Certificate Program In Agentic AI

Duration – 80 Hours

Program Description

This program introduces the emerging paradigm of **Agentic AI**, where AI systems evolve from passive models into autonomous agents capable of reasoning, planning, tool use, and multi-step decision-making. Participants will learn how to design, build, and deploy AI agents that can interact with users, APIs, and other agents to complete complex tasks in dynamic environments. The course emphasizes the underlying concepts, frameworks (LangChain, AutoGen, CrewAI), and hands-on development of autonomous and multi-agent systems.

Learning Goals

- Understand the evolution from LLMs to Agentic AI
- Learn key components of AI agents: reasoning, memory, planning, and tool integration
- Build single-agent systems for task execution and workflow automation
- Develop multi-agent ecosystems for collaboration, negotiation, and problem solving
- Use leading frameworks (LangChain, AutoGen, CrewAI, Semantic Kernel) to implement agentic systems
- Integrate agents with APIs, databases, and external applications
- Explore applications across business, customer support, operations, and software engineering
- Understand risks, governance, and ethical aspects of autonomous systems
- Deliver an end-to-end multi-agent solution in a capstone project

Course Topics

- Introduction to Agentic AI & Autonomous Systems
- Evolution from Generative AI to Autonomous Agents
- Core Capabilities of AI Agents: Reasoning, Planning, Memory
- Tool Use & API Integration for Agents
- Building Single-Agent Systems (task automation)
- Multi-Agent Systems: Collaboration, Negotiation, Orchestration
- Frameworks & Platforms: LangChain Agents, AutoGen, CrewAI, Semantic Kernel
- Agent Evaluation, Safety, and Control Mechanisms
- Business Applications of Agentic AI (enterprise automation, customer ops, knowledge agents)
- Capstone Project: Designing & Deploying Multi-Agent Systems