

Build Multi-Agent Systems Using Google's Agentic Stack

This 4-hour vILT course develops skills in building multi-agent solutions using ADK, MCP, A2A, Agent Engine, Cloud Run and Gemini Enterprise. You will build and deploy a realistic multi-agent system on Google Cloud with an integrated agent in Gemini Enterprise to solve a realistic use case related to customer engagement.

**DURATION**

4 hours

**LEVEL**

300 - Advanced

**FORMAT**

Instructor-led

What you'll learn

- Create capable agents using Agent Development Kit
- Access remote tools using Model Context Protocol
- Implement sensitive data guardrails with Model Armor and Sensitive Data Protection templates
- Enable agentic system observability with Cloud Trace and Cloud Logging
- Build systems of agents the work together using the Agent2Agent (A2A) protocol
- Deploy agents to Cloud Run and Agent Engine
- Expose agent to users through Gemini Enterprise



Overview	4 modules · 3 labs
Who this course is for	• Application Developers, DevOps Engineers, ML Engineers and anyone deploying agentic applications on Google Cloud
Products	• Gemini Enterprise • Agent Platform • Model Armor • Agent Runtime on Gemini Enterprise Agent Platform • Confidential Cloud Run • Agent Studio on Gemini Enterprise Agent Platform
Prerequisites	• Completion of Deploy Multi-Agent Systems with Agent Development Kit and Agent Engine, or equivalent knowledge • Strong familiarity with the business domains and processes being addressed

Module
01

Getting Started

Topics	• Course introduction • Pre-work discussion • Introduce the challenge and its solution
Objectives	• Understand the course structure and goals. • Discuss pre-work materials. • Understand the challenge to be addressed in the course and its proposed solution.

Module 02

Implement and test the data agent

Topics	• Implement and test the data agent
Objectives	• Set up development environment • Review base agent code • Implement MCP tooling • Enable logging and tracing • Add Model Armor sanitization • Create an A2A server • Test locally and deploy to Cloud Run
Activities	• Lab: Implement and test the data agent

Module 03

Implement and test the improvement agent

Topics	• Implement and test the improvement agent
Objectives	• Review base agent code • Add authentication tooling • Build RemoteA2aAgent objects • Create AgentTools • Add tools to agent • Test locally and deploy to Agent Engine • Add agent to Gemini Enterprise



Module
04

Complete the multi-agent solution

Topics	• Complete the multi-agent solution
Objectives	• Complete and deploy second agent • Review third agent code • Implement MCP tooling • Create an A2A server • Deploy and test the entire solution
Activities	• Challenge Lab: Complete, deploy, and test the intervention agent