SYLLABUS OF AI/ ML

Module 1: Introduction to AI & ML

What is Artificial Intelligence?

History and evolution of AI

Types of AI: Narrow, General, Super AI

Real-world AI applications

Introduction to Machine Learning (ML)

AI vs ML vs Deep Learning

Module 2: Basics of Machine Learning

Types of ML: Supervised, Unsupervised, Reinforcement Learning

ML process/pipeline overview

Features and Labels

Basic evaluation metrics (Accuracy, Precision, Recall)

Module 3: Data Preprocessing

Importance of clean data

Handling missing values

Encoding categorical data

Feature scaling and normalization

Train-test split

Module 4: Supervised Learning Algorithms (4 hours)

Linear Regression

Logistic Regression

Decision Trees

K-Nearest Neighbors (KNN)

Module 5: Unsupervised Learning

Clustering concepts

K-Means Clustering

Dimensionality reduction (basic idea of PCA)

Module 6: Introduction to Neural Networks

What is a neural network?

Structure: Neurons, Layers, Activation functions

Simple Neural Network for digit recognition (MNIST, conceptual only)

Module 7: Introduction to Natural Language Processing

Basics of NLP

Text preprocessing (tokenization, stop words)

Bag of Words model

Sentiment analysis

Module 8: Ethics, Careers, and Future of AIML

AI Ethics and bias

Responsible AI usage

Career paths in AI & ML