



THIRD-YEAR DIPLOMA IT ENGINEERING SYLLABUS

Semester: 6TH

Course Code: 002204678

Type of Course: PEC-LC-4

Course Name: Introduction to Data Analysis-Lab

Course Prerequisites: Basic knowledge of Data Analysis

COURSE OBJECTIVE(S):

- Data Analytics involves data discovery that helps in making smart decisions, creating suggestions for options based on previous choices.
- Learn about different types of data (qualitative vs. quantitative) and their characteristics
- Gain skills in cleaning and pre-processing data to ensure accuracy and usability.
- Understand how to interpret the results of analyses and communicate findings effectively.

TEACHING & EXAMINATION SCHEME:

Teaching Scheme (Hrs/Week)				Examination Scheme				
Theory	Tutorial	Practical	Credit	SEE		CA		
				Th	Pr	MSE	PLE	LA
0	0	2	1	00	25	00	00	25
				Total				
				50				

Th: Theory; Pr: Practical; FA: Final Assessment; CAT: Continuous Assessment Theory; CAP: Continuous Assessment Practical;

TOTAL Practical Hours: No. of Practical Hrs/Week*15 = 30

LIST OF PRACTICALS: (sample for 2 hrs/week)*15 weeks

Sr. No.	Content	Unit No.	Time Duration
1	Prepare synthetic data set for student data, consisting of Enrollment number, name, gender, semester wise, subject wise marks, difficulty level of the subject, SPI (Semester Index) , address with geographical location. a. (i) Write a program to find correlation between gender and Semester marks. (ii) Write a program to find correlation between geographical location and semester marks. Analyze which two are highly correlated. b. Write a program to calculate correlation between difficulty level and subject marks. The higher the difficulty level the marks should be less. The two should be negatively correlated.	1	6



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	Analyze the correlation.		
2	Consider the sample of 50 students. Gather the university exam score of the students across all semesters of Engineering for one college. Write a program to find out mean and standard deviation for this college. Now consider the sample of students of different colleges of Gujarat for university exam score. Write a program to find out mean and standard deviation. Write the observations.	2	6
3	Collect the month wise COVID cases data for cities – Ahmedabad , Vadodara, Rajkot, Surat. Plot this time series Data. Analyze the trend as per time.	3	6
4	There is a need to advice the 12 th standard students that which college he/she should choose for engineering education. Decide the features to use for grading the engineering college. Prepare the data set. Write a program to apply random forest algorithm and suggest the best suited college for 12 th standard students.	4	8
5	Write a program for KNN algorithm to find out weight lifting category for height 161cm and weight 61kg. Height (in cms)Weight (in kgs)The weightlifting category 158 58 M 158 59 M 158 63 M 160 59 M 160 60 M 163 60 M 163 61 M 160 64 L 163 64 L 165 61 L 165 62 L 165 65 L 168 62 L 168 63 L 168 66 L 170 63 L 170 64 L 170 68 L	5	4
		TOTAL	30

Text Book(s):

Title of the Book	Author(s)	Publication
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Reference Book(s):

Title of the Book	Author(s)	Publication
Data science for Dummies	Lillian Pierson	WILEY publication
Doing Data Science	Cathy O'Neil, Rachel Schutt	O'Reilly Media, Inc.
Data Analytics for Beginners: Basic Guide to Master Data Analytics	Paul Kinley	CreateSpace Independent Publishing

Web Material Link(s):

- a. <https://www.analyticsvidhya.com/>

Equivalent/Corresponding Course on NPTEL (SWAYAM):

NPTEL course on

<https://archive.nptel.ac.in/courses/110/106/110106064/>

PRACTICAL EVALUATION:

Sr. No.	Activity	Marks	Weightage
1	Semester End Examination (External Practical)	30	60%
2	Continuous Assessment Practical (CAP)	20	40%
	Semester End Examination (External Practical)		
1(a)	Lab Experiment/Exercise		30%
1(b)	Viva-voce		20%
1(c)	Certified Record		10%
	Continuous Assessment Practical (CAP)		
2(a)	Day to day Laboratory Work & Attendance		15%
2(b)	Submission of Laboratory Work/Journal		10%
2(c)	Exam		15%

* For 4 Credit Subjects

1 Credit = 25 Marks

Theory: 3 Credits = 75 Marks

Practicals: 1 Credit = 25 Marks

SEE Evaluation will be of 100 marks and converted to 50 Marks (75 Th + 25 Pr)



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CA Evaluation will be of 100 Marks and converted to 50 Marks. (75 Th + 25 Pr)

Distribution of Marks for Theory Evaluation as per Bloom's Taxonomy Level:

Level	Remember	Understand	Apply	Analyze	Evaluate	Create
% Weightage	20%	20%	25%	15%	10%	10%

COURSE OUTCOMES:

CO1	Prepare environment for Bootstrap framework for first time use.
CO2	Build different web page layouts adhering to all atforms and sizes.
CO3	reusable bootstrap components to design effective user-friendly web pages.
CO4	Develop interactive features rich web pages using Bootstrap jQuery plug-ins.