

AI & GenAI Fundamentals

COURSE CONTENT

GET IN TOUCH



Multisoft Systems
B - 125, Sector - 2, Noida



(+91) 9810-306-956



info@multosoftsystems.com



www.multosoftsystems.com

About Multisoft

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About Course

AI & GenAI Fundamentals Training provides a structured introduction to the rapidly evolving world of Artificial Intelligence and Generative AI. The program combines foundational AI concepts with practical knowledge of LLMs, prompt engineering, RAG, AI agents, responsible AI, and enterprise applications. It helps learners understand not only what modern AI technologies can do, but also how they can be applied responsibly and effectively across real-world business and technology scenarios.

Module 1: Introduction to Artificial Intelligence

- ✓ Understanding Artificial Intelligence
- ✓ Evolution and growth of AI
- ✓ AI vs automation
- ✓ Narrow AI and General AI concepts
- ✓ Core capabilities of AI systems
- ✓ Common AI terminology
- ✓ AI applications across industries
- ✓ Opportunities and limitations of AI

Module 2: Machine Learning and Deep Learning Fundamentals

- ✓ Introduction to Machine Learning
- ✓ Relationship between AI, ML, and Deep Learning
- ✓ Supervised learning
- ✓ Unsupervised learning
- ✓ Reinforcement learning fundamentals
- ✓ Classification and regression concepts
- ✓ Neural network fundamentals
- ✓ Introduction to Deep Learning
- ✓ Training, validation, and testing concepts
- ✓ Model performance and evaluation basics
- ✓ Overfitting and underfitting

Module 3: Data, Models, and the AI Lifecycle

- ✓ Role of data in Artificial Intelligence
- ✓ Structured and unstructured data
- ✓ Data collection and preparation
- ✓ Data quality fundamentals
- ✓ Features and labels
- ✓ Training datasets
- ✓ Understanding AI models
- ✓ Model training and evaluation
- ✓ Inference and prediction
- ✓ Model deployment fundamentals
- ✓ Monitoring AI models
- ✓ Overview of the end-to-end AI lifecycle

Module 4: Introduction to Generative AI

- ✓ What is Generative AI?
- ✓ Generative AI vs traditional AI
- ✓ How generative models work
- ✓ Understanding foundation models
- ✓ Types of generative models
- ✓ Text generation
- ✓ Image generation
- ✓ Code generation
- ✓ Audio and multimodal AI concepts
- ✓ Common GenAI capabilities

- ✓ Enterprise applications of Generative AI
- ✓ Limitations of generative models

Module 5: Large Language Models and Foundation Models

- ✓ Introduction to Large Language Models
- ✓ Understanding Natural Language Processing
- ✓ Foundation model concepts
- ✓ Transformer architecture fundamentals
- ✓ Tokens and tokenization
- ✓ Embeddings and semantic representations
- ✓ Context windows
- ✓ Training and pre-training concepts
- ✓ Fine-tuning fundamentals
- ✓ Model inference
- ✓ Understanding model parameters
- ✓ Multimodal models
- ✓ Hallucinations and model limitations
- ✓ Selecting models for different use cases

Module 6: Prompt Engineering Fundamentals

- ✓ Introduction to prompt engineering
- ✓ Anatomy of an effective prompt
- ✓ Instructions, context, and expected output
- ✓ Zero-shot prompting
- ✓ One-shot and few-shot prompting

- ✓ Role-based prompting
- ✓ Contextual prompting
- ✓ Structured prompt techniques
- ✓ Controlling response format
- ✓ Prompt refinement and iteration
- ✓ Prompt templates
- ✓ Handling ambiguous responses
- ✓ Evaluating prompt effectiveness
- ✓ Practical prompting exercises

Module 7: Generative AI Tools and Business Applications

- ✓ Overview of the GenAI ecosystem
- ✓ AI assistants and copilots
- ✓ Content creation and summarization
- ✓ Information extraction
- ✓ Question answering
- ✓ Document analysis
- ✓ Translation and language applications
- ✓ Coding assistance
- ✓ Customer service applications
- ✓ Marketing and communication use cases
- ✓ HR and employee productivity scenarios
- ✓ Finance and analytics applications
- ✓ Knowledge management
- ✓ Workflow productivity with GenAI
- ✓ Identifying suitable GenAI use cases

Module 8: RAG and AI Agents – Fundamentals

- ✓ Limitations of standalone LLMs
- ✓ Introduction to Retrieval-Augmented Generation
- ✓ Basic RAG architecture
- ✓ Documents and knowledge sources
- ✓ Chunking concepts
- ✓ Embeddings in RAG
- ✓ Vector databases overview
- ✓ Retrieval and semantic search
- ✓ Combining retrieved context with LLMs
- ✓ Enterprise knowledge assistants
- ✓ Introduction to AI agents
- ✓ AI agents vs traditional chatbots
- ✓ Tools, actions, and agent workflows
- ✓ Single-agent and multi-agent concepts
- ✓ Common agentic AI use cases

Module 9: Responsible AI, Ethics, Security, and Governance

- ✓ Introduction to Responsible AI
- ✓ Fairness and bias
- ✓ Transparency and explainability
- ✓ Privacy considerations
- ✓ Data security
- ✓ Intellectual property considerations
- ✓ AI hallucinations and misinformation

- ✓ Human oversight
- ✓ AI risk fundamentals
- ✓ Responsible use of Generative AI
- ✓ AI governance principles
- ✓ Enterprise AI policies
- ✓ Safe adoption of AI systems

Module 10: Practical AI & GenAI Use Cases and Hands-on Exercises

- ✓ Exploring AI-powered applications
- ✓ Working with Generative AI interfaces
- ✓ Creating effective prompts
- ✓ Prompt optimization exercises
- ✓ Text generation and transformation
- ✓ Summarization exercises
- ✓ Information extraction scenarios
- ✓ Business question-answering use cases
- ✓ Exploring a simple RAG workflow
- ✓ Understanding an agent-based workflow
- ✓ Evaluating GenAI responses
- ✓ Identifying hallucinations and inaccuracies
- ✓ Applying responsible AI principles
- ✓ Designing a basic GenAI business use case
- ✓ Final practical scenario