud Architects

### Topics:

- 🔗 Getting Started with Google Kubernetes Engine (GKE)
- 🔗 Kubernetes Journey – Creating a GKE Cluster
- 🔗 Kubernetes Commands
- 🔗 Kubernetes Journey - Create a Deployment and a Service
- 🔗 Exploring GKE in GCP Console
- 🔗 Kubernetes Journey - Scaling Deployments and Resizing Node Pools
- 🔗 Kubernetes Journey - Autoscaling, Config Map and Secrets
- 🔗 Exploring Kubernetes Deployments with YAML Declarative Configuration
- 🔗 Kubernetes Journey - The End
- 🔗 Understanding Kubernetes Clusters - Google Kubernetes Engine GKE
- 🔗 Understanding Pods in Kubernetes
- 🔗 Understanding Deployments and Replica Sets in Kubernetes
- 🔗 Understanding Services in Kubernetes
- 🔗 Using Kubernetes Ingress to Provide External Access to Services
- 🔗 Getting Started with GCR - Google Container Registry
- 🔗 Understanding Best Practices for Creating Docker Images – Dockerfile
- 🔗 Scenarios – Google Kubernetes Engine GKE
- 🔗 Delete GKE Service, Deployment and Cluster

## Getting Started with Google Cloud Functions

### Topics:

- 🔗 Getting Started with Google Cloud Functions
- 🔗 Understanding Google Cloud Functions – Important Concepts
- 🔗 Creating your first Google Cloud Functions

## Getting Started with Google Cloud Run

### Topics:

- 🔗 Getting Started with Google Cloud Run
- 🔗 Gcloud and Google Cloud Run

## Getting Started with Cloud KMS

### Topics:

- 🔗 Section Introduction - Cloud KMS
- 🔗 Understanding Data States
- 🔗 Understanding Encryption – Symmetric and Asymmetric
- 🔗 Getting Started with Cloud KMS
- 🔗 Playing with Cloud KMS

## Exploring Block and File Storage in Google Cloud Platform – GCP

### Topics:

- 🔗 Exploring Block and File Storage in Google Cloud Platform – GCP
- 🔗 Exploring Block Storage in GCP - Local SSDs
- 🔗 Exploring Block Storage in GCP - Persistent Disks
- 🔗 Comparing Persistent Disks vs Local SSDs
- 🔗 Exploring Persistent Disk Types
- 🔗 Taking Snapshots for Persistent Disks
- 🔗 Playing with Persistent Disks and Snapshots in GCP
- 🔗 Mounting a Data Persistent Disk on a GCE VM and Resizing Data persistent
- 🔗 Playing with Machine Images
- 🔗 Comparing Snapshots vs Images vs Machine Images
- 🔗 Scenarios - Persistent Disks
- 🔗 Exploring File Storage with Filestore

- 🔗 Exploring Global, Regional and Zonal Resources
- 🔗 Scenarios - Block and File Storage
- 🔗 Delete Your Resources in Google Cloud

## **Exploring Object Storage in Google Cloud Platform – Cloud Storage**

### **Topics:**

- 🔗 Downloads - Cloud Storage
- 🔗 Playing with Object Storage in GCP - Cloud Storage
- 🔗 Exploring Cloud Storage in GCP
- 🔗 Understanding Cloud Storage - Objects and Buckets
- 🔗 Understanding Cloud Storage - Storage Classes
- 🔗 Understanding Cloud Storage – Versioning
- 🔗 Understanding Cloud Storage - Lifecycle Management
- 🔗 Encrypting Cloud Storage Data - Cloud KMS
- 🔗 Understanding Cloud Storage Metadata
- 🔗 Meet Compliance Needs with Cloud Storage Bucket Lock
- 🔗 Transferring data to cloud - Online, Transfer Service and Transfer App
- 🔗 Understanding Cloud Storage Best Practices
- 🔗 Playing with gsutil - Cloud Storage from Command Line
- 🔗 Cloud Storage – Scenarios

## **Authentication in Google Cloud with Cloud IAM**

### **Topics:**

- 🔗 Getting Started with Cloud IAM
- 🔗 Exploring Cloud IAM with an Example
- 🔗 Exploring Cloud IAM – Roles
- 🔗 Playing with IAM Roles - Predefined, Basic and Custom Roles
- 🔗 Exploring Cloud IAM - Members, Role and Policy
- 🔗 Commands executed in next steps
- 🔗 Demo - Playing with IAM
- 🔗 Getting Started with Service Accounts
- 🔗 Demo - Playing with Service Accounts
- 🔗 Exploring Service Account Use Cases
- 🔗 Scenarios - Service Accounts
- 🔗 Exploring Cloud Storage - ACL (Access Control Lists)
- 🔗 Exploring Cloud Storage - Signed URLs
- 🔗 Exposing a Public Website using Cloud Storage
- 🔗 IAM – Scenarios

## Exploring Databases in Google Cloud Platform

### Topics:

- 🔗 Getting Started with Databases
- 🔗 Understanding Database Fundamentals - Snapshot, Standby etc
- 🔗 Understanding Database Fundamentals - Availability and Durability
- 🔗 Understanding Database Fundamentals - Increasing Availability and Durability
- 🔗 Understanding Database Fundamentals - RTO and RPO
- 🔗 Understanding Database Fundamentals - Read Replicas
- 🔗 Understanding Database Fundamentals – Data Consistency
- 🔗 Understanding Database Fundamentals – Choosing Databases
- 🔗 OLTP Relational Databases in Google Cloud – Cloud SQL and Cloud Spanner
- 🔗 OLAP Relational Database in Google Cloud – BigQuery.
- 🔗 No SQL Databases in Google Cloud – Firestore, Datastore and BigTable
- 🔗 In memory Database in Google Cloud Platform – Memorystore
- 🔗 Databases in Google Cloud Platform - A Quick Review
- 🔗 Databases in Google Cloud Platform – Scenarios

## Relational Databases for Transactional Applications in Google Cloud Platform

### Topics:

- 🔗 Section Introduction - GCP Relational Databases for Transactional Apps
- 🔗 Getting started with Cloud SQL
- 🔗 Cloud SQL Commands
- 🔗 Demo - Playing with Cloud SQL
- 🔗 Demo - Playing with Cloud SQL – 2
- 🔗 Understanding Cloud SQL Features
- 🔗 Understanding Cloud SQL High Availability Features
- 🔗 Understanding Cloud SQL Best Practices
- 🔗 Getting started with Cloud Spanner
- 🔗 Cloud Spanner - Table Creation Script
- 🔗 Demo - Playing with Cloud Spanner

## NoSQL Databases in Google Cloud Platform

### Topics:

- 🔗 Section Introduction - NoSQL Databases in GCP
- 🔗 Getting started with Cloud Datastore and Cloud Firestore
- 🔗 Demo - Playing with Firestore
- 🔗 Understanding Cloud Datastore Best Practices

- 🔗 Getting started with Cloud BigTable
- 🔗 Designing BigTable Tables
- 🔗 Understanding Cloud BigTable Best Practices

## **Creating Private Networks with Cloud VPC in Google Cloud Platform**

### **Topics:**

- 🔗 Understanding the Need for Google Cloud VPC – Virtual Private Cloud
- 🔗 Understanding the Need for VPC Subnets
- 🔗 Creating VPCs and Subnets in Google Cloud Platform
- 🔗 Understanding CIDR Blocks
- 🔗 Demo - Creating VPCs and Subnets in GCP
- 🔗 Understanding Firewall Rules in Google Cloud Platform
- 🔗 Understanding Firewall Rules Best Practices
- 🔗 Getting Started with Shared VPC
- 🔗 Getting Started with VPC Peering

## **Operations in Google Cloud Platform**

### **Topics:**

- 🔗 Getting Started with Google Cloud Monitoring
- 🔗 Getting Started with Google Cloud Logging
- 🔗 Exploring Google Cloud Logging – Audit Logs
- 🔗 Exploring Google Cloud Logging - Routing Logs and Exports
- 🔗 Creating a Cloud Storage Bucket and Cloud Function
- 🔗 Demo - Playing with Cloud Logging
- 🔗 Demo - Playing with Cloud Monitoring
- 🔗 Getting Started with Google Cloud Trace
- 🔗 Getting Started with Google Cloud Debugger
- 🔗 Getting Started with Google Cloud Profiler
- 🔗 Getting Started with Google Cloud Error Reporting
- 🔗 What is Stackdriver?
- 🔗 Scenarios - Operations in Google Cloud Platform



## **Exploring IAM and Project Organization in Google Cloud Platform**

### **Topics:**

- 🔗 Organizing Google Cloud Resources – Projects, Folders and Organization
- 🔗 Exploring Billing Accounts
- 🔗 Understanding IAM Best Practices
- 🔗 Understanding User Identity Management in GCP
- 🔗 Exploring IAM Members and Identities
- 🔗 Understanding Organization Policy Service
- 🔗 Exploring IAM Policy at multiple levels - Resourcing Hierarchy
- 🔗 Exploring IAM Predefined Roles - Google Cloud BigQuery
- 🔗 Corporate Directory Federation
- 🔗 Exploring IAM Scenarios
- 🔗 Terminate Your VM Instances

## **Quick Review – Compute Engine Virtual Machines**

### **Topics:**

- 🔗 SSHing into Linux VMs – 1
- 🔗 SSHing into Linux VMs – 2
- 🔗 Executing Shutdown Script on a GCE VM
- 🔗 Troubleshooting VM startup
- 🔗 Moving VM instances between Zones and Regions

## **Asynchronous Communication in Google Cloud with Pub Sub**

### **Topics:**

- 🔗 Understanding Need for Asynchronous Communication
- 🔗 Getting Started with Cloud Pub Sub
- 🔗 Exploring Cloud Pub Sub – Publishing and Consuming a Message
- 🔗 Commands Executed in next steps.
- 🔗 Demo - Playing with Cloud Pub Sub
- 🔗 Understanding Cloud PubSub Best Practices
- 🔗 Getting Started with Cloud Dataflow

## **Implementing Hybrid Cloud with Google Cloud**

### **Topics:**

- 🔗 Implementing Hybrid Cloud with Google Cloud VPN
- 🔗 Implementing Hybrid Cloud with Google Cloud Interconnect
- 🔗 Understanding Hybrid Connectivity Best Practices

## **Exploring Datawarehouse in Google Cloud – Big Query**

### **Topics:**

- 🔗 Getting started with BigQuery
- 🔗 Partitioning and Clustering BigQuery Tables
- 🔗 Expiring Data in BigQuery
- 🔗 Importing Data into BigQuery
- 🔗 Streaming Data into BigQuery
- 🔗 Understanding BigQuery Best Practices
- 🔗 Getting Started with Cloud Dataproc

## **Exploring Data Lifecycle and Data Architecture in Google Cloud**

### **Topics:**

- 🔗 Section Introduction - Data Lifecycle in Google Cloud
- 🔗 Data Lifecycle in Google Cloud
- 🔗 Data Lifecycle in Google Cloud -1- Ingest
- 🔗 Data Lifecycle in Google Cloud -2- Store
- 🔗 Data Lifecycle in Google Cloud -3- Process and Analyze
- 🔗 Data Lifecycle in Google Cloud -4- Explore and Visualize
- 🔗 Exploring Big Data Flows in Google Cloud – Batch and Streaming
- 🔗 Managing IOT Streams in Google Cloud Platform
- 🔗 Exploring Data Lakes in Google Cloud Platform

## **Caching in Google Cloud Platform**

### **Topics:**

- 🔗 What is Caching?
- 🔗 Exploring in memory store in Google Cloud – Memorystore
- 🔗 Exploring Caching with App Engine Memcache
- 🔗 Content Distribution with Cloud CDN
- 🔗 Understanding Cloud CDN Best Practices

## **Agile, DevOps, SRE and SDLC Evolution – A 10,000 Feet Overview**

### **Topics:**

- 🔗 Section Introduction - Agile, DevOps, SRE and SDLC Evolution
- 🔗 Understanding SDLC Evolution - Waterfall to Agile
- 🔗 What is DevOps?
- 🔗 Exploring DevOps Practices - Continuous Integration, Deployment & Delivery
- 🔗 DevOps in Google Cloud - Continuous Integration, Deployment & Delivery
- 🔗 Exploring DevOps Practices - Infrastructure as Code
- 🔗 Getting Started with Cloud Deployment Manager
- 🔗 Understanding Cloud Deployment Manager
- 🔗 Getting Started with Cloud Marketplace
- 🔗 Demo - Cloud Marketplace and Deployment Manager
- 🔗 Getting Started with Site Reliability Engineering (SRE)
- 🔗 Understanding Key Metrics for Site Reliability Engineering (SRE)
- 🔗 Understanding Best Practices for Site Reliability Engineering (SRE)

## **Release Management in Google Cloud Platform**

### **Topics:**

- 🔗 Getting Started with Release Management
- 🔗 Deployment Approach – Recreate
- 🔗 Deployment Approach - Canary and A/B Testing
- 🔗 Deployment Approach - Rolling and Rolling with Additional Batch
- 🔗 Deployment Approach - Blue Green and Shadow Testing
- 🔗 Exploring Deployment Approaches for MIGs
- 🔗 Exploring Deployment Approaches for App Engine
- 🔗 Exploring Deployment Approaches for Google Kubernetes Engine

## **Compliance and Regulation for Your Google Cloud Solutions**

### **Topics:**

- 🔗 Understanding Compliance and Regulation for Google Cloud Solutions
- 🔗 HIPPA Compliance for Your Google Cloud Solutions
- 🔗 PCI DSS for Your Google Cloud Solutions

## Planning Cloud Migrations to Google Cloud Platform

### Topics:

- 🔗 Planning Cloud Migrations to Google Cloud Platform
- 🔗 Planning Cloud Migrations to Google Cloud Platform - 4 Phases
- 🔗 Exploring Cloud Migrations to Google Cloud Platform - 2 Examples

## Exploring Cloud Architect Responsibilities

### Topics:

- 🔗 Section Introduction - Exploring Cloud Architect Responsibilities
- 🔗 Cloud Architect Responsibilities – Understand Business Requirements
- 🔗 Cloud Architect Responsibilities – Defining Technical Requirements
- 🔗 Planning for High Availability in Google Cloud Platform
- 🔗 Planning for Scalability in Google Cloud Platform
- 🔗 Planning for Security in Google Cloud Platform
- 🔗 Digital Signatures - Cloud KMS
- 🔗 Enhance Security with Cloud Armor
- 🔗 Managing Secrets with Google Cloud Secret Manager
- 🔗 Cloud Architect Responsibilities - Stakeholder Management
- 🔗 Cloud Architect Responsibilities - Change Management
- 🔗 Cloud Architect Responsibilities – Business Continuity Planning
- 🔗 Cloud Architect Responsibilities - Incident Management
- 🔗 Cloud Architect Responsibilities - Data Management

## Exploring More Google Cloud Platform (GCP) Services

### Topics:

- 🔗 Scheduling with Google Cloud Scheduler
- 🔗 Simplify Development with Google Cloud Emulators
- 🔗 Getting Started with Cloud DNS
- 🔗 Getting Started with Google Cloud Pricing Calculator
- 🔗 Getting Started with Anthos
- 🔗 Machine Learning in Google Cloud Platform
- 🔗 Getting Started with Apigee API Management

## **Understanding Google Cloud Architecture Framework**

### **Topics:**

- 🔗 [Getting Started with Google Cloud Architecture Framework](#)
- 🔗 [Google Cloud Architecture Framework -1- Operational Excellence](#)
- 🔗 [Google Cloud Architecture Framework - 2 - Security, Privacy](#)
- 🔗 [Google Cloud Architecture Framework - 3 – Reliability](#)
- 🔗 [Google Cloud Architecture Framework - 4 - Performance & Cost Optimization](#)

## **Case Studies – Solutions – Professional Cloud Architect**

### **Topics:**

- 🔗 [Getting Started with Case Studies](#)
- 🔗 [Case Study - EHR Healthcare – Overview](#)
- 🔗 [Case Study - EHR Healthcare – Discussion](#)
- 🔗 [Quick Update: MongoDB Atlas](#)
- 🔗 [Case Study - Helicopter Racing League – Overview](#)
- 🔗 [Case Study - Helicopter Racing League – Discussion](#)
- 🔗 [Case Study - Mountkirk Games – Overview](#)
- 🔗 [Case Study - Mountkirk Games – Discussion](#)
- 🔗 [Case Study - TerramEarth – Overview](#)
- 🔗 [Case Study - TerramEarth – Discussion](#)

## **Google Cloud Professional Cloud Architect Certification – Getting Ready**

### **Topics:**

- 🔗 [Architecting Solutions in Google Cloud - More Resources](#)
- 🔗 [Get Ready - Google Cloud Professional Cloud Architect Certification](#)
- 🔗 [My Recommendations – Google Cloud Professional Cloud Architect Exam](#)
- 🔗 [Congratulations - Google Cloud Professional Cloud Architect Exam](#)