



AI Powered Application Development on Google Cloud

Course description

Learn how to accelerate application development using Google's AI-powered developer tools and the emerging "Vibe Coding" methodology. Explore how Gemini Code Assist and Gemini CLI Agent enable developers to shift from manual coding to intent-driven software creation, automate development workflows, and maintain security and governance through human-in-the-loop validation practices.

- Course level: Intermediate
- Duration: 1 day

Activities

This course includes instructor-led training, live demonstrations, interactive discussions, scenario-based learning, ai development workflows, prompt engineering exercises, knowledge checks, and reflection and assessment activities to reinforce learning.

Course objectives

In this course, you will learn to:

- Transition from manual coding to intent-driven AI-assisted development.
- Apply the Vibe Coding methodology to software projects.
- Use Gemini Code Assist for code generation and refinement.

- Generate and validate unit tests using AI assistance.
- Utilize Gemini CLI Agent for system-level automation.
- Perform multi-file refactoring using natural language prompts.
- Accelerate application scaffolding and architecture design.
- Identify and mitigate risks associated with AI-generated code.
- Apply governance and validation protocols for AI-assisted development.
- Improve software delivery speed while maintaining code quality.

Intended audience

This course is intended for:

- Software Engineers
- Application Developers
- Full Stack Developers
- Backend Developers
- DevOps Engineers
- Site Reliability Engineers (SREs)
- Technical Leads
- Platform Engineers
- Development Team Leads

Prerequisites

We recommend that attendees of this course have:

- Basic familiarity with an IDE.
- Familiarity with terminal commands.
- Basic web development knowledge is helpful.
- Prior software development experience is recommended.

Products covered

- Gemini Code Assist
- Gemini for Google Cloud
- Cloud Shell Editor

- Cloud Shell

Course outline

Module 01 - The Vibe Coding Revolution

- The Vibe Shift
- The "Director" Mindset
- The Gemini Ecosystem Map
- Modern AI-Assisted Development

Module 02 - The Micro Workflow | Building with Code Assist

- Smart Completion and Code Generation
- Working with the Chat Interface
- AI-Assisted Test Generation
- Code Explanation and Refinement

Module 03 - The Macro Workflow | The CLI and Agents

- Natural Language System Control
- The Vibe Loop in Action
- Application Scaffolding and Architecture
- Strategic Agents Overview
- Troubleshooting AI-Assisted Development

Module 04 - Security and Governance

- Human Guardrails
- Security Risks in AI-Assisted Development
- Intellectual Property Considerations
- Validation and Review Protocols
- Governance Best Practices

Module 05 - AI Powered Application Development on Google Cloud: Quiz and Reflection

- Review of Core Concepts
- Course Reflection
- Knowledge Assessment

Certification details

Participants receive a course completion certificate upon successfully attending the training program.

FAQs

Who should attend this course?

This course is designed for software engineers, DevOps professionals, SREs, technical leads, and developers interested in AI-assisted software development.

What is Vibe Coding?

Vibe Coding is a development methodology where developers focus on describing outcomes and business intent while AI tools assist with code generation, implementation, testing, and automation.

What tools are covered in the course?

The course covers Gemini Code Assist, Gemini CLI Agent, Gemini for Google Cloud, Cloud Shell Editor, and Cloud Shell.

Is this course suitable for beginners?

The course assumes basic software development knowledge and familiarity with IDEs and terminal commands.

Does the course cover machine learning model development?

No. The course focuses on AI-assisted software development workflows and does not cover model training, fine-tuning, or Vertex AI model development.

Will I learn how to use Gemini CLI Agent?

Yes. Participants learn how to use Gemini CLI Agent for automation, project scaffolding, refactoring, and multi-file development workflows.

How long is the course?

The course is delivered in a 3-hour instructor-led format.

What business benefits can organizations expect?

Organizations can accelerate software delivery, improve developer productivity, reduce implementation effort, enhance code quality, streamline development workflows, and adopt AI-assisted engineering practices while maintaining governance and security standards.