






Deploy multi-agent systems with Agent Development Kit and Agent Engine

In this course, you'll learn to use the Google Agent Development Kit to build complex, multi-agent systems. You will build agents equipped with tools, and connect them with parent-child relationships and flows to define how they interact. You'll run your agents locally and deploy them to Vertex AI Agent Engine to run as a managed agentic flow, with infrastructure decisions and resource scaling handled by Agent Engine.

 **DURATION**
One day

 **LEVEL**
Advanced

 **FORMAT**
Instructor-led
and On demand

What you'll learn

- Build an agent with tools using the Google Agent Development Kit.
- Establish interaction patterns between multiple agents with parent-child relationships and flows.
- Utilize features such as session memory, artifact storage, and callbacks.
- Deploy a multi-agent app to Agent Engine.
- Query an agent app running on Agent Engine.
- Evaluate agents within the Agent Development Kit.



Overview	5 modules · 4 labs · 9 classroom activities
Who this course is for	<ul style="list-style-type: none">• Machine learning engineers• Gen AI engineers
Products	<ul style="list-style-type: none">• Agent Development Kit• Vertex AI Agent Engine
Prerequisites	Python, gen AI prompt engineering, gen AI tool use
Not covered	Testing and evaluation of models

Module 01 Get started with the Agent Development Kit

Topics	Basics of building an agent in the Agent Development Kit.
Objectives	<ul style="list-style-type: none">• Explain how the Agent Development Kit compares to other tools such as the Google Gen AI SDK or LangChain.• Describe the parameters used to build an agent in Agent Development Kit.

Module 02 Empower Agent Development Kit agents with tools

Topics	Enhance agents with tools and cover the growing breadth of available tools.
Objectives	<ul style="list-style-type: none">• Discuss the importance of structured docstrings and typing when writing tool functions for agents.• Demonstrate the ability to provide tools to an agent.• List common and useful tools available for the Agent Development Kit agents, including LangChain tools.
Activities	Lab: Get started with Agent Development Kit (ADK) Lab: Empower ADK agents with tools



Module 03 Build multi-agent systems with Agent Development Kit

Topics	Manage communication and task-sharing between agents through parent-child relationships and flows to enable coordinated responses to queries.
Objectives	<ul style="list-style-type: none">• Describe the directory structure and naming conventions encouraged by the Agent Development Kit.• Demonstrate the ability to create multiple agents and relate them to one another with parent-child relationships.• Describe the different flow options and when you might use them.• Get responses that have passed through multiple agents.• Control content at different points with callbacks.
Activities	Lab: Build multi-agent systems with ADK

Module 04 Deploy Agent Development Kit agents to Agent Engine

Topics	Deploying agent apps to Agent Engine and querying responses.
Objectives	<ul style="list-style-type: none">• Describe the benefits of deploying agents, especially multi-agent systems, to Agent Engine over self-hosting, such as in Vertex AI online predictions.• Demonstrate deploying to Agent Engine.• Demonstrate querying a deployed agent app.
Activities	Lab: Deploy ADK agents to Agent Engine

Module 05 Evaluate agent systems

Topics	Evaluate agents within the Agent Development Kit.
Objectives	<ul style="list-style-type: none">• Evaluate agents within the Agent Development Kit.• Use the web interface to view evaluations.

