?? AI Training Roadmap Structure

Divided into 4 Phases:

Phase 1: Foundations of AI & ML (Week 1 – 2)

ʿ Topics:

- AI vs ML vs DL – Concepts & Use Cases
- Python for ML (NumPy, Pandas, Matplotlib, Scikit-learn)
- Supervised vs Unsupervised Learning
- Regression, Classification, Clustering

ʿ Outcome:

- Build your first ML model (e.g., House Price Prediction)

Phase 2: Introduction to Generative AI (Week 3 – 4)

ʿ Topics:

- What is Generative AI?
- Transformers & Attention Mechanism
- Intro to Large Language Models (LLMs): GPT, LLaMA, Gemini
- Prompt Engineering Basics
- Text Generation using OpenAI API / Hugging Face Transformers

ʿ Hands-on:

- Generate a blog post with GPT
- Create a ChatBot with simple prompts

Phase 3: Building GenAI Apps (Week 5 – 7)

‘ Topics:

- FastAPI or Flask for GenAI Backends
- Vector Embeddings (OpenAI, BGE, Sentence Transformers)
- Vector Databases: ChromaDB, Pinecone, FAISS
- Retrieval-Augmented Generation (RAG) Architecture
- LangChain / LlamaIndex Basics
- Document Parsing & Chunking Strategies
- Integrating GenAI in Web Apps

‘ Hands-on Projects:

- GenAI FAQ Bot (PDFs → VectorDB → RAG Chatbot)
- Semantic Search Engine using LangChain + Chroma
- LLM-powered CRUD Knowledge Base (FastAPI + LangChain)

Phase 4: Advanced GenAI + AI Agent Ecosystem (Week 8 – 10)

‘ Topics:

- LangGraph for Multi-Agent Systems
- Agentic Workflows (Tools, Memory, Planning)
- Function Calling / Tool Use in LLMs
- Voice-to-Text & Text-to-Voice (Whisper, Google TTS)
- Multi-modal LLMs (Gemini Vision, GPT-4o Vision)
- Fine-tuning / Custom LLMs on Domain Data

‘ Final Project Ideas:

Voice-enabled GenAI Assistant

Compliance Checker from PDF Docs

Multi-agent AI App for Task Automation.