

# Generative AI Fundamentals - Concepts, Use Cases, and Practical Essentials

This course introduces Generative AI fundamentals, covering AI, ML, and deep learning concepts, neural networks, transformers, BERT, and GPT models. Learners explore prompt engineering, NLP, GenAI tools, business applications, security, and responsible AI, with hands-on demos using ChatGPT and other advanced GenAI tools.

## Program Duration

6 Hours

## Learning Format

Online and On-demand

## Course Curriculum

### Lesson 01: Introduction

### Lesson 02: Overview of Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL)

- 2.01 Lesson Introduction
- 2.02 Introduction to Artificial Intelligence (AI)
- 2.03 Evolution of Artificial Intelligence
- 2.04 Types of AI
- 2.05 Key Components of AI
- 2.06 AI in Everyday Life and Its Benefits
- 2.07 Challenges of AI and Why AI is Powerful?
- 2.08 Early AI Milestones and the Rise of Machine Learning (ML)
- 2.09 Emergence of Deep Learning (DL) and Key Breakthroughs in AI
- 2.10 Case Study Google Ads
- 2.11 Introduction to Machine Learning
- 2.12 Types of Machine Learning
- 2.13 Applications of Machine Learning in Business
- 2.14 Case Study Netflix
- 2.15 Understanding Reinforcement Learning and Deep Learning
- 2.16 Case Study Amazon Alexa
- 2.17 Machine Learning vs Deep Learning
- 2.18 ML and DL: Applications
- 2.19 Introduction to Neural Networks
- 2.20 Types of Neural Networks
- 2.21 Case Study Amazon
- 2.22 Key Takeaways

### Lesson 03: Introduction to Transformers, Advanced AI Models, and Natural Language Processing (NLP)

- 3.01 Lesson Introduction
- 3.02 Attention Mechanism and Transformers
- 3.03 Types of Attention Mechanism

- 3.04 Introduction to Transformer Models
- 3.05 Understanding Self-Attention
- 3.06 Understanding How Self-Attention Works
- 3.07 Transformer Model Architecture
- 3.08 How Encoders Work
- 3.09 How Decoders Work
- 3.10 Text Processing in Transformers
- 3.11 How Transformers Revolutionized AI?
- 3.12 Transformer Models: Advantage
- 3.13 Introduction to BERT
- 3.14 How BERT Learns Through MLM
- 3.15 Real World Applications of BERT
- 3.16 Introduction to GPT Models
- 3.17 Zero-Shot Learning, Few-Shot Learning and Prompt Engineering
- 3.18 Introduction to Natural Language Processing (NLP)
- 3.19 NLP: How It Works and What It Power
- 3.20 Categories of NLP and Techniques Used in NLP
- 3.21 Real-World Applications of NLP Chatbots
- 3.22 Text Classification and Its Common Applications
- 3.23 Applications of NLP in Business
- 3.24 Case Study: Bank of America
- 3.25 Key Takeaways

## Lesson 04: Overview of GenAI and AI Project Implementation

## Lesson 05: Working with GPTs

- 5.01 Learning Objectives
- 5.02 Day-to-Day Tasks ChatGPT Can Do
- 5.03 Demo: Multilingual Book Translation Using ChatGPT
- 5.04 Demo: Creating a LinkedIn Profile Using ChatGPT
- 5.05 Demo: Sentiment Analysis of User Reviews Using ChatGPT
- 5.06 ChatGPT: Multimodal Capabilities
- 5.07 Demo: Exploring Multimodal Capabilities of ChatGPT
- 5.08 Demo: Customer Feedback Analysis Using ChatGPT
- 5.09 Comparison Between ChatGPT 3.5, 4, and 4o
- 5.10 ChatGPT Comparison Based on a Use Case
- 5.11 Comparison Based on a Prompt
- 5.12 Exploring GPTs: Categories and Use Cases With Examples
- 5.13 Demo: Creating Marketing Content for Eco Friendly Water Bottles Using Write for Me GPT
- 5.14 Demo: Designing Visually Appealing Content Using Canva GPT
- 5.15 Demo: Creating a Website Design Using DesignerGPT
- 5.16 Demo: Streamlining Literature Surveys on LLM Impact with Consensus GPT
- 5.17 Demo: Enhancing Educational Material Using Universal Primer GPT
- 5.18 Generative AI in Business: Impact Across Domains and Workflow Automation
- 5.19 Demo: Setting Up a Zapier Account and Creating a Zap
- 5.20 Sales and Marketing
- 5.21 Demo: Creating a Video Using AI
- 5.22 Software Engineering
- 5.23 Demo: Designing User Interfaces with Generative AI
- 5.24 Data Analytics
- 5.25 Demo: Data Integrity Using GenAI
- 5.26 Customer Service and Operations
- 5.27 Demo: Transcribing Audio Calls to Text
- 5.28 Key Takeaways

## Lesson 06: Advanced GenAI Tools

6.01 Learning Objectives

6.02 Gemini

6.03 Demo: Marketing Strategy Using Gemini

6.04 Descript

6.05 Demo: Creating a Video Using Descript

6.06 Claude

6.07 Demo: Creating a Blog Post Using Claude

6.08 Key Takeaways

### 5+ Skills Covered

- Generative AI
- Transformer Models
- Prompt Engineering
- NLP Applications
- AI Business Use Cases