



**AFFILIATED TO JAIN UNIVERSITY  
BANGALORE**

**ARTIFICIAL INTELLIGENCE COURSE CURRICULUM**

**PROPOSAL TO  
KAMARAJ COLLEGE OF ENGINEERING  
AND TECHNOLOGY**

## SYLLABUS

### 1. PYTHON FOR DATA SCIENCE

- a. Hello World
- b. Data Types
- c. Operations
- d. Conditions
- e. Loops
- f. String Operators
- g. Data Structures & Handling
- h. Functions
- i. Class
- j. Exception handling



### 2. MODULES AND PACKAGES

- a. Numpy
- b. Pandas
- c. Seaborn
- d. Time
- e. Random
- f. OS
- g. Glob



### 3. VISUALIZATION

- a. Data Understanding
- b. Exploratory Analysis
  - i. Bivariate Analysis
  - ii. Multivariate Analysis
- c. Data Pre-processing and cleaning
- d. Visualization



### 4. STATISTICS

- a. Statistics
- b. Distributions
- c. Probability

## 5. MACHINE LEARNING:

### a. Supervised Regression

- i. Exploratory Data Analysis
- ii. Linear Regression (LR)
- iii. Feature Engineering and Selection

### b. Supervised Classification

- i. Logistic Regression
- ii. K-Nearest Neighbours
- iii. Support Vector machines
- iv. Decision Trees
- v. Naive Bayes
- vi. Ensemble Techniques
  1. Bagging
  2. Boosting
  3. Random Forest

### c. Unsupervised Learning

- i. K-means Algorithm
- ii. DB Clustering

## 6. Image Processing

### a. Image Basics

- i. Hello world to Image Processing
- ii. Drawing Operations
- iii. Basic Image Handling
- iv. Masking Operation
- v. Removing Noise in images
- vi. Thresholding
- vii. Morphological Operations
- viii. Histograms
- ix. Contours

### b. Feature Extraction Techniques

- i. Color Channel Statistics
- ii. Haralick Textures
- iii. LBPH
- iv. HOG



TensorFlow



SciPy



- c. Machine learning with image processing
- d. Case Studies of Machine Learning on images

## 7. DEEP LEARNING

- a. Neural Networks
  - i. Neurons
  - ii. Layers
  - iii. Activation Functions
  - iv. Weights and Bias
  - v. Back Propagation
  - vi. Error Calculation and Weight update
  - vii. Optimizations
- b. Creating Neural Network for Numerical Dataset
  - i. EDA
  - ii. Creating Architecture
  - iii. Model Hyper parameter fine tuning
- c. Creating Neural Network for Image Dataset
  - i. EDA
  - ii. Creating Architecture
  - iii. Model Hyper parameter fine tuning
- d. Convolutional Neural Network
  - i. Convolutions and Feature maps
  - ii. Pooling
  - iii. Dropout
  - iv. Normalization
- e. Creating CNN for Image dataset
  - i. Convolutions and Feature maps
  - ii. Pooling
  - iii. Dropout
  - iv. Normalization
- f. Transfer Learning Techniques
- g. Introduction to GAN and basic implementation



**COST OF THE PROGRAM :**

**Students will be put up in batches and will given a project to develop**

**Duration: Minimum 30 Hours**

**Cost of the Program : Rs.2000 / Head**

**Students will also be provided with our Online Portal access.**

**TAXES EXTRA**

**IF GST REQUIRED THE BILLING WILL BE DONE FROM OUR IT FIRM**

**" SMARTANT TECHNOLOGIES PVT LTD "**



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