



Gen Ai

Skillkoder is an AI-driven skilling platform designed to make high-quality learning affordable and accessible to everyone, everywhere.



30 hours



10000+ Learners



Generative AI Course

Fundamentals of AI

Module 1: Understanding AI

- Introduction to Artificial Intelligence and its key concepts.
- Evolution and history of AI.
- Difference between AI, Machine Learning, and Deep Learning.
- Understanding AI goals and real-world applications.

Module 2: Application Life Cycle

- Overview of the AI project lifecycle.
- Problem definition and data collection stages.
- Model training, evaluation, and deployment.
- Monitoring and improving AI systems.

Module 3: Data Fundamentals

- Understanding data types and sources in AI.
- Structured vs. unstructured data.
- Importance of data quality and preprocessing.
- Introduction to datasets used in AI projects.

Module 4: Computing for AI

- Overview of computing hardware for AI (CPU, GPU, TPU).
- Role of cloud computing in AI workflows.
- Basics of distributed and parallel computing.
- Tools and environments for AI model development.

Module 5: AI Applications

- AI in real-world industries: healthcare, finance, and education.
- Understanding automation and intelligent systems.
- Overview of recommendation systems and chatbots.
- Case studies on practical AI implementations.

Python for AI

Module 1: Introduction to Python

- Overview of Python and its relevance in AI.
- Installing Python and IDE setup (Jupyter/VS Code).
- Writing and executing Python scripts.
- Understanding syntax, variables, and operators.

Module 2: Core Python Concepts

- Working with data structures: lists, tuples, and dictionaries.
- Loops, conditional statements, and iterations.
- Functions and modular programming.
- File handling and exception management.

Module 3: Object-Oriented Programming (OOP) in Python

- Classes, objects, and methods.
- Encapsulation, inheritance, and polymorphism.
- Real-world examples of OOP in AI.
- Code reusability and modularization principles.

Module 4: Essential Libraries for AI & Data Science

- Introduction to NumPy, Pandas, and Matplotlib.
- Understanding arrays and dataframes.
- Data visualization with Seaborn.
- Using Scikit-learn for model development.

Module 5: Data Handling & Preprocessing

- Data cleaning and transformation.
- Handling missing values and outliers.
- Feature encoding and normalization.
- Preparing datasets for AI models.

Statistics for AI

Module 1: Introduction to Statistics for AI & Data Science

- Importance of statistics in AI and ML.
- Understanding data distribution and central tendencies.
- Population vs. sample data concepts.
- Statistical tools and visualization basics.

Module 2: Descriptive Statistics

- Mean, median, mode, and standard deviation.
- Measuring dispersion and variability.
- Data summarization techniques.
- Identifying trends and anomalies in datasets.

Module 3: Probability Basics

- Probability theory and basic concepts.
- Random variables and distributions.
- Conditional probability and Bayes theorem.
- Application of probability in AI predictions.

Module 4: Inferential Statistics

- Sampling methods and hypothesis testing.
- Confidence intervals and p-values.
- t-tests, chi-square, and ANOVA analysis.
- Making statistical decisions with data.

Module 5: Exploratory Data Analysis (EDA)

- Visualizing data distributions.
- Detecting outliers and missing data.

- Correlation analysis and heatmaps.
- Identifying patterns and relationships.

Module 6: Statistical Foundations for Machine Learning

- Correlation vs. causation in AI models.
- Regression analysis and model fitting.
- Statistical significance in ML performance.
- Role of statistics in feature selection.

Machine Learning

Module 1: Introduction to Machine Learning

- Overview of ML and its applications.
- Supervised vs. unsupervised learning.
- Understanding datasets and labeling.
- ML workflow and pipelines.

Module 2: Supervised Learning

- Regression and classification techniques.
- Algorithms: Linear Regression, Decision Trees, SVM.
- Model training, testing, and validation.
- Performance evaluation using metrics.

Module 3: Unsupervised Learning

- Clustering and association techniques.
- K-Means, Hierarchical Clustering, and PCA.
- Dimensionality reduction and visualization.
- Case studies on customer segmentation.

Module 4: Model Evaluation & Optimization

- Cross-validation and train-test split.
- Hyperparameter tuning and regularization.
- Avoiding overfitting and underfitting.
- Model performance improvement strategies.

Module 5: Feature Engineering

- Feature selection and transformation.
- Encoding categorical data.
- Feature scaling and normalization.
- Creating new features for better model accuracy.

Deep Learning

Module 1: Neural Networks Basics

- Understanding neurons and perceptrons.
- Activation functions and loss functions.
- Gradient descent and backpropagation concepts.
- Introduction to TensorFlow and Keras.

Module 2: Artificial Neural Networks (ANNs)

- Building ANN models using TensorFlow.
- Training and evaluating ANN models.
- Regularization and dropout techniques.
- Case study: Predictive modeling using ANN.

Module 3: Convolutional Neural Networks (CNNs)

- Introduction to CNNs for image data.
- Convolution, pooling, and flattening layers.
- Building image classifiers using CNNs.
- Case study: Object recognition and image detection.

Module 4: Natural Language Processing (NLP)

- Understanding text data and tokenization.
- Word embeddings and vectorization.
- Sentiment analysis using NLP libraries.
- Building chatbots and text classifiers.

Module 5: Recurrent Neural Networks (RNNs)

- Sequence modeling and time-series data.
- Understanding RNN, LSTM, and GRU networks.
- Handling sequential data dependencies.
- Case study: Text generation with LSTM.

Transformers & Generative AI

Module 1: Introduction to Generative AI

- Understanding Generative AI and its evolution.
- Difference between traditional AI and GenAI.
- Overview of generative models (GANs, VAEs, Diffusion).
- Applications of Generative AI in industries.

Module 2: Prompt Engineering

- What is prompt engineering and why it matters.
- Writing effective prompts for text, image, and code models.
- Using chain-of-thought and few-shot prompting.
- Prompt optimization for LLMs.

Module 3: Transformer Architecture, LLMs & Other Generative Models

- Understanding attention mechanisms and transformers.
- Architecture of GPT, BERT, and T5.
- Working with LLM APIs and open-source models.
- Fine-tuning LLMs for custom use cases.

Module 4: Tools and Frameworks

- Exploring LangChain, LlamaIndex, and Hugging Face.
- Introduction to OpenAI, Anthropic, and Google AI tools.

- Building GenAI applications using APIs.
- Integrating LLMs into real-world workflows.

AI Agents & Applications

Module 1: Introduction to AI Agents

- Understanding AI agents and their types.
- Role of autonomous agents in automation.
- Key concepts: reasoning, planning, and decision-making.
- Real-world agent-based systems.

Module 2: AI Agent Frameworks

- Overview of LangGraph, CrewAI, and AutoGen.
- Understanding agent orchestration and tools.
- Multi-agent collaboration and workflows.
- Integration with GenAI and APIs.

Module 3: Building AI Agents

- Designing AI agents using frameworks.
- Connecting agents with APIs and databases.
- Case study: Building an intelligent assistant.
- Deployment and testing of AI agents.

Tools & Platforms



An interactive coding environment for writing, testing, and visualizing Python code, commonly used for data analysis.



A professional-grade Python IDE with robust debugging, testing, and package management features for data analytics projects.



A lightweight, extensible code editor with Python and FastAPI support.



A cloud-based Jupyter Notebook for Python with free GPU/TPU support for ML projects.



A fundamental Python library for numerical computations, supporting large arrays, matrices, and mathematical functions.



A data manipulation and analysis library for working with structured data, including DataFrames and Series.



A Python framework for building interactive web-based dashboards with live data visualizations.



An AI-enhanced code editor built on VS Code, offering smart completions and debugging



AI-powered tools and APIs for coding, automation, and natural language processing.



Google's AI model for assisting in code generation, debugging, and research.



Get **Skilled** to Reach Your Goal

Skillkoder is an AI-driven skilling platform designed to make high-quality learning affordable and accessible to everyone, everywhere.



www.skillkoder.com



Skillkoder2025@gmail.com



+91-9951599922