Duration: 12 months

A **Diploma in Artificial Intelligence (AI)** is a specialized program which we provide foundational knowledge and practical skills in AI technologies. This course is aimed at students and professionals who want to enter the rapidly growing field of AI without committing to a full-length degree program. It typically covers a broad range of AI topics, including machine learning, deep learning, natural language processing, and computer vision.

Course Overview

The **Diploma in AI** focuses on building skills in:

- AI fundamentals and basic algorithms.
- Machine learning techniques and model building.
- Deep learning and neural networks.
- Data preprocessing and analysis.
- Natural Language Processing (NLP) for text and language data.
- Computer vision for image recognition and analysis.

This program is designed to give students a practical understanding of how AI technologies can be applied to solve real-world problems.

2. Key Learning Outcomes

- Understanding of core AI concepts, including supervised and unsupervised learning.
- Ability to build and evaluate machine learning models.
- Proficiency in Python programming, with a focus on AI libraries like TensorFlow, Keras, and PyTorch.
- Skills in data preprocessing, feature engineering, and model optimization.
- Knowledge of how to implement deep learning models using neural networks.
- Familiarity with AI ethics, biases, and responsible AI practices.

3. Curriculum Breakdown

A typical **Diploma in AI** program includes the following modules:

1. Introduction to Artificial Intelligence

- Overview of AI and its applications.
- History and evolution of AI technologies.
- AI vs. Machine Learning vs. Deep Learning.

2. Python Programming for AI

- Python basics: Data types, control flow, and functions.
- Introduction to Python libraries: NumPy, Pandas, and Matplotlib.
- Data analysis and visualization.

3. Machine Learning Essentials

- Introduction to machine learning concepts: Supervised and unsupervised learning.
- Common algorithms: Linear regression, decision trees, k-nearest neighbors (KNN), and clustering.
- Model evaluation and performance metrics.

4. Deep Learning and Neural Networks

- Introduction to neural networks and deep learning.
- Building and training neural networks with TensorFlow or PyTorch.
- Convolutional Neural Networks (CNNs) for image classification.
- Recurrent Neural Networks (RNNs) for sequence and time-series data.

5. Natural Language Processing (NLP)

- Text preprocessing and sentiment analysis.
- Language models: Word embeddings (Word2Vec, GloVe), BERT.
- Applications of NLP: Chatbots, text classification, and language translation.

6. Computer Vision

- Basics of image processing and computer vision.
- Object detection and image recognition.
- Applications: Facial recognition, autonomous driving, medical imaging.

7. AI Ethics and Responsible AI

- Addressing biases in AI models.
- Understanding the ethical implications of AI decisions.
- Best practices for responsible AI development.

4. Hands-On Projects

Practical experience is a key part of any AI diploma. Typical projects include:

- Predicting housing prices using regression models.
- Building a sentiment analysis model for social media data.
- Creating an image classifier using a CNN.
- Developing a simple chatbot using NLP techniques.
- Implementing a facial recognition system using computer vision.

5. Tools and Software Used

Students will gain experience with popular AI tools and software, including:

- Python Programming Language
- Jupyter Notebooks for coding and experimentation
- Scikit-Learn for machine learning
- TensorFlow and PyTorch for deep learning
- Keras for neural network building
- **OpenCV** for computer vision tasks

• NLTK and spaCy for natural language processing

Who Should Enroll?

- Individuals with a basic understanding of programming and an interest in AI.
- Professionals from fields like IT, software development, and data analysis looking to upskill.
- Students and recent graduates aiming to start a career in AI or data science.

7. Prerequisites

- Basic knowledge of **programming**, particularly in Python.
- Familiarity with statistics and mathematics (e.g., linear algebra, calculus) is helpful but not always required.
- Interest in problem-solving and analytical thinking.

8. Career Opportunities

Graduates with a **Diploma in AI** can pursue entry-level roles such as from Droit Academy

- AI Developer
- Machine Learning Technician
- Data Analyst
- Junior Data Scientist
- AI Consultant
- Automation Specialist

These roles exist across a range of industries, including technology, finance, healthcare, retail, and manufacturing.

9. Industry Demand

The demand for AI professionals is high as organizations increasingly adopt AI solutions to enhance their operations, customer experience, and decision-making processes. AI skills are in high demand in sectors like autonomous vehicles, smart home devices, finance (fraud detection), healthcare (diagnostic tools), and customer service (chatbots).