



Custom API Development with ChatGPT: Practical AI Integration



Custom API Development with ChatGPT: Practical AI Integration

الرجوع: 103600368_52703 التاريخ: 14 - 18 Sep 2026 الموقع: لندن - الراسونج: Euro 5700

Course Overview:

"Building Custom APIs with ChatGPT: Practical AI Integration Training Course" is a hands-on, corporate-focused program designed to empower developers, engineers, and technical leads with the skills to create secure, scalable, and efficient AI-powered APIs using the ChatGPT API and OpenAI API. Drawing from the practical insights in "Crafting Applications with ChatGPT API Using Python" and advanced prompt patterns from "Prompt Engineering with ChatGPT," this course guides participants through the complete lifecycle of designing, integrating, and deploying custom APIs with Python. Whether you're leveraging Flask or FastAPI, the course teaches Python ChatGPT API integration, OpenAI API authentication, and best practices for secure API key usage. You'll learn how to build ChatGPT applications, automate API responses, apply prompt engineering techniques, and deliver intelligent AI-driven services. This AI developer training is essential for teams looking to build AI-powered apps, develop OpenAI chatbot projects, or automate APIs with ChatGPT in both low-code and pro-code environments. By the end, you'll have a functioning API prototype ready for real-world deployment.

Target Audience:

- API developers
- Backend engineers
- Full-stack developers
- DevOps professionals
- AI/ML engineers
- Technical project managers

Targeted Organizational Departments:

- IT and Software Development
- R&D and Innovation Labs
- Digital Transformation Units
- Data Science & AI Departments
- Automation & Process Improvement Teams

Targeted Industries:

- Technology & SaaS Companies
- Financial Services & Fintech
- Healthcare & Medical Systems
- Government & Public Sector
- E-commerce & Retail
- Education & EdTech Platforms

Course Offerings:

By the end of this course, participants will be able to:

- Use the OpenAI API and ChatGPT API for custom application development
- Implement Python ChatGPT API integration using Flask and FastAPI
- Design secure APIs with OpenAI API key authentication
- Create intelligent chat interfaces using prompt engineering patterns
- Build and deploy scalable, reusable API services
- Apply OpenAI GPT-4 API usage techniques in real-world environments
- Automate tasks and workflows with API automation using ChatGPT
- Develop solutions for OpenAI chatbot development and AI-powered apps

Training Methodology:

-This course uses an interactive, project-based methodology combining live coding sessions, hands-on labs, real world case studies, and expert-led discussions. Participants will work in teams to build functional prototypes of ChatGPT-powered APIs using Python and explore different architecture options with Flask and FastAPI. We incorporate prompt engineering techniques from the latest research to help attendees optimize API outputs. Feedback sessions, pair programming, guided debugging, and practical demos reinforce learning outcomes. These collaborative and iterative methods are designed to mimic real workplace environments where AI services are integrated into production systems. Concepts such as secure OpenAI API authentication, low-code API wrappers, and automation patterns are explored using proven frameworks from the uploaded PDFs.

Course Toolbox:

- Code samples and API templates Flask, FastAPI
- Access to OpenAI API documentation
- Prompt engineering workbook PDF excerpts
- GitHub projects for ChatGPT API integration
- Authentication examples with secure API key usage
- Sample .env configurations
- Troubleshooting checklists for OpenAI API errors
- Deployment scripts for Python-based APIs

Course Agenda:



Day 1: Foundations of ChatGPT API & Python Setup

- Introduction to ChatGPT API and OpenAI API capabilities Topic 1: •
- Key use cases for building ChatGPT applications Topic 2: •
- Overview of OpenAI GPT-4 API usage and pricing Topic 3: •
- Setting up Python environments and API key authentication Topic 4: •
- Making your first OpenAI API call using Python Topic 5: •
- Introduction to Flask for basic API creation Topic 6: •
- Aligning API potential with business needs Reflection & Review: •

Day 2: Building Custom APIs with Flask

- Designing RESTful APIs using Flask and Python Topic 1: •
- Flask ChatGPT API integration: request-response cycles Topic 2: •
- Managing routes, sessions, and prompt inputs in Flask Topic 3: •
- Using environment variables to secure OpenAI API keys Topic 4: •
- Real-world example: build a custom Q&A bot endpoint Topic 5: •
- Unit testing and debugging Flask ChatGPT APIs Topic 6: •
- Hands-on troubleshooting and lessons learned Reflection & Review: •

Day 3: Advanced Integration with FastAPI

- FastAPI for async and high-performance APIs Topic 1: •
- Step-by-step FastAPI OpenAI API integration Topic 2: •
- Handling asynchronous prompts and responses Topic 3: •
- Building modular, scalable FastAPI ChatGPT services Topic 4: •
- Comparison of Flask vs FastAPI for OpenAI chatbot development Topic 5: •
- Secure deployment tips for FastAPI + ChatGPT API solutions Topic 6: •
- Project checkpoint and peer code review Reflection & Review: •

Day 4: Prompt Engineering & API Intelligence

- Introduction to prompt engineering for API outputs Topic 1: •
- Reusable prompt patterns Output Automater, Reflection, Persona Topic 2: •
- Designing APIs with dynamic prompt generation Topic 3: •
- Cognitive verifier and question refinement prompts Topic 4: •
- Handling vague input and reducing hallucination via prompts Topic 5: •
- Logging and monitoring prompt performance in APIs Topic 6: •
- Prompt audits and enhancement workshops Reflection & Review: •

Day 5: Automation, Deployment & Final Project

- Capstone: Building your own intelligent API with ChatGPT
- Topic 1: Automating repetitive tasks via API integration
- Topic 2: Securing your OpenAI API deployments in production
- Topic 3: Low-code & no-code wrappers for API prototyping
- Topic 4: Hosting on cloud platforms Render, Vercel, or AWS
- Topic 5: Final review: ChatGPT API design best practices
- Topic 6: Group presentations and instructor feedback
- Reflection & Review

FAQ:

What specific qualifications or prerequisites are needed for participants before enrolling in the course?

A basic understanding of Python and REST API principles is recommended. Familiarity with Flask or FastAPI is a bonus but not required.

How long is each day's session, and is there a total number of hours required for the entire course?

Each day's session is generally structured to last around 4-5 hours, with breaks and interactive activities included. The total course duration spans five days, approximately 20-25 hours of instruction.

What if my API generates inconsistent or irrelevant responses from ChatGPT?

This issue is often tied to poor prompt design or lack of context in your prompt. We address this using the "Prompt Pattern Catalog" , including techniques like Output Automater and Reflection Patterns that help you consistently shape API responses.

How This Course is Different from Other ChatGPT API Courses:

Unlike other courses that simply show how to call the ChatGPT API, "Building Custom APIs with ChatGPT: Practical AI Integration Training Course" offers deep integration practices based on two powerful references: "Crafting Applications with ChatGPT API Using Python" and "Prompt Engineering with ChatGPT." This course emphasizes hands-on development, reusable prompt patterns, Flask and FastAPI examples, secure API architecture, and end-to-end implementation. While others focus only on prompt basics or chatbot demos, we guide you through professional-grade API design, prompt testing frameworks, and real-world automation use cases. We don't provide commercial tools, but you'll explore tools and examples that illustrate modern AI-driven development. Whether you're a developer or technical team leader, this course equips you to confidently build, secure, and deploy OpenAI-powered APIs aligned with business goals.



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WHO WE ARE

Agile Leaders is a renowned training center with a team of experienced experts in vocational training and development. With 20 years of industry experience, we are committed to helping executives and managers replace traditional practices with more effective and agile approaches.

OUR VISION

We aspire to be the top choice training provider for organizations seeking to embrace agile business practices. As we progress towards our vision, our focus becomes increasingly customer-centric and agile.

OUR MISSION

We are dedicated to developing value-adding, customer-centric agile training courses that deliver a clear return on investment. Guided by our core agile values, we ensure our training is actionable and impactful.

WHAT DO WE OFFER

At Agile Leaders, we offer agile, bite-sized training courses that provide a real-life return on investment. Our courses focus on enhancing knowledge, improving skills, and changing attitudes. We achieve this through engaging and interactive training techniques, including Q&As, live discussions, games, and puzzles.



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