

Generative AI AI Agents & Agentic AI (with Azure Cloud)

Master the latest AI tools and trends to become an in-demand Gen AI & Agentic AI Developer/Engineer.



Course by:
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Module 1: AI & Gen AI Fundamentals

- Introduction to AI
- Introduction to Gen AI
- Generative AI Evolution
- Traditional AI vs Gen AI
- Types of Generative AI
- Real-world Applications of Gen AI
- Popular Generative AI Tools and Platforms
- Generative AI glossary

Module 2: Large Language Models (LLMs)

- Introduction to LLMs
- LLMs in the AI landscape
- What can a Language Model do
- Traditional models vs LLM
- Popular LLMs: GPT, BERT, Claude, LLaMA
- LLMs Architecture: Transformers
- Encoder & Decoder
- Tokenization & Vector Embeddings
- Positional Encoding & Self-Attention
- Popular Transformers: Bert, GPT, CoPilot

Module 3: OpenAI and ChatGPT

- Introduction to OpenAI
- OpenAI models
- OpenAI API
- Introduction to GPT models
- How does a GPT model work
- Working with GPT models

Projects:

- Build your first Custom GPT
- SQL Data Analyst GPT
- Resume Improver GPT

Module 4: Prompt Engineering with OpenAI SDK, ChatGPT, Copilot, Hugging Face

- Introduction to prompt engineering
- Types of prompts
- Few-shot and zero-shot prompts
- Chain-of-thought prompts
- Advanced techniques for designing effective prompts
- Evaluating prompt performance and bias
- Prompt optimization tools and techniques
- Hands-on: zero-shot, one-shot, and few-shot prompts

Projects:

- AI Email Generator
- AI Blog Generator with OpenAI SDK
- Text Summarizer with OpenAI SDK
- AI Language Translator
- Code Explainer [with ChatGPT & Copilot]
- AI Chatbot with OpenAI SDK
- Spam Detection with Hugging Face

Module 5: Langchain

- Introduction to Langchain
- Langchain ecosystem
- Langchain Installation
- LLM using Langchain
- Prompt Templates & chains
- Parser

Project: Hands-on Langchain Project

Module 6: Vector databases

- Introduction to Vector databases
- Traditional databases vs Vector databases
- Differences in data storage and retrieval
- Indexing and similarity search

- High dimensional vector space
- Chromadb vector database
- Working with Chromadb
- Chromadb operations
- Distance metrics: cosine similarity, dot product, Euclidean
- Add, update, delete, query operations
- Metadata filtering

Module 7: Retrieval Augmented Generation (RAG)

- Introduction to RAG
- How RAG works?
- RAG vs traditional LLM generation
- Two-phase Architecture: Retrieval + Generation
- Document loaders
- Text splitters
- Retrieval & Answer generation
- Streamlit UI
- Use of Embedding models
- Building a RAG based pipeline

Module 8: AI Agents & Agentic AI

- Introduction to AI agents
- Single-agent vs. multi-agent systems
- Introduction Agentic AI
- How Agentic AI works
- AI Agents vs Agentic AI
- Real-world applications
- Building your first Agent using Llama & Agno
- Reasoning models
- Building Reasoning model using Agno
- Multi-modal Agents (text, image, video)
- Other frameworks: Google ADK, Smolagents

Module 9: Model Context Protocol (MCP)

- Introduction to MCP
- Prebuilt MCP Servers
- A2A Protocol
- Build your first MCP Server

Module 10: Multi-Agent Systems

- Considerations of Multi-Agent systems
- Design Patterns for Multi-Agent Systems
- Route Agent
- Building Multi-Agent systems
- File parsing, OCR, and vector search

Module 11: Agentic AI – Evaluation & Fine-Tuning

- Introduction to Agentic AI Evaluation
- Functional Evaluation using Agno
- Safety and Guardrails
- Operational Metrics
- Performance evaluation using Agno
- Fine-Tuning basics
- Low Rank Adaptation (LoRA)Quantization (QLoRA)
- Fine tuning Llama with Unsloth

Module 12: AI Agents with N8N

- Build AI Chat Agent
- Creation Content with N8N AI Agent
- Marketing Automation with N8N

Module 13: Crew AI

Module 14: Generative AI on Azure Cloud

- Azure AI Fundamentals (AZ900)
- Building Gen AI models using Azure OpenAI

- Building Chat applications using Open AI GPT models
- Building images using Dall E model

Real-Time Projects:

Project 1: end-to-end RAG project

Project 2: E-commerce chatbot agent

Project 3: Multi-Agent System

Project 4: Call Center Agent

Project 5: Personal AI Agent

Project 6: Generating images using Dall E model

Project 7: Building Chat Agent with Azure OpenAI service

Project 8: Microsoft Phi as an AI Agent

Target Jobs:

- Gen AI Engineer/Developer
- AI Engineer
- LLM Engineer
- Prompt Engineer
- AI Automation Engineer

Post Course Bonuses

- Interview Prep
- Resume/CV Preparation
- LinkedIn Profile Optimization
- Placement Assistance