KOENIG SOLUTIONS · COURSE OUTLINE

Agentic AI: LangChain, LangGraph & Azure OpenAI

Learn to design, orchestrate and deploy reasoning-capable AI agents using LangChain, LangGraph and Azure OpenAI.

40 Hours	12	45	1
DURATION	MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This hands-on course offers a practical deep dive into Generative and Agentic AI, guiding participants through the design and deployment of autonomous, reasoning-capable systems using both proprietary models like GPT-4 and open-source tools such as LLaMA 2, CLIP, and LangChain. Learners will explore multi-modal integration across text, vision, and audio, build intelligent chatbots, orchestrate agents with LangGraph, and manage experimentation with MLflow. With a strong focus on Azure OpenAI and scalable cloud deployment, the course equips professionals to create real-world AI solutions that reason, adapt, and operate autonomously across diverse domains.

WHO THIS COURSE IS FOR

- **AI Engineers**
- **Machine Learning Engineers**
- **Data Scientists**
- **Cloud Solution Architects**
- **Software Developers**
- **Chatbot Developers**

PREREQUISITES

- Functional Knowledge of Python

TOOLS AND REQUIREMENTS

- Students would be required to bring their own Azure Subscription to perform labs

LEARNING OBJECTIVES

- Compare Generative AI and Agentic AI capabilities and definitions
- Evaluate Azure OpenAI and open-source models such as LLaMA 2 and CLIP
- Apply Chain-of-Thought and ReAct reasoning frameworks
- Integrate text, vision and audio inputs in multi-modal workflows
- Build autonomous workflows and agents with LangChain
- Configure multi-agent orchestration using LangGraph
- Develop chatbots with reasoning and tool use
- Deploy AI models and monitor them on Azure cloud infrastructure

COURSE SYLLABUS

12 Modules, 45 Topics

01

Introduction to Generative & Agentic AI

TOPICS

- **Generative AI vs Agentic AI:** Definitions and Key Differences
- **Capabilities:** Reasoning, Autonomy, Multi-Modal Understanding
- Ethical considerations & responsible AI practices

02

Azure OpenAI & OpenAI Models

TOPICS

- Overview of Azure OpenAI service architecture & integration
- GPT-3.5, GPT-4, GPT-4 Turbo, GPT-5 (nano, mini, standard)
- **Model selection criteria:** latency, cost, accuracy, and context length
- Azure-specific deployment and governance features

03

Open-Source Model Landscape

TOPICS

- **Language Models:** LLaMA 2, Mistral, Falcon, BLOOM
- **Vision Models:** YOLOv8, OpenCV, Mediapipe
- **Multi-Modal Models:** CLIP, Whisper, DALL-E Mini, Perceiver
- **Comparative analysis:** Proprietary vs Open-Source models
- **Use-case mapping:** Text, vision, audio, structured data

04

Reasoning-Capable Models

TOPICS

- Chain-of-Thought (CoT) prompting
- Tool-augmented reasoning frameworks (ReAct, MRKL)
- Using reasoning in autonomous workflows
- Integration of reasoning with LangChain & LangGraph

05

Multi-Modal AI

TOPICS

- Processing and integrating text, vision, audio, video, and structured data
- Cross-modal understanding and retrieval
- OpenAI multi-modal capabilities (e.g., GPT-4o, GPT-4.1)
- **Case Study:** Cross-modal data analysis for business insights

06

LangChain Framework

TOPICS

- **Core concepts:** Chains, Agents, Memory, Tools
- Building autonomous workflows with LangChain
- LangChain for reasoning & decision-making tasks

07

LangGraph for Agent Orchestration

TOPICS

- **LangGraph architecture:** Nodes, edges, state machines
- Designing and orchestrating multi-agent workflows
- Integrating LangGraph with LangChain for complex systems

08

Building Chatbots with Agentic AI

TOPICS

- Using GPT & open-source models (e.g., LLaMA 2, Open-Assistant) for conversational agents
- Multi-turn conversations and workflow automation with LangChain
- Adding reasoning and tool use in chatbots via LangGraph
- UI integration with Gradio or Streamlit

HANDS-ON

- Build a task-specific chatbot with Azure OpenAI + LangChain

09

Experimentation & Model Management with MLflow

TOPICS

- Introduction to MLflow for model tracking and experimentation
- Logging metrics, parameters, and artifacts for AI systems
- Fine-tuning, evaluation, and versioning with MLflow

10

Azure Cloud Deployment

TOPICS

- Deploying GPT & open-source models on Azure
- Integration with Azure Functions, AKS, and Container Apps
- Securing endpoints & scaling deployments
- Monitoring and maintaining deployed AI systems

11

Hands-On Project – Case Study

TOPICS

Text-based autonomous customer support agent · Multi-modal autonomous data entry assistant · Vision-based inventory management system · End-to-end implementation workflow

12

Future Trends in Generative & Agentic AI

TOPICS

- Advances in GPT-5 reasoning & multi-modal capabilities
- Evolution of open-source ecosystems
- AI agent collaboration & self-improving systems
- Integration with IoT, robotics, and edge computing

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

Visit koenig-solutions.com | info@koenig-solutions.com