



Vishnu Waman Thakur Charitable Trust's

VIVA Institute of Technology

Approved by AICTE, New Delhi, DTE, Government of Maharashtra, Affiliated to University of Mumbai
At- Shirgaon, Post-Virar (E.), Tal-Vasai, Dist-Palghar – 401 305.

Tel.: 777 000 2544 • Website : www.viva-technology.org

E-mail: contact@viva-technology.org / principalvit@vivacollege.org

Department of Electronics and Telecommunication Engineering

Course Name:	Python for Data Science
Name of the Faculty:	Mrs. Sonali Gaikwad
Designation:	Assistant Professor
Organization/Institution:	Viva Institute of Technology
Duration:	4 th July 2025 to 16 th October 2025
Time:	31 hours
Number of Students:	19

Course Objectives:

1. To understand the fundamental concepts of Data Science and the role of Python in solving data-driven problems.
2. To develop proficiency in Python programming concepts including variables, data types, operators, control structures, and sequence data types.
3. To gain hands-on experience in data manipulation, cleaning, and transformation using libraries such as NumPy and Pandas.
4. To learn to perform exploratory data analysis (EDA) and data visualization using popular Python plotting libraries.
5. To apply statistical and analytical techniques to handle missing data and prepare datasets for modeling.
6. To implement and evaluate classification and regression models for solving real-world data science problems.

Course Outcomes:

After successful completion of this course, students will be able to:

1. Describe the role of Python in Data Science and set up an appropriate development environment.
2. Write efficient Python programs using variables, data types, operators, and control structures.
3. Manipulate and analyze structured datasets using Pandas and NumPy to extract meaningful insights.
4. Create effective visualizations using Matplotlib, Seaborn, and other plotting libraries for exploratory data analysis.
5. Preprocess datasets by identifying and handling missing values and outliers to ensure data quality.
6. Develop, train, and evaluate simple machine learning models (classification and regression) using real-world datasets



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Programme Summary:

Duration: 31 Hours

Venue: VIVA Institute of Technology, Shirgaon.

Electronics & Telecommunication Engineering Department of VIVA Institute of Technology organized a 31 hours' Bridge course on "Python for Data Science" during 4th July 2025 to 16th October 2025 conducted by Mrs. Sonali Gaikwad.

Python has emerged as the most widely used programming language for data analysis, machine learning, and artificial intelligence due to its simplicity, versatility, and rich ecosystem of libraries. This course bridges the gap between programming and practical data analytics by enabling students to extract insights, make data-driven decisions, and solve real-world problems efficiently. Through hands-on exposure to data manipulation, visualization, and predictive modeling, students develop analytical thinking and problem-solving skills essential for careers in data science, research, and emerging technologies. The course not only enhances computational and analytical capabilities but also prepares learners for advanced studies and professional roles in the fast-growing domains of data analytics, business intelligence, and machine learning.

The event was a success with very positive feedback from the participants. The speech by the Principal Dr. Arun Kumar was an inspiring one that covered the broad future scopes of the field. The Principal being an encouraging one who said that for such events where in student development is involved, he will always be supportive. In the speech given by Mrs. Archana Ingle, H.O.D of EXTC, students gained an idea of how this workshop can be utilized to take creative projects in the field of engineering.

Topics covered in the course:

Sr.no	Contents	Hrs.
1	Introduction to Data Science and Python	02
2	Introduction to Spyder	02
3	Variables and Data Types	02
4	Different types of operators	02
5	Overview of essential Python libraries	02
6	Sequence Data types	01
7	Sequence Data Operations	02
8	Reading data from commonly used file formats	02
9	Working with Pandas Dataframe	02
10	Control Structures in Python	02
11	Exploratory data analysis	02
12	Data Visualization	02
13	Popular plotting libraries in Python	02
14	Dealing with missing values	02
15	Case study on Classification	02
16	Case study on Regression	02



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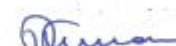
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CO-PO Mapping:

Course Outcome	Program Outcome												CO Target level
	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	2	2	2	2	-	-	-	-	-	-	-	2.2
CO2	3	2	2	2	2	-	-	-	-	-	-	-	2.2
CO3	3	3	2	2	2	-	-	-	-	-	-	-	2.4
CO4	3	2	2	2	2	-	-	-	-	-	-	-	2.2
CO5	3	3	3	2	2	-	-	-	-	-	-	-	2.6
CO6	3	3	2	2	2	-							2.4

Student Certificate format:

 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 Shirgaon, Virar(E.), Dist: Palghar-401305, Maharashtra NAAC "B++" GRADE	
Certificate of Appreciation This is to certify that BHANGNE SAYALI SANTOSH Student of Electronics and Telecommunication Engineering department has successfully completed bridge course on "Python for Data Science" conducted during 4th July 2025 to 16th October, 2025 at VIVA Institute of Technology, Shirgaon. His / Her contribution is highly appreciated.	
 _____ (Mrs. Archana Ingle) HEAD OF DEPARTMENT	 _____ (Dr. Arun Kumar) Principal