**Training Program: Agentic AI with Multi-Model Tools (LangGraph, AutoGen, CrewAI)**

**Duration:** 5 Days (40 Hours)

**Day 1 – Foundations of Agentic AI & Multi-Model Ecosystem (8 Hours)**

**Session 1: Introduction to Agentic AI (2 Hrs)**

* What is Agentic AI?
* Evolution from RPA → GenAI → Agentic AI
* Benefits of multi-agent & multi-model orchestration
* Real-world enterprise applications

**Session 2: Multi-Model Architecture Overview (2 Hrs)**

* Why multiple LLMs are needed (strengths & weaknesses)
* Orchestration strategies
* Tooling landscape (LangGraph, AutoGen, CrewAI)

**Session 3: Deep Dive – LangGraph Basics (2 Hrs)**

* LangGraph overview and key features
* Graph-based workflows for LLM orchestration
* Demo: Simple decision-making agent with LangGraph

**Session 4: Hands-On Lab (2 Hrs)**

* Environment setup (LangGraph + Python)
* Building first agent workflow in LangGraph

**Day 2 – LangGraph Advanced Use Cases (8 Hours)**

**Session 1: Advanced LangGraph Concepts (2 Hrs)**

* Nodes, edges, memory, persistence
* Handling multi-turn conversations
* Error handling & retries

**Session 2: LangGraph in Enterprises (2 Hrs)**

* Orchestrating with external tools (APIs, DBs, RPA)
* Use case: Automated customer support agent

**Session 3: Hands-On with LangGraph (2 Hrs)**

* Building a **multi-agent workflow** (researcher + summarizer agents)
* Testing with multiple LLMs

**Session 4: Capstone Mini-Project 1 (2 Hrs)**

* Group activity: Design a **Knowledge Assistant** using LangGraph

**Day 3 – AutoGen for Multi-Agent Collaboration (8 Hours)**

**Session 1: AutoGen Overview (2 Hrs)**

* Introduction to Microsoft’s AutoGen
* Multi-agent conversations & task distribution
* Comparison with LangGraph

**Session 2: AutoGen Framework Deep Dive (2 Hrs)**

* Configuring multiple agents
* Human-in-the-loop workflows
* Communication protocols

**Session 3: Hands-On with AutoGen (2 Hrs)**

* Build an **AI Research Team** (Researcher, Analyst, Writer agents)
* Demo: Automated report generation

**Session 4: Capstone Mini-Project 2 (2 Hrs)**

* Group activity: Build a **Ticket Triage System** using AutoGen

**Day 4 – CrewAI for Complex Task Automation (8 Hours)**

**Session 1: Introduction to CrewAI (2 Hrs)**

* CrewAI overview & positioning
* Agent collaboration with Crew “Roles”
* Key strengths vs LangGraph & AutoGen

**Session 2: Advanced CrewAI Features (2 Hrs)**

* Orchestration across multiple LLMs
* Task assignment, parallel execution
* Use case: Sales proposal automation

**Session 3: Hands-On with CrewAI (2 Hrs)**

* Building a **Multi-Agent Workflow** with CrewAI
* Connecting CrewAI to enterprise APIs/tools

**Session 4: Capstone Mini-Project 3 (2 Hrs)**

* Group activity: Create a **Financial Analyst Crew** to generate insights from market data

**Day 5 – Integration, Enterprise Use Cases & Final Project (8 Hours)**

**Session 1: Comparing LangGraph, AutoGen & CrewAI (2 Hrs)**

* Strengths, limitations, when to use what
* Benchmarking with different LLMs (GPT, Claude, Llama, Mistral)

**Session 2: Enterprise Integration Patterns (2 Hrs)**

* Combining with RPA (UiPath, AA, Power Automate)
* Connecting to databases, APIs, cloud services
* Governance, security, compliance considerations

**Session 3: Final Capstone Project (3 Hrs)**

* Team Project: End-to-end **Multi-Agent AI Workflow** (choose finance, HR, operations, or customer support scenario)
* Presentation & walkthrough