

Agentic AI: LangChain, AutoGen & Multi-Agent Systems

Learn to build single and multi-agent AI systems with LangChain, AutoGen and CrewAI, from architecture to deployment.

2 Days

16 HOURS

10

MODULES

23

TOPICS

2

HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers the fundamentals of AgentAI, including how large language models support reasoning and decision-making, the types of agents, and the components of LLM agent architecture such as planners, memory and tools. It then addresses building basic agents with frameworks such as LangChain, AutoGen and CrewAI, handling memory and context with vector stores, and integrating tools including APIs and search. The course proceeds to multi-agent systems, covering agent roles, collaboration and coordination, task decomposition using concepts from Auto-GPT and BabyAGI, advanced tool integration, and agent autonomy with guardrails such as human-in-the-loop design and safety controls.

WHO THIS COURSE IS FOR

AI Developers

Machine Learning Engineers

Software Engineers

Solution Architects

Automation Engineers

PREREQUISITES

- Basic knowledge of Python programming
- Familiarity with LLMs like ChatGPT
- Basic understanding of APIs & JSON
- Optional: Experience with LangChain, Autogen, or similar libraries

LEARNING OBJECTIVES

By the end of this workshop, you will:

- Understand AgentAI fundamentals and LLM integration
- Build and deploy single and multi-agent systems
- Integrate tools, memory, and planning in agent workflows
- Design autonomous agents for real-world tasks

10 Modules, 23 Topics

DAY 1 Fundamentals & Building Simple Agents

01

Introduction to AgentAI

TOPICS

What is AgentAI? · Evolution from chatbots to intelligent agents · Agent vs. traditional automation

02

LLMs in Agent Workflows

TOPICS

Role of LLMs in reasoning and decision-making · Prompting basics for agents

03

Types of Agents

TOPICS

Reactive vs. Proactive · Planning vs. Tool-using · Autonomous vs. Human-in-the-loop

04

LLM Agent Architecture

TOPICS

- **Components:** Input, Planner, Memory, Executor, Tools
- Communication loop explained

05

Building a Basic Agent

TOPICS

- Environment setup
- Create a simple echo agent using LangChain / Autogen / CrewAI
- Add a basic tool (e.g., calculator or API caller)

06

Memory & Context Handling

TOPICS

Short-term and long-term memory · **Use of vector stores:** FAISS, Chroma, Pinecone

Hands-on Lab: Tool-Using Agent

DAY 2

Multi-Agent Collaboration & Deployment

08

Multi-Agent Systems (MAS)

TOPICS

Agent roles: Manager, Worker, Specialist ·
Collaboration vs. coordination

09

Planning & Task Decomposition

TOPICS

Using LLMs for breaking down goals · Auto-GPT &
BabyAGI concepts

Lab: Create a Multi-Agent Team

11

Advanced Tool Integration

TOPICS

- Calling APIs (e.g., Google, SQL, custom tools)
- Chaining multiple tool outputs

12

Agent Autonomy & Guardrails

TOPICS

Human-in-the-loop design · Rate-limiting, safety, audit logging

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.

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