

BCA - DS Industrial Training Syllabus for 1st year students (who are going in 3rd sem in next session)						
Module Name	Days	Tentative Date	Topic	Sub-topics	Training Duration (hrs)	Classroom Duration (4 hrs)
Python Programming	Day - 1	17-06-2024	Intro to Python	Introduction to Python Variables Functions Python Operators Python Flow Controls Conditional Statements Loops	4	4
	Day - 2	18-06-2024	Python Objects + List Comprehension User-defined and Lambda Functions Numpy	Python Collection Objects	3	4
				User defined Functions	1	
	Day - 3	19-06-2024		Introduction to Numpy	2	4
				Class Assessment (Based on Python Programming)		
			Pandas	Introduction to Pandas	2	
	Day - 4	20-06-2024	Data Frame Manipulation	Pandas Dataframe - Introduction	2	4
			Visualization - Part 1	Visualization using Matplotlib	2	
	Day - 5	21-06-2024	Visualization - Part 2	Visualization using Seaborn Strip plot Distribution plot Joint plot Violin plot Swarm plot Pair plot Count plot Heatmap	2	4
			EDA	Summary Statistics	2	
Machine Learning Using Python	Day - 6	24-06-2024	Supervised Learning	Linear Regression with OLS Introduction of Linear Regression Types of Linear Regression OLS Model Math behind Linear Regression Decomposition Variability Metrics to Evaluate Model Feature Scaling Feature Selection Regularization Project - Property Price Prediction	4	4
	Day - 7	25-06-2024		Introduction to ML Introduction to Machine Learning Machine Learning Modelling Flow Parametric and Non-parametric Algorithms Types of Machine Learning Performance Measures Bias-Variance Tradeoff Data Inconsistencies	4	2
	Day - 8	26-06-2024		Optimization Techniques What is Optimization? Gradient Descent Adagrad Algorithm Adam Algorithm	2	
	Day - 9	27-06-2024		Linear Regression with SGD Prerequisites Introduction to Stochastic Gradient Descent (SGD) Preparation for SGD Workflow of SGD Implementation of SGD on Linear Regression	2	2
	Day - 10	28-06-2024		Project - Vehicle Performance Prediction	4	2
				Class Assessment (Based on Linear Regression and SGD)	3	0
				Logistic Regression	4	4
	Day - 11	01-07-2024		Project - Vaccine Usage Prediction	4	2
				Class Assessment (Based on Logistic Regression)	3	0
	Day - 12	02-07-2024		Decision Trees Project - Heart Disease Prediction Random Forests Project - Taxi Fare Prediction Ensemble Techniques Project - Breast Cancer Prediction	4	2
				Class Assessment (Based on Decision Tree, Random Forest and Ensemble Techniques)	4	0
	Day - 13	03-07-2024		Principal Components Analysis (PCA) Project - Real Estate Data Analysis using PCA	4	2
				Class Assessment (Based on KNN, SVM, Naive Bayes & PCA)	4	0
	Day - 14	04-07-2024		K-Means Clustering Project - E-commerce Customer Segmentation	4	2
	Day - 15	05-07-2024	Tableau - Part 1 Tableau - Part 2	Introduction to Tableau Mining Project - Mortgage Analysis	4 3 1	8
Data Visualization with Tableau (8 hrs)			Exam	Tableau Exam		
	Day - 16	08-07-2024	Intro to Computer Vision and Open CV	Drawing on images Image statistics & Histogram Spatial Resolution Gray level/Intensity Resolution Convolution Smoothing, Sharpening Color Space Conversion & Histogram Thresholding for Binarization Sobel's Edge Detection Operator Image Feature - Key-point and Descriptor Stream Video Processing with OpenCV	4	4
SQL	Day - 17	09-07-2024	Project on CV	Multi-class Classification of Flower	4	4
	Day - 18	10-07-2024	Basic SQL	Introduction to SQL DDL Statements DML Statements DQL Statements Aggregate Functions	4	4
	Day - 19	11-07-2024	Advanced SQL - Part 1	Date Functions Union, Union All & Intersect Operators Joins	4	4
			Advanced SQL - Part 2	Views & Indexes Sub-Queries Exercise on SQL	4	4
	Day - 20	12-07-2024	Introduction to Statistics	Introduction to Statistics Random Variables Descriptive Statistics Measure of Central Tendency Measure of Dispersion Skewness and Kurtosis Covariance and Correlation	4	4