CDW Documentation

30 Day Plan to Deploy AI in GCP

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Here's a **30-day training plan** to get ready for **deploying and supporting AI on Google Cloud Platform (GCP)**, assuming you're working **full-time (5 days/week, 8 hours/day)**. This plan is focused on practical experience with **Vertex AI**, **pretrained models**, **custom model deployment**, and GCP's **data/ML tooling**.

Week-by-Week GCP AI Learning Plan

Week 1: GCP & AI Foundations

Goal: Understand GCP core services, AI stack, and setup basics.

Key Topics:

- GCP fundamentals: IAM, Projects, Billing, Networking
- GCP AI Stack overview: Vertex AI, AutoML, BigQuery ML, APIs
- Google AI principles, Responsible AI

Daily Plan:

Day	Topics	Hands-on
1	GCP Console, Projects, IAM	Set up GCP project, roles, billing
2	Cloud Storage, Compute, VPCs	Upload data, launch VM, configure buckets
3	Intro to Vertex AI	Explore Vertex AI dashboard & notebooks
4	AI building blocks (Vision, NLP, Speech)	Use pre-trained APIs via Cloud Functions
5	Responsible AI & ML workflow	Enable explainability, test data bias tools

Resources:

- Google Cloud Fundamentals
- AI and Machine Learning on GCP

Week 2: Prebuilt Models & AutoML with Vertex AI

Goal: Use and deploy AutoML models for common ML tasks.

Daily Plan:

Day	Topics	Hands-on
6	Vertex AI AutoML Vision	Train and deploy image classifier
7	Vertex AI AutoML Tables	Predict values using structured data
8	Vertex AI AutoML Text/NLP	Sentiment analysis, entity recognition
9	Endpoints & predictions	Deploy AutoML model to endpoint

10	Monitoring & logging	Enable monitoring, test predictions, quotas

 Resources:

- Vertex AI AutoML
- Vertex AI Workbench

Week 3: Custom Training, Model Deployment & BigQuery ML

Goal: Train and deploy custom models on GCP.

Daily Plan:

Day	Topics	Hands-on
11	Jupyter in Vertex AI Workbench	Launch notebook instance, train model
12	Custom Python models	Use Keras/sklearn to train and upload
13	Custom model deployment	Deploy using Vertex AI Model Registry
14	BigQuery ML overview	Train ML model on tabular data via SQL
15	BigQuery ML deep dive	Evaluate model, export predictions to table

 Resources:

- Vertex AI custom training
- BigQuery ML

Week 4: Pipelines, Generative AI & Final Project

Goal: Practice orchestration, GenAI APIs, and full AI solution deployment.

Daily Plan:

Day	Topics	Hands-on
16	Vertex AI Pipelines	Build a training and deployment pipeline
17	ML Ops tools (CI/CD, model monitoring)	Integrate with Cloud Build, logging
18	GenAI Studio + PaLM API	Prompt tuning with PaLM and Gemini APIs
19	Deploy GenAI-enabled chat/app	Integrate LLM with app or chatbot
20	Capstone: Deploy full AI solution	Includes custom model + prediction endpoint + dashboard

 Resources:

- Vertex AI Pipelines
- Generative AI on GCP
- LangChain + Vertex AI

Week 5: Review, Optimize, Certify

Goal: Refactor, optimize, and prepare for certification if desired.

Day	Topics	Hands-on
21	Refactor and document capstone project	
22	Implement CI/CD for ML models using Cloud Build	
23	Add monitoring/alerting with Cloud Monitoring	
24	Review Vertex AI limitations, pricing, cost controls	
25	Take mock exam or prep for **Google Cloud ML Engineer** certification	

Suggested Deliverables:

- Pre-trained AI API demo (Vision, Text)
- AutoML model (image or text)
- Custom-trained and deployed ML model
- BigQuery ML example
- GenAI demo app with prompt tuning
- End-to-end AI pipeline

Trello Board: GCP AI 30-Day Training Plan

List: Week 1 – GCP & AI Foundations

Cards:

- Set up GCP project, billing, and IAM roles
- Explore Cloud Console, Cloud Shell, and Cloud SDK
- Understand Cloud Storage, VPC, Compute Engine basics
- Intro to Vertex AI: features and dashboard
- Use pre-trained APIs: Vision, Natural Language, Speech-to-Text
- Explore GCP’s Responsible AI Toolkit
- Enable Cloud Monitoring and Logging for AI APIs

List: Week 2 – AutoML & Vertex AI Basics

Cards:

- Train image classifier with AutoML Vision
- Train structured model with AutoML Tables
- Perform text classification with AutoML NLP
- Deploy AutoML model to endpoint
- Run batch and online predictions
- Monitor model performance and quota usage
- Integrate AutoML model into an app

List: Week 3 – Custom Models & BigQuery ML

Cards:

- Launch Vertex AI Workbench and run sample notebook
- Train Keras/sklearn model locally and in the cloud
- Register model in Vertex AI Model Registry
- Deploy custom model to endpoint
- Query and train models with BigQuery ML (linear/logistic regression)
- Export BigQuery ML predictions to table
- Evaluate models with confusion matrix and AUC

□ List: Week 4 – Pipelines, GenAI, Capstone

Cards:

- Build Vertex AI Pipeline (training + deployment steps)
- Add data preprocessing to pipeline with TFX or Kubeflow
- Set up CI/CD for ML models using Cloud Build
- Try prompt tuning in Generative AI Studio
- Call PaLM/Gemini APIs from Python or Postman
- Build GenAI-powered chatbot/app
- Plan and start building capstone AI solution

□ List: Week 5 – Optimization & Review

Cards:

- Finalize and test AI capstone project end-to-end
- Add monitoring and alerting to deployed models
- Review cost management and pricing for AI solutions
- Refactor pipelines and models for reusability
- Prepare for Google Cloud ML Engineer certification
- Take mock exam or Google Skills Boost challenge lab

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