



Vishnu Waman Thakur Charitable Trust's

VIVA INSTITUTE OF TECHNOLOGY

(Approved by AICTE, New Delhi, DTE, Govt. of Maharashtra and Affiliated to the University of Mumbai)
Shirgoan, Kumbharpada, Virar(E), Taluka-Vasai-401305, Phone no:7770002544 Website: www.viva-technology.org

DEPARTMENT OF COMPUTER ENGINEERING

Academic Year 2024 – 2025 (Odd Sem)

Course name: - Data Analytics

Duration: - Throughout the semester

Venue: - VIVA Institute of Technology

Co-ordinator: - Bhavika Thakur

Enrolled students: - 66

Course Objective:-

1. Understand the Fundamentals of Data Analytics
2. Collect, Clean, and Prepare Data for Analysis
3. Perform Exploratory Data Analysis (EDA)
4. Apply Statistical and Mathematical Methods
5. Create Interactive Reports and Dashboards

Course Outcomes: -

After successful completion of the course, the students are able to

1. Demonstrate an understanding of the role of data analytics in decision-making and problem-solving across industries.
2. Acquire, clean, and transform data for analysis while handling missing values and inconsistencies.
3. Apply statistical techniques and data visualization tools to identify patterns, trends, and insights.
4. Use probability, hypothesis testing, regression, and correlation techniques to analyze and interpret data.
5. Use business intelligence tools like Tableau and Power BI for data visualization and reporting.

Course Content:-

Units	Topics and sub topics
Introduction to Data Analytics	Overview of Data Analytics and its Importance, Types of Data Analytics: Descriptive, Diagnostic, Predictive, and Prescriptive, Data Analytics Lifecycle, Tools and Technologies in Data Analytics
Data Collection and Preprocessing	Data Sources: Structured vs. Unstructured Data, Data Cleaning and Handling Missing Values, Data Transformation and Normalization Data Integration and Aggregation
Exploratory Data Analysis (EDA)	Data Visualization Techniques, Summary Statistics and Data Distribution Identifying Patterns and Trends in Data, Feature Engineering and Selection



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Statistical and Mathematical Foundations	Probability and Statistics for Data Analysis, Hypothesis Testing and Confidence Intervals, Correlation and Regression Analysis, Time Series Analysis
Data Analytics Using Python/R	Introduction to Python/R for Data Analysis, Working with Pandas, NumPy, and Matplotlib, Data Manipulation and Analysis Techniques, Implementing Statistical Functions
Data Analytics in Different Industries	Applications in Healthcare, Finance, Retail, and Marketing, Fraud Detection and Risk Analysis, Customer Segmentation and Predictive Analytics

Report:-

The Value added course on Data Analytics was conducted by Bhavika Thakur. in order to provide basic knowledge of data analysis to fourth year students. This course was conducted throughout the odd semester during the allotted session in timetable. The Data Analytics course provides a strong foundation for aspiring data professionals. With the growing demand for data-driven decision-making, this course enhances career opportunities in data science, business intelligence, and analytics roles. Total 66 students joined this course and successfully completed it.

CO-PO Mapping: -

Course Outcome	Program Outcome											
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO1	3											
CO2		3										3
CO3			3									3
CO4			3									3
CO5			3									3

CO PO Justification: -



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COs	POs	Justification
CO1	PO1	Strongly mapped as the students will be able to Demonstrate an understanding of the role of data analytics in decision-making and problem-solving across industries.
CO2	PO2	Strongly mapped as the students will be able to Acquire, clean, and transform data for analysis while handling missing values and inconsistencies.
CO3	PO3	Strongly mapped as the students will be able Apply statistical techniques and data visualization tools to identify patterns, trends, and insights.
CO4	PO3	Strongly mapped as the students will be able to Use probability, hypothesis testing, regression, and correlation techniques to analyze and interpret data.
CO5	PO3	Strongly mapped as the students will be able to Use business intelligence tools like Tableau and Power BI for data visualization and reporting.

Sunita Naik

Incharge HOD, Computer Engg.

QR Code for Certificates

