


# Architecting with Google Cloud: Big Data and Machine Learning Fundamentals

CONNECTION TECHNOLOGY 裝備未來  
**FUTURE SKILLS**

This course introduces the Google Cloud big data and machine learning products and services that support the data-to-AI lifecycle. It explores the processes, challenges, and benefits of building a big data pipeline and machine learning models with Vertex AI on Google Cloud.

## Objectives

- ❖ Recognize the data-to-AI lifecycle on Google Cloud and the major products of big data and machine learning.
- ❖ Design streaming pipelines with Dataflow and Pub/Sub.
- ❖ Analyze big data at scale with BigQuery.
- ❖ Identify different options to build machine learning solutions on Google Cloud.
- ❖ Describe a machine learning workflow and the key steps with Vertex AI.
- ❖ Build a machine learning pipeline using AutoML.

Programme code	10016324
Duration and time	1 day 9:30-17:00
Venue	Online broadcast 
Language	Cantonese, supplemented with English terminology
Course fee	<b>FREE</b>
Prerequisites	Basic understanding of one or more of the following: <ul style="list-style-type: none"> <li>• Database query language such as SQL</li> <li>• Data engineering workflow from extract, transform, load, to analysis, modeling, and deployment</li> <li>• Machine learning models such as supervised versus unsupervised models.</li> </ul>
Bring Your Own Device (BYOD)	Windows 7/10 / Mac OS 10.x or above with minimum 2 GB RAM and 20 GB hard disk

## Course Outline with highlights

### Module 0: Course Introduction

This section welcomes learners to the Big Data and Machine Learning Fundamentals course and provides an overview of the course structure and goals.

### Module 1: Big Data and Machine Learning on Google Cloud

This section explores the key components of Google Cloud's infrastructure. We introduce many of the big data and machine learning products and services that support the data-to AI lifecycle on Google Cloud.

### Module 2: Data Engineering for Streaming Data

This section introduces Google Cloud's solution to managing streaming data. It examines an end-to-end pipeline, including data ingestion with Pub/Sub, data processing with Dataflow, and data visualization with Looker and Data Studio.

### Module 3: Big Data with BigQuery

This section introduces learners to BigQuery, Google's fully managed, serverless data warehouse. It also explores BigQuery ML and the processes and key commands that are used to build custom machine learning models.

### Module 4: Machine Learning Options on Google Cloud

This section explores four different options to build machine learning models on Google Cloud. It also introduces Vertex AI, Google's unified platform for building and managing the lifecycle of ML projects.

### Module 5 : The Machine Learning Workflow with Vertex AI

This section focuses on the three key phases—data preparation, model training, and model preparation—of the machine learning workflow in Vertex AI. Learners can practice building a machine learning model with AutoML.

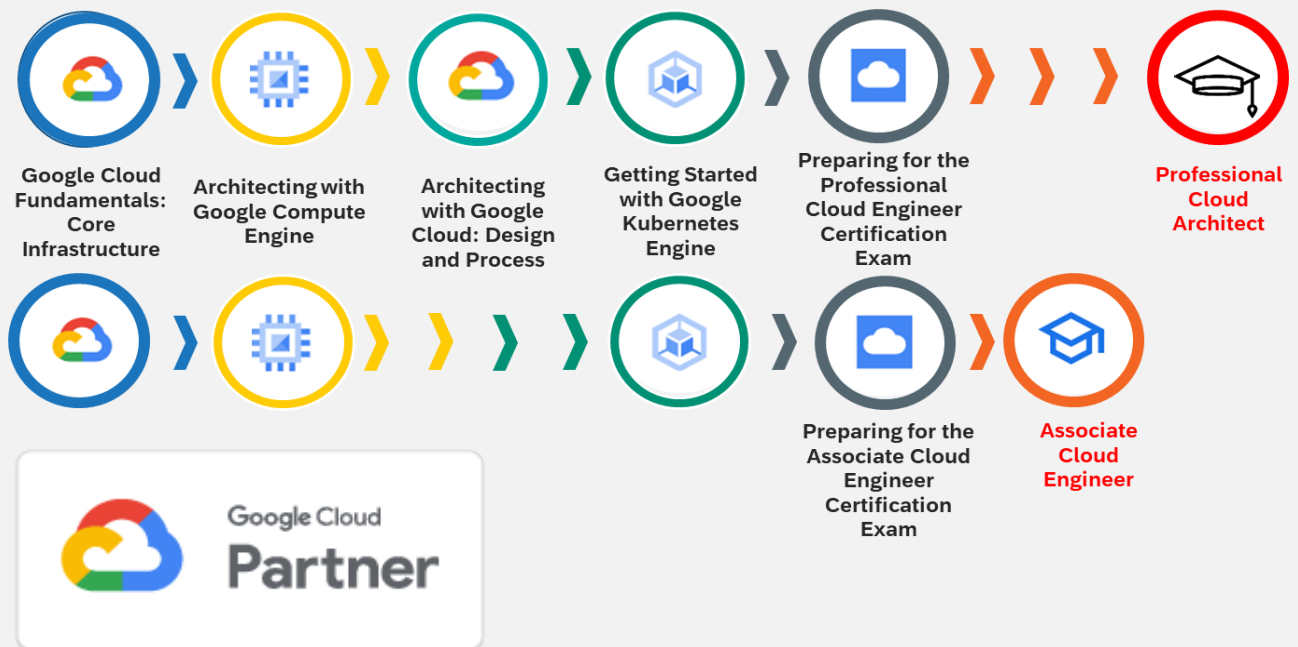
### Module 6 : Course Summary

This section reviews the topics covered in the course and provides additional resources for further learning.

## Who Should Attend?

- ✓ Data analysts, data scientists, and business analysts who are getting started with Google Cloud
- ✓ Individuals responsible for designing pipelines and architectures for data processing, creating and maintaining machine learning and statistical models, querying datasets, visualizing query results, and creating reports
- ✓ Executives and IT decision makers evaluating Google Cloud for use by data scientists

## Google Cloud Technical Learning Path



## Enrolment Methods

1. Scan the QR code to complete the enrolment and payment online OR
2. Mail the crossed cheque with payee name "Hong Kong Productivity Council" (in HK dollar) to HKPC Academy, Hong Kong Productivity Council, 3/F, HKPC Building, 78 Tat Chee Avenue, Kowloon (attention to Mr Desmond CHAN). Please indicate the course name and course code on the envelope.



[Enrolment Link](#)

## Supporting Organisations (In arbitrary order)



## Inquiry

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