Course Design Document

Course Code	
Course Name	Generative AI Solutions with Azure Open AI

Duration (in days)	5	Proficiency Level	Fundamental
Pre-requisites	Python	Target Audience	Campus Hires

Learning Outcome

- Introduction
- Generative AI Models & Prompts
- Natural Language Solutions & Prompt Engineering
- Generation Code & Images
- Responsible Generative AI

Day-wise Session Plan

Day	Module Name	Topics	Hours
1	Gen AI Introduction	• Description & Workloads • AI services • OpenAI Studio • Access Azure • Natural Language • Generation Capabilities • Image Generation • AI Policies • OpenAI Service	2
	Generative AI Models	• Types of Models • Deploy Using OpenAI Studio, Azure CLI, REST API • Completion quality • Making calls • Test Models	2
	Azure AI Studio Overview	• Workspaces, hubs, projects • Model catalogs (OpenAI, Phi, fine-tuned models) • Prompt flow overview • Data connections & vectorization • Evaluation, monitoring & versioning	1
	Azure Setup & Environment Preparation	• Creating Azure Subscription & Resource Groups • Configuring Azure OpenAI Resource • Deploying Models in Azure AI Studio • Working with Access Keys & Endpoints • Setting Up Development Environment (Python, VS Code, Postman, SDKs)	3

2	Prompt Engineering for Azure OpenAI	- Prompt Design Fundamentals - Few-Shot, Zero-Shot, Chain-of-Thought Prompts - System / User / Assistant Role Structuring - Task, Style, Reasoning Prompts - Prompt Optimization for Enterprise Workloads - Safety, Guardrails, and Content Filters	4
	Azure OpenAI APIs – Hands-on	- REST API Structure - Using Python SDK for Chat Completions - Function Calling & Structured Outputs - Streaming Responses - Working with Embeddings APIs - Image Generation API (DALL·E) - Audio Transcription (Whisper)	4
3	Building Intelligent Apps with Azure OpenAI	- Playground: Chat, Prompts, Assistants - Chatbot & Q&A Applications - Text Generation & Summarization - Classification, Sentiment & Intent Detection - Code Generation & Automation - Document Understanding & Extraction - Text-to-SQL with GPT - AI Copilot Development with Azure - Model Catalog: Fine-Tuning & Custom Models - Evaluations & Metrics	8
4	Retrieval-Augmented Generation (RAG)	- What is RAG? - When to Use RAG vs Pure LLM - Document Chunking & Vectorization - Azure Cognitive Search Integration - Building Enterprise RAG Pipelines - Evaluation & Observability of RAG Apps	4
	LangChain + Azure OpenAI	- Setting Up LangChain with Azure - Prompt Templates & Chains - Tools, Agents & Function Calling - Building Multi-Agent Workflows	4
5	Fine-Tuning & Customization	- Fine-tuning GPT Models - Conversational Fine-Tuning vs Instruction Tuning - Embedding Model Fine-Tuning - Evaluating Fine-Tuned Models - Cost Optimization Best Practices	4
	Responsible Generative AI	- Data Source - Chat with model - AI solution - Potential harms - Operate generative AI solution - Content Filters	4