KOENIG
step forward

KOENIG SOLUTIONS · COURSE OUTLINE

GenAI: LLMs, LangChain Agents & RAG

Learn to build LLM-powered agents and RAG pipelines with LangChain, from prompt engineering to vector databases.

16 Hours	7	24
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This immersive course offers a comprehensive journey through the evolution and practical application of Artificial Intelligence, Machine Learning, and Generative AI, culminating in hands-on agentic development using LangChain. Participants will explore foundational ML paradigms, the architecture behind modern LLMs, and the art of prompt engineering for real-world tasks like summarization and Q&A. The curriculum deepens into building autonomous AI agents, understanding multi-agent frameworks, and implementing Retrieval-Augmented Generation (RAG) pipelines with vector databases. Designed for aspiring AI practitioners, the course blends theory, architecture, and applied tooling to equip learners with the skills to design intelligent, context-aware systems.

WHO THIS COURSE IS FOR

- **AI Practitioners**
- **Machine Learning Engineers**
- **Prompt Engineers**
- **AI Application Developers**
- **Data Scientists**

PREREQUISITES

- Functional knowledge of Python
- Familiarity with ML, DL

LEARNING OBJECTIVES

- Describe the evolution of AI from symbolic systems to deep learning
- Compare supervised, unsupervised and reinforcement learning paradigms
- Explain the model lifecycle from training to deployment
- Explain transformer architecture, embeddings and attention
- Apply prompt engineering techniques such as persona and chain of thought
- Develop agentic applications using LangChain components and memory
- Compare agents and LLMs in terms of autonomy and tool use
- Implement RAG pipelines with vector databases such as FAISS and chromadb

COURSE SYLLABUS

7 Modules, 24 Topics

01

Evolution of AI and Machine Learning

TOPICS

- **Historical overview:** symbolic AI to deep learning
- **Key concepts:** intelligence, learning, autonomy
- Generative and agentic AI in modern systems

02

Machine Learning Paradigms

TOPICS

- Supervised, Unsupervised, and Reinforcement Learning
- **Model lifecycle:** training, evaluation, deployment
- Real-world ML applications across domains- discussion

03

Introduction to Generative AI and LLMs

TOPICS

- What is Generative AI?
- Transformer architecture, embeddings, attention
- **Overview of open-source LLMs:** Mistral, LLaMA, Falcon

04

Prompt Engineering Essentials

TOPICS

- Crafting effective prompts
- Prompt techniques- persona, Chain of thoughts, context
- **Use cases:** content generation, summarization, Q&A

05

Building Agents with LangChain

TOPICS

- What is LangChain
- **LangChain components:** Chains, Agents, prompt templates
- Memory management
- Gen AI Application with LangChain

06

What Is an AI Agent?

TOPICS

- What's an Agent?
- Definition and characteristics of agents
- **Agents vs. LLMs:** autonomy, tool use, planning
- Agent Application with LangChain
- Multi Agents and framework which supports (Discussion)

07

Retrieval-Augmented Generation (RAG)

TOPICS

What is RAG and why it matters · **Vector databases:** FAISS, chromadb · Implementing RAG pipelines with LangChain

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

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