

# Mastering Generative AI with ChatGPT and OpenAI API

**Duration: 04 days**

**Note:** Client need to have their own ChatGPT Plus and OpenAI subscription to be able to perform hands-on

## Module 01: Getting Started with AI and Generative AI

- Introduction To Generative AI
- What is Artificial Intelligence (AI), Machine Learning (ML) & Deep Learning
- Understanding Generative AI in Detail
- How LLMs Conquered NLP
- How LLMs Change the NLP & Machine Learning Workflow
- Exploring ChatGPT: Features & Capabilities

## Module 02: Key Concepts of Generative AI

- Introduction to Key Concepts of Generative AI
- What is a LLM (Large Language Model) & How it Works with GenAI
- How Prompt Engineering helps you to Become a GenAI Pro
- What are Embeddings in LLMs
- How AI Models Are Fine Tuned For Custom Purposes
- Practical Uses Cases of Generative AI Across Industries
- Introduction to Uses Cases of GenAI
- Generative AI in Retail: Practical Uses Cases
- Generative AI in Marketing: Practical Uses Cases

## Module 03: The ChatGPT and OpenAI API

- The ChatGPT and OpenAI API
- Signup For OpenAI & Get Your API Key
- Set Environment Variables (Windows)
- Set Environment Variables (Linux & Mac)
- Install the OpenAI and Tiktoken Libraries
- Pricing of OpenAI
- What is a Token?
- Estimating Costs with Tiktoken
- Reproducibility
- System Prompt
- Incorporating History
- Temperature, Frequency and Presence Penalties
- Usage Policies

## Module 04: Prompt Engineering

- Introduction to Prompt Engineering

- Response from Unstructured to Structured and Vice-versa
- Response in JSON Mode
- Translation, Tone Enhancement, and Language Detection
- Sentiment Analysis & Stock Trading
- Summarization Techniques
- Another EL15 Example
- Question-Answering
- Chain of Thought Prompting

## **Module 05: Advanced Applications of ChatGPT**

- Communication Writing
- Targeted Advertising Optimization
- Regression Machine Learning using ChatGPT
- Classification Machine Learning using ChatGPT
- Predictive Customer Behaviour Modelling (Clustering)
- Document Analysis
- ChatGPT Functionalities

## **Module 06: Retrieval Augmented Generation (RAG)**

- Introduction to Semantic Search
- Facebook AI Similarity Search (FAISS)
- OpenAI Embedding's Endpoint
- RAG with FAISS (Facebook AI Similarity Search)

## **Module 07: Fine-Tuning of LLMs**

- What Is Fine-Tuning and When Should You Use It?
- Quantization of LLMs
- LoRA (Low Rank Adaptation) of LLMs
- OpenAI Fine-Tuning and File Endpoints
- Fine-Tuning ChatGPT - Making the Dataset
- Fine-Tuning ChatGPT - Upload Data and Create Fine-Tuning Job
- Fine-Tuning ChatGPT - Check the Results

## **Module 08: Ethics & Future Trends in Generative AI**

- Introduction to Responsible AI Systems
- How to Use Gen AI as Responsible AI
- Future Potential of GenAI & Future of Humans in World Of AI ?
- Securing information and data security protocols
- Conclusion and Future Pathway in World of AI