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# GCP Professional ML Engineer Certification Training

3 days (21 hours)

## Overview

Google Cloud Professional Machine Learning Engineer is a recognized certification that validates the ability to design, train, deploy, and maintain machine learning models on Google Cloud Platform.

Our GCP Professional Machine Learning Engineer Certification training will enable you to master the entire lifecycle of a machine learning project on Google Cloud.

You will learn to leverage advanced services such as Vertex AI to build, train, optimize, and deploy high-performance models.

You will be able to prepare and utilize data, implement models tailored to your use cases, scale your workflows using MLOps practices, and monitor your models in production.

Through a hands-on approach focused on real-world scenarios and practical workshops, this training will enable you to move from prototyping to reliable and scalable production deployment.

Upon completion of the course, you will be ready to take the official Professional Machine Learning Engineer certification exam.

Like all our courses, this one is based on the latest [GCP](#) best practices in Machine Learning, AI, and Google Cloud Platform.

## Objectives

- Master the machine learning lifecycle on GCP.

- Build and train high-performance models.
- Deploy and monitor models in production.
- Implement MLOps practices.
- Prepare for the GCP ML Engineer certification.

## Target Audience

- Data Engineers
- Data Scientists
- Machine Learning Engineers
- Data-oriented developers

## Prerequisites

- Knowledge of Python
- Basics of statistics and machine learning
- Basic understanding of cloud computing

# GCP Professional Machine Learning Engineer Certification Training Program

[Day 1 - Morning]

## Fundamentals of Machine Learning and the Google Cloud environment

- Understanding Key Concepts in Machine Learning and AI
- Positioning the Professional Machine Learning Engineer certification
- Discover Google Cloud AI/ML services and Vertex AI
- Identifying ML use cases in business
- Understanding the data model lifecycle
- Hands-on workshop: Getting started with Vertex AI.

[Day 1 - Afternoon]

## Data preparation, management, and quality

- Collecting and ingesting data from various sources
- Cleaning and transforming data (data preprocessing)
- Performing effective feature engineering
- Using BigQuery and Cloud Storage
- Ensuring data quality and consistency

- Hands-on workshop: Preparing an ML dataset.

## Data exploration and analysis

- Performing exploratory data analysis (EDA)
- Identifying biases, anomalies, and distributions
- Visualizing data with Python and GCP tools
- Interpret the results to guide modeling
- Prepare data for training
- Hands-on workshop: Comprehensive analysis of a dataset.

[Day 2 - Morning]

## Choosing machine learning models and algorithms

- Understanding regression, classification, and clustering models
- Distinguishing between supervised and unsupervised learning
- Selecting a model suited to a specific use case
- Managing overfitting
- Evaluating model performance
- Hands-on workshop: Selecting an ML model.

[Day 2 - Afternoon]

## Model training and optimization

- Using Vertex AI Training
- Optimizing hyperparameters
- Setting up cross-validation
- Manage training and test datasets
- Analyzing performance and adjusting models
- Hands-on workshop: Training a model on GCP.

## MLOps and pipeline industrialization

- Understanding the principles of MLOps
- Create pipelines with Vertex AI Pipelines
- Automating ML workflows
- Versioning models and datasets
- Integrating ML into CI/CD pipelines
- Hands-on workshop: Creating an ML pipeline.

## [Day 3 - Morning]

### Deploying models to production

- Deploying with Vertex AI Endpoints
- Creating real-time prediction APIs
- Managing batch predictions
- Versioning and managing models in production
- Optimizing scalability and performance
- Hands-on workshop: Deploying an ML model

## [Day 3 - Afternoon]

### Monitoring and continuous improvement

- Tracking model performance
- Detecting data drift and anomalies
- Setting up monitoring on GCP
- Automate model retraining
- Continuously improve performance
- Hands-on workshop: Setting up ML monitoring.

### Preparation for official certification

- Analyze the exam topics
- Study typical case studies
- Understanding Google's expectations
- Identifying common pitfalls
- Develop a strategy for success
- Hands-on workshop: Mock exam + review.

## Target Audience

This training is designed for both individuals and companies—large or small—that wish to train their teams in new advanced IT technologies or to acquire specific industry knowledge or modern methods.

## Assessment upon enrollment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals regarding the upcoming training, within the limits imposed by the selected format. This

questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for the monitoring and smooth running of the training session.

## Teaching Methods

Practical Course: 60% Practical, 40% Theory. Training materials distributed in digital format to all participants.

## Organization

The course alternates between theoretical input from the trainer, supported by examples and reflection sessions, and group work.

## Assessment

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been properly acquired.

## Certification

A certificate will be issued to each trainee who has completed the entire training program.