# Certificate Program In Generative AI

**Duration – 80 Hours**

**Program Description**

This program provides a comprehensive foundation in Generative AI, focusing on the principles, models, and applications that are transforming industries. Participants will explore large language models (LLMs), diffusion models, multimodal systems, and practical frameworks to build generative AI solutions. The course balances theory with hands-on implementation, enabling learners to apply generative AI in real-world contexts such as text, images, audio, and business automation.

**Learning Goals**

- Understand the fundamentals and evolution of Generative AI
- Learn key generative architectures (GANs, VAEs, Transformers, Diffusion models)
- Explore foundation models and LLMs (GPT, BERT, LLaMA, etc.)
- Implement text, image, and multimodal generative applications
- Use popular frameworks and APIs (Hugging Face, LangChain, OpenAI, Stable Diffusion)
- Apply generative AI in business use cases such as chatbots, content generation, and automation
- Understand ethical, legal, and societal considerations in Generative AI
- Demonstrate end-to-end application development in a capstone project

**Course Topics**

- Introduction to Generative AI & Key Use Cases
- Neural Networks Refresher (Deep Learning Fundamentals)
- Generative Architectures: GANs, VAEs, Diffusion Models
- Transformers & Large Language Models (LLMs)
- Prompt Engineering & Fine-Tuning for LLMs
- Generative AI for Text, Image, Audio, and Multimodal Applications
- Frameworks & Tools: Hugging Face, LangChain, OpenAI APIs, Stable Diffusion
- Responsible & Ethical AI: Bias, Fairness, Security, IP concerns
- AI in Business Applications: Automation, Content, Customer Experience
- Capstone Project: Building a Generative AI Application