# Generative AI Internship Curriculum (3 Months + Mini Project)

**Month 1: AI & Programming Foundations**

**Week 1: Introduction to Generative AI**

- What is Artificial Intelligence
- What is Generative AI
- Use cases of Generative AI (Text, Image, Code)
- Overview of LLMs (Large Language Models)

**Week 2: Python for Generative AI**

- Python Basics
- Data Types & Functions
- Working with APIs
- Virtual Environments

**Week 3: Data & NLP Basics**

- Introduction to Natural Language Processing (NLP)
- Text Preprocessing
- Tokenization
- Stemming & Lemmatization

**Week 4: Prompt Engineering**

- What is Prompt Engineering
- Prompt Design Techniques
- Zero-shot & Few-shot Prompts
- Prompt Optimization & Best Practices

**Month 2: Generative AI Models & Tools**

**Week 5: Large Language Models (LLMs)**

- GPT, Gemini, Claude – Overview
- Transformers Basics

- Working with OpenAI / Gemini APIs

**Week 6: Text Generation Applications**

- Chatbots

- Content Generation

- Code Generation

- Summarization & Translation

**Week 7: Image Generation Models**

- Diffusion Models Basics

- Stable Diffusion Overview

- Text-to-Image Generation

- Image Editing & Enhancement

**Week 8: AI App Development**

- LangChain Basics

- RAG (Retrieval Augmented Generation)

- Vector Databases (FAISS / Pinecone – Basics)

- Building AI-powered Applications

**Month 3: Deployment & Mini Project**

**Week 9: Advanced Generative AI**

- Fine-tuning Concepts

- Model Evaluation

- Bias & Ethics in AI

- AI Safety Basics

**Week 10: Deployment & Tools**

- Streamlit / Gradio

- API Deployment

- Cloud Basics

- Version Control (Git & GitHub)

## Week 11–12: Mini Project

- Problem Statement Selection

- Model Integration

- Prompt Optimization

- Testing & Deployment

- Documentation & Presentation

## Mini Project Ideas

- AI Chatbot

- Resume Generator

- AI Content Writer

- Image Generation App

- AI-powered Question Answering System

## Internship Outcomes

- Strong Generative AI Fundamentals

- Hands-on LLM & Prompt Engineering Skills

- Real-time AI Application Development

- GitHub Portfolio

- Internship Certificate & Interview Guidance