

Artificial Intelligence with Machine Learning Course

Course Overview

The **Artificial Intelligence with Machine Learning Course** is a comprehensive, industry-focused training program designed to help students build a successful career in AI, Machine Learning, and Data Science. Starting with Python programming, students will learn essential data science libraries, machine learning algorithms, deep learning fundamentals, and modern Generative AI technologies. The course includes hands-on projects, real-world case studies, AI application development, and placement-oriented training to make students industry-ready.

Course Duration

- **Duration:** 10 Months
- **Mode:** Online / Offline
- **Live Projects:** 20+
- **Assignments:** 150+
- **Certificate:** Included
- **Placement Assistance:** Included

Course Fee Structure

Course Module	Duration	Fee
Python Programming	2 Months	₹7,500
Python Libraries for Data Science	2 Months	₹10,000
Machine Learning	3 Months	₹10,000
Artificial Intelligence & Generative AI	3 Months	₹10,000
Complete Artificial Intelligence with Machine Learning Program	10 Months	₹37,500

Course Curriculum

Module 1: Python Programming

Python Fundamentals

- Introduction to Python
- Installing Python & VS Code
- Variables & Data Types
- Operators
- Conditional Statements
- Loops
- Functions
- Object-Oriented Programming (OOP)
- Exception Handling
- File Handling
- Modules & Packages
- Virtual Environment
- Python Best Practices

Python Programming Projects

- Calculator
 - Student Management System
 - Banking System
 - Library Management System
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Module 2: Python Libraries for Data Science

NumPy

- Arrays
- Indexing & Slicing
- Broadcasting
- Mathematical Operations
- Statistical Functions

Pandas



- Series & DataFrames
- Reading CSV & Excel Files
- Data Cleaning
- Missing Values
- Data Filtering
- Sorting & Grouping
- Merge & Join
- Data Aggregation

Data Visualization

- Matplotlib
- Seaborn
- Plotly
- Interactive Charts
- Dashboard Basics

Exploratory Data Analysis (EDA)

- Data Cleaning
- Outlier Detection
- Feature Engineering
- Correlation Analysis
- Statistical Summary

Data Science Projects

- Sales Analysis
- Customer Analytics
- IPL Data Analysis
- Netflix Data Analysis

Module 3: Machine Learning

Machine Learning Fundamentals

- Introduction to Machine Learning
- Types of Machine Learning
- Data Preprocessing
- Feature Scaling

- Train-Test Split

Supervised Learning

- Linear Regression
- Multiple Regression
- Logistic Regression
- Decision Trees
- Random Forest
- Support Vector Machine (SVM)
- K-Nearest Neighbors (KNN)
- Naïve Bayes

Unsupervised Learning

- K-Means Clustering
- Hierarchical Clustering
- Principal Component Analysis (PCA)

Model Evaluation

- Accuracy
- Precision
- Recall
- F1 Score
- ROC-AUC
- Cross Validation
- Hyperparameter Tuning

Machine Learning Projects

- House Price Prediction
- Customer Churn Prediction
- Employee Salary Prediction
- Spam Email Detection
- Recommendation System

Module 4: Artificial Intelligence & Generative AI

AI Fundamentals

- Introduction to Artificial Intelligence
- AI Applications
- AI Ethics
- Responsible AI

Deep Learning

- Neural Networks
- TensorFlow
- Keras
- Convolutional Neural Networks (CNN)
- Recurrent Neural Networks (RNN)

Generative AI

- Large Language Models (LLMs)
- Prompt Engineering
- OpenAI API
- Google Gemini API
- Hugging Face Transformers

AI Application Development

- LangChain
- LangGraph
- AI Agents
- RAG (Retrieval-Augmented Generation)
- Vector Databases (FAISS & ChromaDB)
- Embeddings
- AI Chatbot Development
- AI Automation

AI Deployment

- Streamlit
- Gradio
- FastAPI Basics
- AI Model Deployment
- AI Application Deployment

AI Projects

- AI Chatbot
 - Document Q&A Assistant
 - Resume Screening AI
 - AI Customer Support Bot
 - AI Content Generator
 - AI Voice Assistant
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Technologies Covered

Programming

- Python

Data Science Libraries

- NumPy
- Pandas
- Matplotlib
- Seaborn
- Plotly
- SciPy

Machine Learning

- Scikit-learn
- XGBoost (Introduction)

Deep Learning

- TensorFlow
- Keras

Artificial Intelligence

- OpenAI API
- Google Gemini API

- Hugging Face
- LangChain
- LangGraph
- FAISS
- ChromaDB
- Prompt Engineering
- AI Agents
- RAG

Development Tools

- Visual Studio Code
 - Jupyter Notebook
 - Google Colab
 - Git & GitHub
 - Streamlit
 - Gradio
 - Postman
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Live Projects

- Sales Forecasting System
 - House Price Prediction
 - Customer Churn Prediction
 - Movie Recommendation System
 - Spam Email Detection
 - Face Mask Detection
 - Resume Screening AI
 - AI Chatbot using OpenAI API
 - Document Q&A using RAG
 - AI Customer Support Assistant
 - AI Content Generator
 - AI Voice Assistant
 - Final Industry-Level AI Capstone Project
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Career Opportunities

After completing this course, students can apply for roles such as:

- Artificial Intelligence Engineer
 - Machine Learning Engineer
 - Data Scientist
 - AI Application Developer
 - Generative AI Engineer
 - Prompt Engineer
 - NLP Engineer
 - Computer Vision Engineer
 - Python Developer
 - AI Research Associate
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Prerequisites

- Basic Computer Knowledge
 - No Prior Programming Experience Required
 - Suitable for Students, Freshers, Graduates, and Working Professionals
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Certification

Upon successful completion of the course, students will receive:

- Artificial Intelligence with Machine Learning Course Completion Certificate
- Live Project Certificate
- Internship Certificate (*if applicable*)
- Placement Assistance
- Mock Interview & Resume Building Support



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