



# Agent Operations on Google Cloud

## Course description

Agent Operations on Google Cloud is an advanced-level, instructor-led course that introduces learners to operationalizing AI agents on Google Cloud using Agent Operations (AgentOps) practices. Participants explore how to manage, deploy, monitor, evaluate, secure, and optimize production-grade agentic systems using Google Cloud services and the Agent Development Kit (ADK).

The course covers CI/CD pipelines for agents, observability using Cloud Logging and Cloud Trace, evaluation systems using the Vertex AI Generative AI Evaluation Service, governance and security with Model Armor and Sensitive Data Protection, and FinOps strategies for optimizing AI agent costs.

Through guided labs, demonstrations, and real-world operational workflows, learners gain practical experience building scalable, secure, observable, and cost-efficient AI agent ecosystems on Google Cloud.

- Course level: Advanced
- Duration: 1 day

## Activities

This course includes instructor-led presentations, technical demonstrations, guided implementation exercises and practical labs, interactive agent deployment and debugging workflows, observability and evaluation implementation exercises, real-world AI operations scenarios, troubleshooting activities, quizzes, and interactive discussions.

## Course objectives

In this course, you will learn to:

- Understand AgentOps concepts and the challenges of managing production agents.
- Build CI/CD pipelines for AI agent deployments.
- Select deployment targets for agentic applications on Google Cloud.
- Implement observability and debugging workflows for agents.
- Use Cloud Logging and Cloud Trace for monitoring AI agents.
- Evaluate agent responses and behaviors using ADK and the Vertex AI Evaluation Service.
- Implement security guardrails using Model Armor.
- Protect sensitive data using Sensitive Data Protection.
- Apply FinOps strategies for AI agent cost optimization.
- Build scalable and governed operational workflows for AI agents.

## Intended audience

This course is intended for professionals operationalizing AI agent systems on Google Cloud:

- Application Developers
- DevOps Engineers
- ML Engineers
- AI Platform Engineers
- Professionals deploying AI agent systems on Google Cloud
- Cloud Architects working with Generative AI solutions

## Prerequisites

We recommend that attendees of this course have:

- Completion of “Deploy Multi-Agent Systems with Agent Development Kit and Agent Engine” or equivalent knowledge.
- Python programming knowledge.
- Understanding of prompt engineering concepts.
- Familiarity with Agent Development Kit (ADK) workflows.
- Experience with Google Cloud and AI application development.

## Course outline

## **Module 1: Introduction to AgentOps on Google Cloud**

- Challenges of managing production agents
- Core principles of AgentOps
- AgentOps on Google Cloud
- Architecting operational workflows for AI agents on Google Cloud
- Discussion: Navigating the operational challenges of production agents.

## **Module 2: CI/CD for Agent Deployments**

- CI/CD review for agentic applications
- Agentic deployment targets and selection strategies
- CI/CD tooling and patterns on Google Cloud
- Cloud Build automation and automated release workflows
- Hands-on Lab: CI/CD for Agents on Google Cloud.

## **Module 3: Observability for Debugging and Improvement**

- Observability review and the challenges observability solutions address
- Logging with agent callback logging and structured logs for ADK agents
- Logging and tracing with OpenTelemetry, including tracing on Agent Engine and Cloud Run
- Monitoring and visualization workflows using BigQuery and Looker Studio
- Hands-on Lab: Instrument and Debug Agents with Cloud Logging and Cloud Trace.

## **Module 4: Agent Evaluation and Quality Assurance**

- Testing and validating generative AI model responses
- Evaluating agent behavior, tool usage, and trajectories
- Evalset creation and management using ADK
- Vertex AI Generative AI Evaluation Service workflows
- Hands-on Lab: Evaluating Agents with ADK.

## **Module 5: Security and Governance**

- Model and context security concepts
- Agent access control and secure communication between users and agents
- Securing model inputs and outputs using Model Armor
- Sensitive Data Protection integration and governance strategies for agentic applications
- Hands-on Lab: Enhancing AI Security with Model Armor and Sensitive Data Protection.

## **Module 6: Applying FinOps to Agent Costs**

- Primary cost drivers for AI agents
- Reducing token and model costs
- Architecting cost-efficient agentic systems
- FinOps on Google Cloud and measurable AI FinOps operational loops
- Final discussion: Cost optimization review.

Your course overview ends here.  
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## About CloudThat

Established in 2012, CloudThat is an award-winning company and the first in India to offer cloud training and consulting services for individuals and enterprises worldwide. Recently, it won Google Cloud's New Training Partner of the Year Award for 2025, becoming the first company in the world in 2025 to hold awards from all three major cloud giants: AWS, Microsoft, and Google. CloudThat notably won consecutive AWS Training Partner of the Year (APJ) awards in 2023 and 2024 and the Microsoft Training Services Partner of the Year Award in 2024, bringing its total award count to an impressive 12 awards in the last 8 years.

CloudThat specializes in Cloud Migration, Data Platforms, DevOps, IoT, and cutting-edge technologies like Gen AI & AI/ML. As a Microsoft Solutions Partner, AWS Premier Tier Training Partner, Google Cloud Platform Partner, and collaborator with leading organizations like HPE, Oracle, Nvidia and Databricks, CloudThat has trained over 850,000 professionals across 600+ cloud certifications, empowering students and professionals worldwide to advance their skills and careers.

To know more about our cloud certification training, email at [sales@cloudthat.com](mailto:sales@cloudthat.com) or call us at [+91-8880002200](tel:+91-8880002200) or [+1-8555588830](tel:+1-8555588830) for those from outside India.