

uCertify

Course Outline

Generative AI for Software Developers



13 Apr 2026

1. Exercises, Quizzes, Flashcards & Glossary

Number of Questions

2. Expert Instructor-Led Training

3. ADA Compliant & JAWS Compatible Platform

4. State of the Art Educator Tools

5. Award Winning Learning Platform (LMS)

6. Chapter & Lessons

Syllabus

Chapter 1: Preface

Chapter 2: The Art and Science of Generative AI

Chapter 3: Getting Started with Generative AI

Chapter 4: Generative AI Architecture Fundamentals

Chapter 5: Generative AI in Software Development

Chapter 6: Prompt Engineering For Software Developers

Chapter 7: Integrating Generative AI into the Software Development Cycle

Chapter 8: Ethical and Security Best Practices in Generative AI

Chapter 9: Generative AI Application Architecture and Design

Chapter 10: Reinforcement Learning and AI Agent Architecture Design

Chapter 11: Well-Architecting and Fine-tuning GenAI Application

Chapter 12: Building a GenAI App from Prototype to Production

Videos and How To

7. Performance Based labs

Lab Tasks

Here's what you get

1.  Exercises

There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.

104
EXERCISES

2. Quiz

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.

170
QUIZ

3. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.

125
FLASHCARDS

4. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.



5. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

6. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

7. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

8. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
 1. Best Postsecondary Learning Solution

- **2015**
 1. Best Education Solution
 2. Best Virtual Learning Solution
 3. Best Student Assessment Solution
 4. Best Postsecondary Learning Solution
 5. Best Career and Workforce Readiness Solution
 6. Best Instructional Solution in Other Curriculum Areas
 7. Best Corporate Learning/Workforce Development Solution

- **2016**
 1. Best Virtual Learning Solution
 2. Best Education Cloud-based Solution
 3. Best College and Career Readiness Solution
 4. Best Corporate / Workforce Learning Solution
 5. Best Postsecondary Learning Content Solution

6. Best Postsecondary LMS or Learning Platform
7. Best Learning Relationship Management Solution

- **2017**

1. Best Overall Education Solution
2. Best Student Assessment Solution
3. Best Corporate/Workforce Learning Solution
4. Best Higher Education LMS or Learning Platform

- **2018**

1. Best Higher Education LMS or Learning Platform
2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

- **2019**

1. Best Virtual Learning Solution
2. Best Content Authoring Development or Curation Solution
3. Best Higher Education Learning Management Solution (LMS)

- **2020**

1. Best College and Career Readiness Solution
2. Best Cross-Curricular Solution
3. Best Virtual Learning Solution

9. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Preface

- Who is this course for
- Why This course Matters Now
- What this course covers
- Accessing Code
- To get the most out of this book

Chapter 2: The Art and Science of Generative AI

- What is Generative AI?
- Generative AI Use Cases
- Generative AI Benefits
- Myths Around Generative AI
- Challenges of Generative AI
- Generative AI for Software Development
- How Developers Should Evolve with Generative AI
- Summary

Chapter 3: Getting Started with Generative AI

- Expanding Your Generative AI Knowledge: SLMs, LLMs, and LMMs
- Foundation Models in Generative AI
- How to Start with Generative AI
- Code Generation Using Generative AI
- Agentic AI Workflows
- How Generative AI is Becoming Democratized
- Summary

Chapter 4: Generative AI Architecture Fundamentals

- Understanding Generative AI Models Architecture
- Category of Generative AI Models and Their Architecture
- Approaches of Generative Models
- Hyperparameter Tuning and Regularization
- Model Evaluation Techniques
- Choosing the Right Generative Model for Specific Use Cases
- Best Practices for Model Evaluation
- Summary

Chapter 5: Generative AI in Software Development

- Impact of Generative AI on Software Development
- Essential Tools and Frameworks for Gen AI-Based Software Application Development
- GenAI Ops: Operationalizing Generative AI Applications
- Summary

Chapter 6: Prompt Engineering For Software Developers

- Why Prompt Engineering?
- Prompt Techniques
- Prompt Use Cases for the Software Development Lifecycle (SDLC)
- Prompt Management Cycle and Best Practices
- Prompt Engineering Tools
- Summary

Chapter 7: Integrating Generative AI into the Software Development Cycle

- Industry Study on Developer Productivity with Generative AI
- Transforming Software Development with Generative AI in the SDLC
- Generative AI for Specific Programming Tasks

- End-to-End AI Integration in the SDLC
- Challenges and Tradeoffs in AI Integration
- Key Metrics and KPIs for Measuring AI Impact
- Next Steps: Sustaining and Expanding AI Integration
- The Future Outlook
- Summary

Chapter 8: Ethical and Security Best Practices in Generative AI

- Why the New Concerns?
- Bias in AI-Generated Code
- Model Architecture and Optimization Bias
- Human Feedback Bias
- Strategies to Mitigate Bias
- Prompt Safety and Security for Responsible AI
- Intellectual Property (IP) Considerations
- Privacy Concerns in Generative AI
- Key AI Laws and Guidelines
- Security Risks in AI Applications

- Security Architecture for Generative AI Apps
- Guardrails for Secure Use of Generative AI Applications
- Observability from an Ethical AI Perspective
- Summary

Chapter 9: Generative AI Application Architecture and Design

- Principles of Generative AI Application Architecture
- Text Generation Architecture
- Text Summarization Architecture
- Q&A (Question and Answer) App architecture
- Chatbot Architecture
- Image and Video Generation App Architecture
- GenAI Architecture for Industry Use Cases
- Summary

Chapter 10: Reinforcement Learning and AI Agent Architecture Design

- What is Reinforcement Learning?
- Reinforcement Learning with Human Feedback

- Automated Reinforcement Learning (AutoRL)
- GenAI Agents
- Agentic AI
- Building an Intelligent Travel Assistant
- GenAI Multi-Agent Systems
- Function Calling with LLMs
- Summary

Chapter 11: Well-Architecting and Fine-tuning GenAI Application

- What is Model Fine-Tuning?
- Model Evaluation
- LLM Benchmarking
- Building Well-Architected Gen AI Applications
- Well-Architected Framework Pillars for GenAI Applications
- Summary

Chapter 12: Building a GenAI App from Prototype to Production

- Building SkillGenie - Problem Statement
- SkillGenie – Features

- SkillGenie User Journey
- System Design for SkillGenie
- API Design
- Prototype Development
- Safe use of AI and content moderation
- Enhancing SkillGenie outputs using Agentic AI
- Production Launch
- Post-Production Monitoring
- Summary

10. Performance Based Labs

uCertify's performance-based labs are simulators that provides virtual environment. Labs deliver hands on experience with minimal risk and thus replace expensive physical labs. uCertify Labs are cloud-based, device-enabled and can be easily integrated with an LMS. Features of uCertify labs:

- Provide hands-on experience in a safe, online environment
- Labs simulate real world, hardware, software & CLI environment
- Flexible and inexpensive alternative to physical Labs
- Comes with well-organized component library for every task
- Highly interactive - learn by doing
- Explanations and remediation available
- Videos on how to perform

Lab Tasks

- Mastering Generative AI
- Getting Started with Generative AI
- Applying Advanced Techniques for Controlling ChatGPT
- Understanding Generative AI Architecture Fundamentals
- Understanding Generative AI in Software Development
- Exploring Different Prompt Styles
- Exploring Advanced Prompting Techniques
- Applying Basic AI Prompting to SDLC Activities
- Exploring AI-Prompt Use Cases Across the SDLC
- Integrating Generative AI into the SDLC
- Shaping the Future of Prompt Engineering
- Designing and Architecting Generative AI Applications
- Generating and Learning with Agentic AI
- Tuning and Benchmarking GenAI
- Developing SkillGenie

Here's what you get



You can't stay away! Get