

AI Powered Application Development on Google Cloud

This course provides a practical guide to the 'Vibe Coding' methodology, enabling developers to shift their operational focus from manual syntax authoring to AI-directed logic management on Google Cloud. Participants will learn to orchestrate the full Gemini ecosystem—leveraging Gemini Code Assist for high-velocity feature development and the Gemini CLI Agent for complex, multi-file system automation. The course bridges the gap between rapid prototyping and professional engineering. Learners will master intent-based prompting strategies, 'agentic' workflows for infrastructure-as-code, and the essential 'human-in-the-loop' validation protocols required to secure and audit AI-generated software. This approach aims to drastically reduce implementation time while maintaining strict standards for security and code quality.

**DURATION**

2-3 hours

**LEVEL**

200 - Intermediate

**FORMAT**

Instructor-led

**SCALABLE**

1-50, scaled to 1000

What you'll learn

- **Shift Mindset:** Transition from manual syntax writing to high-level 'Vibe Coding' (prompting for outcomes rather than typing logic).
- **Micro-Workflow:** Generate, refine, and test code within the IDE using Gemini Code Assist.
- **Macro-Workflow:** Execute complex, multi-file system tasks using natural language instructions via the Gemini CLI Agent.
- **Governance:** Validate and secure AI-generated code using established professional standards (The 'Director' role).

Overview	5 modules
Who this course is for	• Software Engineers looking to accelerate the 'idea-to-code' cycle and generate functions and unit tests instantly; DevOps / SREs aiming to automate system tasks, leverage CLI Agents for multi-file refactoring and infrastructure generation; and Technical Leads seeking to implement 'Vibe Coding' workflows while enforcing strict validation and security guardrails.
Products	• Gemini Code Assist • Gemini Enterprise • Gemini Cloud Assist • Cloud Workstations • Cloud Shell Editor • Cloud Shell
Prerequisites	• Basic familiarity with an IDE • Terminal commands • Basic Web Development
Not covered	• Machine learning model architectures • Model training/fine-tuning (Vertex AI) • Introductory programming syntax

Module 01 [The Vibe Coding Revolution](#)

Topics	• The Vibe Shift • The "Director" Mindset • The Ecosystem Map
Objectives	• Contrast traditional coding with the Vibe Coding workflow. • Identify new skills required for prompting, reviewing, and iterating. • Position Code Assist and CLI within the Vibe workflow.
Activities	• 1 poll

Module 02

The Micro Workflow | Building with Code Assist

Topics	• Smart Completion & Generation • The Chat Interface • Test Generation
Objectives	• Construct natural language prompts that generate functional code. • Execute "Explain" and "Refine" commands for code understanding. • Generate unit tests using single-shot prompts.
Activities	• 1 demo • 1 poll

Module 03

The Macro Workflow | The CLI and Agents

Topics	• Natural Language System Control • The "Vibe" Loop in Action • Scaffolding & Architecture • The Strategic Agents (Preview) • Troubleshooting the "Vibe"
Objectives	• Translate intent into executable shell commands. • Execute project-wide transformations using the CLI agent. • Rapidly prototype project structures using agentic prompts. • Contrast tactical execution with strategic agent workflows. • Analyze and fix system-level errors spanning multiple files.
Activities	• 2 discussions • 3 demos

Module 04

Security and Governance

Topics

- The Human Guardrails
- Security and IP Risks
- Validation Protocols

Objectives

- Critique AI outputs for hallucinations and logic gaps.
- Identify security risks in rapid AI development.
- Apply strict review protocols before committing code.

Activities

- 1 discussion

Module 05

AI Powered Application Development on Google Cloud: Quiz/Reflection

Topics

- Review of Core Concepts

Objectives

- Evaluate understanding of core course concepts through scenario-based questions.

Activities

- 5 scenario-based multiple choice questions