



ARTIFICIAL INTELLIGENCE DEEP LEARNING 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



- 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 be given a project to develop

Duration: 5 Days

Cost of the Program: Rs.1, 500/ Head

TAXES EXTRA

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

"SMARTANT TECHNOLOGIES PVT LTD"



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