

DATA SCIENCE WITH MACHINE LEARNING



matplotlib



OOPS



TensorFlow



A Brief About **UPFLAIRS**

UpFlairs is an innovative **educational technology** company with a clear mission to elevate the skills and employability of students throughout India.

Our dedicated team is committed to fostering the next generation of tech talent, equipping them with cutting-edge skills in emerging technologies and has educated more than 47K students all over the globe including IITs, NITs, Deemed Universities and other colleges.

We offer the courses that are most trending technologies of the recent era in the fields like **AI/ML, Data Science, Cloud Computing, DevOps, Full Stack Web Development, Embedded Systems, IoT, and Robotics**. These courses are meticulously designed to provide students with the practical skills and knowledge required to excel in tech-driven careers, making them not just job-ready but industry leaders of tomorrow.

We are not only limited to training the youth of the country but also provide Lab setups to various Colleges and Universities and Project solutions to other companies for the domains like **AI-ML, IOT , ROBOTICS AND CLOUD**.



DATA SCIENCE WITH MACHINE LEARNING

Duration – (60 (40 +10+10) Hours)

1.	INTRODUCTION (2 Hour)	<ul style="list-style-type: none"> • Introduction with AI & Machine Learning • Data Science vs Data Engineering vs Data Analysis vs AI • Use of Data in the world of AI • Connecting with Upflairs Community • Basic Linux/Windows Commands • Setting Up GITHUB & Google Colab/Kaggle
2.	PYTHON OVERVIEW (4 Hours)	<ul style="list-style-type: none"> • Command line & Script based Python Programming • Python Quicker Keywords, Data Types, Operators • Conditional/Looping/Error Handling in Python • Comprehensions • Python User Defined Functions • Python iterator • Lambda Expressions • Map, filter, reduce, zip, enumerate. • Python Modules: Usage and Installation • Understanding the OOP of Python • Classes, Objects, Methods; • Inheritance: Its types • Polymorphism • Encapsulation
3.	DATA IN PYTHON (2 Hours)	<ul style="list-style-type: none"> • Types of DATA? • Numpy Arrays: Creating, Accessing, Manipulating • Array Attributes; Data Operations • The file handling in python • Dealing with Excel/CSV/txt files
4.	PANDAS (2 Hours)	<ul style="list-style-type: none"> • Pandas: The Series and DataFrame • Creating, Accessing, Manipulating Pandas Data • Series and DataFrame Attributes & Basic Functions · Arithmetic and Statistical • Methods; Sort, Search, Count · Data Grouping, Missing Data Handling • Merging & Joining of Data • File Handling with Pandas
5.	DATA VISUALIZATION (4 Hours)	<ul style="list-style-type: none"> • Data is Beautiful....!!! • Visualization Libraries in Python • MATPLOTLIB PYPLOT: line, scatter, pie, box, area etc • Decorating the plots using Matplotlib (labels, colors, markers, legend, grids, figure sizes etc) • The Subplots and axes in matplotlib; Showing Images • bar, barh, hist, box, kde, density, area, scatter, hexbin, pie plots • Plotting with Missing Data • Easy and advanced Data Visualization from Seaborn • Categorical, Distributive, Regression, Matrix, Grid Plots.

6.	INTRODUCTION WITH MACHINE LEARNING AND REGRESSION MODEL (5 Hours)	<ul style="list-style-type: none"> • Introduction of machine learning • Supervised and unsupervised machine learning. • Regression classification and clustering • Linear Regression, Polynomial Regression: The Non-linearity in Data • Performance Evaluation of Regression Mode
7.	SUPERVISED ML-CLASSIFICATION (12 Hours)	<ul style="list-style-type: none"> • Logistic Regression: Concept & Need • Performance Evaluation of Classifications Models • Support Vector Machines (SVM) • Kernel Nearest Neighbors (KNN) • Decision Trees Classifier • Ensemble learning • Random Forest Classifier • Bagging • Boosting • Biases VS variances • Data Overfitting & Underfitting • The Concept of Cross-validation • The Bayes Theorem • Naïve Bayes Algorithm for Machine Learning
8.	UNSUPERVISED MACHINE LEARNING (4 Hours)	<ul style="list-style-type: none"> • K-Means Clustering K-Means++ • Performance metrics for clustering techniques • DBSCAN
9.	DEEP LEARNING & ARTIFICIAL NEURAL NETWORK (5 Hours)	<ul style="list-style-type: none"> • Concept of Deep Learning & Neural Network • What is ANN? • The basic terminology – Layers, weights, biases, activation functions, losses, optimizers, learning rate • The Concept of Forward & Backward Propagation • Using Keras Library for ANN • Building and Compiling Sequential Neural Network Mode
10.	PROJECT (10 Hours)	<p>Major and Minor Projects :</p> <ol style="list-style-type: none"> 1. "Email sender" 2. "CLI based chat application" 3. "Email spam & ham classification" 4. "Laptop price prediction" <p>Capstone Projects :</p> <ol style="list-style-type: none"> 1. "Crop Monitoring and Disease Detection" 2. "Airline loyal and disloyal customer segmentation"
11.	ASSESSMENTS (10 Hours)	<ol style="list-style-type: none"> 1. Test 2. Project Presentation 3. Interview

NIT,
Jalandhar

Glance Upflairs

Delhi Technical
University

NIFFT,
Ranchi

Banasthali
Vidyapith

JECRC,
Jaipur

Arya College,
Jaipur

Poornima
College, Jaipur

SKIT, Jaipur



<https://upflairs.com>



9251494002, 6350417917



info@upflairs.com



100/110ps, Rana Sanga Marg, Near Kumbha Marg, Pratap Nagar, Jaipur , Rajasthan