

Agentic AI

Core AI & Machine Learning

- Python for AI
- Data Structures & Algorithms
- Statistics & Probability
- Machine Learning Fundamentals
- Deep Learning Basics

Natural Language Processing (NLP)

- Text Processing & Tokenization
- Word Embeddings (Word2Vec, GloVe)
- Transformers Architecture
- Large Language Models (LLMs)
- Prompt Engineering

Agentic AI Fundamentals

- AI Agents Concepts
- Autonomous Decision Making
- Planning & Reasoning
- Tool Usage & Function Calling
- Memory in AI Agents

Frameworks & Libraries

- LangChain
- LangGraph
- Phidata
- CrewAI
- n8n

Multi-Agent Systems

- Agent Communication
- Task Decomposition
- Collaboration Between Agents
- Role-based Agents

Advanced LLM Concepts

- Fine-Tuning LLMs
- Retrieval-Augmented Generation (RAG)
- Vector Databases
- Embeddings & Similarity Search

Tools & Integrations

- APIs Integration
- Web Scraping
- Database Connectivity (MYSQL)

Memory & Knowledge Systems

- Short-term Memory
- Long-term Memory
- Knowledge Graphs
- Context Management

Evaluation & Optimization

- Prompt Optimization
- Model Evaluation Metrics
- Cost Optimization
- Latency & Performance Tuning

Deployment & Production

- Flask
- Docker & Containers
- Cloud Deployment (AWS / Azure / GCP)

- CI/CD for AI Systems

AI Safety & Ethics

- Responsible AI
- Bias & Fairness
- Security in AI Agents
- Hallucination Handling

Real-world Projects

- AI Chatbot with Tools
- Autonomous Research Agent
- AI Personal Assistant
- Multi-Agent Task Solver
- Document Q&A System (RAG)