Preparation for
Associate Cloud Engineer Certification

Your Name

Title
Company

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About Me

Your Name

Latest Work Experiences:

- Your Role, X Company — **Year - present**
- Your Role, X Company — **Year - Year**

Education:

- Y University — **Year - Year**
  Master of XX
- X University — **Year - Year**
  Bachelor of XX

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Ground Rules

Observe the following rules to ensure a supportive, inclusive, and engaging classes

Give full attention in class

Mute your microphone when you're not talking

Keep your camera on

Turn on the CC Feature on Meet

Use raise hand or chat to ask questions

Make this room a safe place to learn and share

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Google Cloud Certification

Google Cloud certifications validate your expertise and show your ability to transform businesses with Google Cloud technology.

Google Cloud

Why Get Google Cloud Certification?

- A majority of certified IT professionals experience two main certification benefits: better job performance and higher salaries
- GCP Cloud Architect is the top-paying certifications in North America and 2nd in worldwide (2020)*
- Cloud Architect and Cloud Engineer are the most popular cloud job roles*.
- More than 1 in 4 of Google Cloud certified individuals took on more responsibility or leadership roles at work.

TOP-PAYING CERTIFICATIONS WORLDWIDE

Certification	Average	Count
	$119,170	352
Google Certified Professional Cloud Architect	$116,289	344
Google Certified Professional Data Engineer	$114,636	182
	$113,995	332
	$113,738	118
	$110,646	343
	$107,708	615
	$106,435	126
	$104,123	103
	$103,358	116

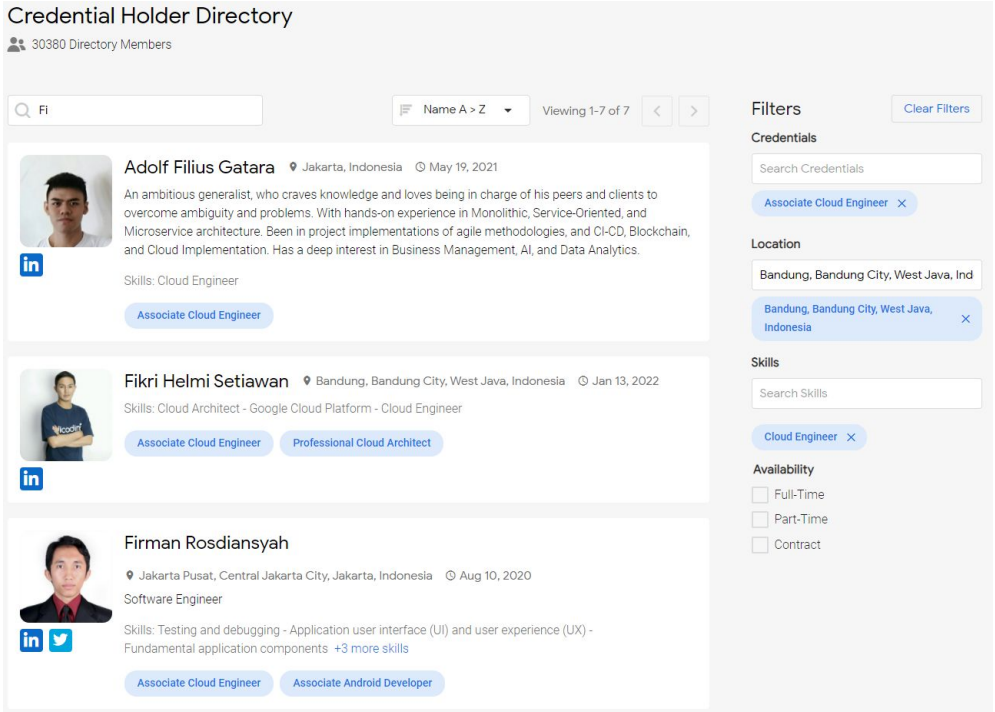
Source

Google Cloud Certification Benefits

Become Google Cloud certified and unlock the following benefits:

- Receive Google Cloud certification merchandise for every professional level certification earned.
- Build your professional network and engage with other certified leaders by accessing an exclusive Google Cloud Certified community.
- Receive a digital badge and a certificate to showcase your achievements on social media.
- Opt in to a publicly accessible Credential Holder Directory created for the certified community and unlock the employment opportunities.
- Get an exclusive chance to attend virtual and in-person industry events hosted by Google Cloud and earn more swag.
- Receive a 50% discount applicable toward recertification.

Google Cloud Certified Directory



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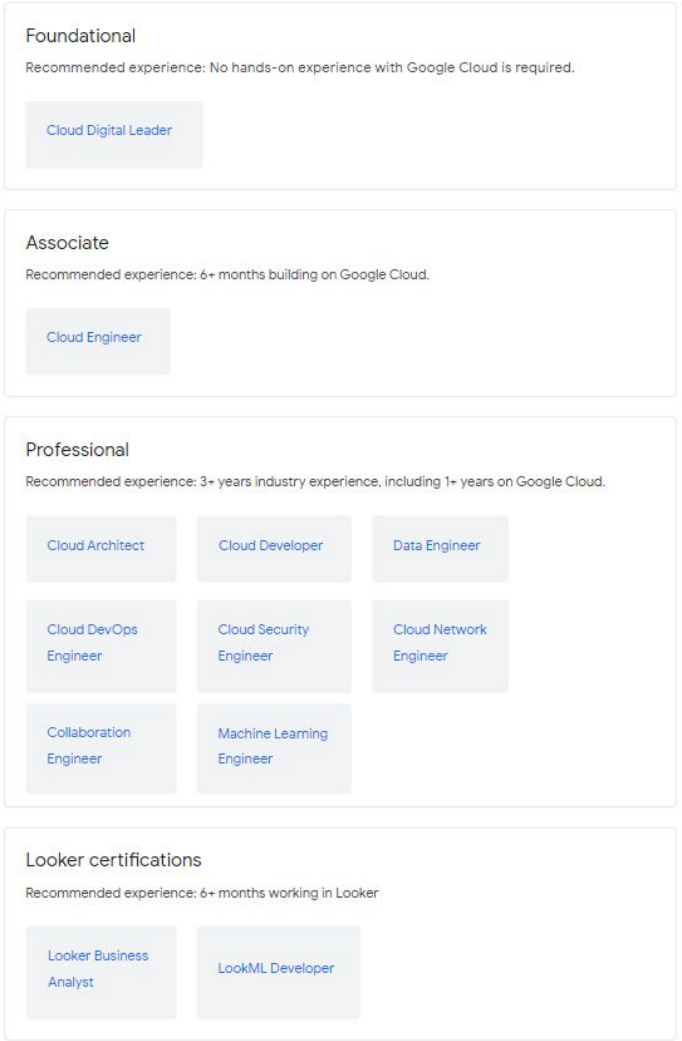
[Source]

Certification Path

1. **Foundational**: Cloud Digital Leader
2. **Associate**: Cloud Engineer
3. **Professional**:
    a. Cloud Architect
    b. Cloud Developer
    c. Data Engineer
    d. Cloud DevOps Engineer
    e. Cloud Security Engineer
    f. Cloud Network Engineer
    g. Collaboration Engineer
    h. Machine Learning Engineer
4. **Looker certifications**:
    a. Looker Business Analyst
    b. LookML Developer



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What does an Associate Cloud Engineer (ACE) do?

An Associate Cloud Engineer deploys applications, monitors operations, and manages enterprise solutions.

This individual is able to use Google Cloud Console and the command-line interface to perform common platform-based tasks to maintain one or more deployed solutions that leverage Google-managed or self-managed services on Google Cloud.

About ACE Certification Exam

- **Length**: 2 hours
- **Registration fee**: $125* (plus tax where applicable)
- **Languages**: English, Japanese, Spanish, Portuguese.
- **Exam format**: Multiple choice & multiple select.
- **Exam delivery method**:
  - Take the online-proctored exam from a remote location.
  - Take the onsite-proctored exam at a testing center.
- **Prerequisites**: None
- **Recommended experience**: 6+ months hands-on experience with Google Cloud

What does the Exam cover?

The ACE exam tests knowledge of the following skills:

- Setting up a cloud solution environment
- Planning and configuring a cloud solution
- Deploying and implementing a cloud solution
- Ensuring successful operation of a cloud solution
- Configuring access and security

Study Guide

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Section 1: Setting up a Cloud Solution Environment

1.1 Setting up cloud projects and accounts.

1.2 Managing billing configuration.

1.3 Installing and configuring the command line interface (CLI), specifically the Cloud SDK (e.g., setting the default project).

Exam Essentials

- Understand different ways of delivering cloud computing resources
- Understand the differences between running an IT environment on-premise or in the cloud
- Understand the GCP resource hierarchy
- Understand organization policies
- Understand service accounts and how they are used
- Understand GCP Billing
- Know how to enable APIs and create Stackdriver Workspaces

Example question 1

You need serverless computing for file processing and running the backend of a website; which two products can you choose from Google Cloud Platform?

A. Kubernetes Engine and Compute Engine
B. App Engine and Cloud Functions
C. Cloud Functions and Compute Engine
D. Cloud Functions and Kubernetes Engine

Example question 2

Which is not part of the GCP resource hierarchy?

A. Projects
B. Folders
C. Organizations
D. Directory

Section 2: Planning and Configuring a Cloud Solution

2.1 Planning and estimating GCP product use using the Pricing Calculator.

2.2 Planning and configuring compute resources.

2.3 Planning and configuring data storage options.

2.4 Planning and configuring network resources.

Exam Essentials

- Understand the differences between Compute Engine, Kubernetes Engine, App Engine, Cloud Functions, and Cloud Run
- Understand what is meant by serverless
- Understand how images are used to create VM instances and how VMs are organized in projects
- Understand what preemptible VMs are and when they are appropriate to use
- Understand the difference between App Engine standard and flexible environment
- Understand that Kubernetes is a container orchestration platform
- Understand Cloud Functions and Cloud Run
- Understand how to use Cloud Console and gcloud to list, create, start, and stop VMs

- Understand how to monitor a VM
- Know the factors that determine the cost of a VM
- Understand the difference between object and file storage
- Know the different kinds of databases
- Know the major storage system types, including caches, persistent disks, and object storage
- Know the four storage classes in Cloud Storage
- Know that you can apply lifecycle configurations on Cloud Storage buckets
- Know the characteristics of different data stores that help you determine which is the best option for your requirements
- Understand VPC
- Understand load balancing

Example question 1

You created an application for a large hospital which stores around 1GB of files every day on GCS. Most of these files are accessed very rarely, usually per quarter. These files are important and cannot be deleted. Which storage class would you prefer?

A. Standard
B. Nearline
C. Coldline
D. Regional

Example question 2

If you want the database that has enterprise-grade, globally-distributed, and strongly-consistent that combine the benefits of relational database structure with non-relational horizontal scale, which service you will choose?

A. Cloud SQL
B. Cloud Spanner
C. BigQuery
D. Cloud Storage

Section 3: Deploying and Implementing a cloud solution

3.1 Deploying and implementing Compute Engine resources.

3.2 Deploying and implementing Google Kubernetes Engine resources.

3.3 Deploying and implementing App Engine, Cloud Run, and Cloud Functions resources.

3.4 Deploying and implementing data solutions.

3.5 Deploying and implementing networking resources.

3.6 Deploying a solution using Cloud Marketplace.

3.7 Implementing resource via infrastructure as code

Exam Essentials

- Understand developer and management tools
- Know the types of specialized services offered by GCP
- Understand that Kubernetes uses a single cluster master that controls nodes that execute workloads
- Be able to describe pods
- Know the structure of App Engine Standard applications
- Know how to deploy an App Engine app
- Know how to view the status of an application in the App Engine Console
- Understand the different scaling options
- Know how to split traffic
- Understand how to migrate traffic to a new version

- Know the relationship between events, triggers, and functions
- Know when to use Cloud Functions vs App Engine
- Know the runtime supported in Cloud Functions
- Know the parameters for defining a cloud function on a Cloud Storage event
- Know the parameters for defining a cloud function on a Cloud Pub/Sub event
- Know the gcloud commands for working with Cloud Functions
- Understand how to initialize Cloud SQL and Cloud Spanner
- Understand how to initialize Cloud Datastore and Cloud Bigtable
- Know how to export data from BigQuery, estimate the cost of a query, and monitor jobs in BigQuery

- Know how to load data into and move data around GCS
- Understand how import and export work with Cloud SQL
- Know that you can export entities from a Cloud Datastore
- Understand how to export and import data from BigQuery
- Know that Pub/Sub is used to send messages between services
- Understand how to read and calculate CIDR notation
- Understand how to browse and deploy solutions in Cloud Launcher
- Know that Deployment Manager is a GCP service for creating configuration files that define resources to use with an application

Example question 1

A developer accidentally deleted some of the files from a bucket. Luckily, the files were not critical and were re-created soon. Because of this, your team lead has asked you to enable versioning on bucket. Which command would help you enable the same?

A. gsutil versioning enable gs://documents-bucket
B. gsutil gs://documents-bucket enable versioning
C. gsutil enable versioning gs://documents-bucket
D. gsutil versioning set on gs://documents-bucket

Example question 2

If you want a compute service that has a lightweight and fully-managed serverless execution environment for building and connecting cloud services, which service you will choose?

A. Google Cloud Functions
B. Google App Engine
C. Google Compute Engine
D. Google Kubernetes Engine

Section 4: Ensuring Successful Operation of a cloud solution

4.1 Managing Compute Engine resources.

4.2 Managing Google Kubernetes Engine resources.

4.3 Managing App Engine and Cloud Run resources.

4.4 Managing storage and database solutions.

4.5 Managing networking resources.

4.6 Monitoring and logging.

Exam Essentials

- Understand why GPUs are used and how to attach them to a VM
- Understand images and snapshots
- Understand instance groups and instance group templates
- Know how to view the status of a Kubernetes cluster
- Understand how to add, modify, and remove nodes
- Understand how to add, modify, and remove pods
- Understand how to add, modify, and remove services
- Know how to view Container Registry images and their details
- Understand that Pub/Sub is a message queue used to send messages between services
- Understand that Cloud Dataproc is a managed Spark and Hadoop service
- Know the four command-line tools: gcloud, gsutil, bq, and cbt

Example question 1

A GKE cluster was created with 4 nodes initially and after looking at the few months of monitoring report you realized that cluster is underutilized. You plan to reduce the number of nodes to 3 to save the cost. Which gcloud command will help you to do that?

A. gcloud container clusters resize work-cluster --num-nodes=3
B. gcloud container clusters work-cluster --new-size 3
C. gcloud container clusters resize work-cluster --size 3
D. gcloud container clusters update work-cluster --size 3

Example question 2

If you want to identify and understand your application error, which service you will choose?

A. Cloud Profiler
B. Cloud Trace
C. Cloud Monitoring
D. Error Reporting

Section 5: Configuring Access and Security

5.1 Managing identity and access management (IAM).

5.2 Managing service accounts.

5.3 Viewing audit logs.

Exam Essentials

- Know the three types of roles: basic, predefined, and custom.
- Know how to view roles assigned to identities.
- Understand that Iam roles support separation of duties and the principle of least privilege.
- Know how to use **gcloud iam roles describe** to view details of a role, including permissions assigned to a role.
- Understand the different options for accessing scopes when creating an instances.

Example question 1

Someone from a different team has approached you that he is working on a web application hosted on Google Cloud VM which needs to view access to Google Cloud Storage service. Which of the following is the best approach?

A. Create a custom service account with Google Cloud Storage Viewer role, and attach it to the VM instance.
B. Create a custom service account with Google Cloud Storage Viewer role, create a JSON key pair, and provide it to him.
C. VM Instances by default have read access to Google Cloud Storage service, so nothing needs to be done.
D. Create an IAM user for him with Google Cloud Storage, create a JSON key pair, and provide it to him.

Example question 2

Which of the following is NOT a Cloud Member?

A. Gmail accounts
B. Google groups
C. Yahoo mail
D. Service accounts

Exam Tips

Exam Tips

- The questions are scenario based. So you had to know how to apply your knowledge to that particular use case.
- This is a associate level exam so you don’t have to know the services in depth. Know about the service such as what they do, what are the features they offer, etc. So that you can eliminate wrong answers in the exam when the question is not clear to you.
- Look for clues such as least expensive, GCP best practices, more performant, etc.
- If you are not familiar with the question or not sure about the answer just mark for review and come back later. You can also see all the questions and navigate to whatever the question you want before you submit your exam.
- Practice as many questions as possible before the exam.

Sharing Session

Important Link(s)

- Google Cloud certification in general (Foundational, Associate, and Professional).
- More specific, show the Associate Cloud Engineer exam page (exam guide, exam overview, etc).
- Some sample questions.
- Explore the Credential Holder Directory

Quiz

Discussion

Thank You

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