"Techno-Social Excellence"

Marathwada Mitramandal's Institute of Technology

Lohgaon, Pune-411047

Accredited with 'A' Grade by NAAC

"Excellence in the field of AI & DS"

Department of Artificial Intelligence & Data Science

(Academic Year 2022-23)

Add-on Course

On

Python for Data Science

Held on

30th Oct 2022 to 22nd Nov 2022

Coordinator
Mr. N. S. Shaikh

HOD
Mr. S. A. Agrawal

Add-on Course Details

Topic: Python for Data Science

Attendee: 42 Students (SE/TE AI & DS and Computer Engineering)

Organized By: Department of Artificial Intelligence & Data Science, MMIT, Lohgaon-411 047

Date: 30th Oct 2022 to 22nd Nov 2022

Total Course Hours:40 Hrs.

Mode of conduction: Offline

Course Conducted By:

Name: Mr. Sanjay A. Agrawal
Designation: HOD, AI & DS Department, MMIT, Pune.

Name: Mr. Nisar S. Shaikh
Designation: Assistant Professor, AI & DS Department, MMIT, Pune.

Name: Mrs. Rucha A. Agrawal
Designation: Assistant Professor, AI & DS Department, MMIT, Pune.

Name: Mr. Ashish K. Bhise
Designation: Assistant Professor, AI & DS Department, MMIT, Pune.

Name: Mr. Yogesh B. Dongare
Designation: Assistant Professor, Computer Department, MMIT, Pune.

Objectives of Expert Lecture

The main objective of the course is to provide students with the basic concepts of Python, its syntax, functions and packages to enable them to write scripts for data manipulation and analysis. The course develops skills of writing and running a code using Python. The course covers various variables types and their features, basic operators and statements, loops, as well as the main packages for data science: NumPy, Pandas, Matplotlib. At the end of the course, students should be able to write short scripts to import, prepare and analyze data.

Introduction:

The Add-on course provides students with wide general overview of Python – a general-purpose programming language that is becoming ever more popular for data science. The focus is on the application of Python specifically for data science. The course is about ways to import, store and manipulate data, and helpful data science tools to conducting data analyses. The course is intended for students with little programming background. This Add-on course contain a comprehensive topic combining not only theory but also practical session. This Add-on Course is foundation for students who want to become a Data Scientist or Data Analytics.

Module-I

Conducted by Mr. Ashish K. Bhise

Duration: 03/10/2022 To 11/10/2022 & 18/10/2022

Following topics are covered in the Module-I:

- Native Data Types
- Key Python Functions
- Slicing Operations
- Importing Packages Date Time
- Package sub package
- Methods and attributes
- Looping through iterable data sets
- IF-Conditional Statement
- For-Loop, User defined functions.

Module-II

Conducted by: Mr. Sanjay A. Agrawal

Duration: 12/10/2022 To 17/10/2022

Following topics are covered in the Module-II

- Data structures introductions

- List
- List Operations
- Tuple
- Sets
- Dictionaries.

Module-III

Conducted by: Mrs. Rucha A. Agrawal

Duration:1/11/2022 To 7/11/2022

Following topics are covered in the Module-III

- Introduction
- Numpy Basics
- Creating Numpy Arrays
- Structure and content of arrays
- Subset
- Slice
- Index and iterate through arrays
- Multidimensional Array
- Python Lists Vs Numpy Array

Module-IV

Conducted by: Mr. Nisar S. Shaikh

Duration: 9/11/2022 To 15/11/2022

Following topics are covered in the Module-IV

- Pandas basics
- Indexing and selecting data
- Merge and append
- Grouping and summarizing data frame
- Loading the data

- DataFrames
- Series
- CRUD operations
- splitting the data.
- Null Value Imputations
- Outliers Analysis and Handling
- VIF
- Bias-variance trade-off
- Cross validation techniques
- Train-test split, etc.

Module-V

Conducted by: Mr. Yogesh B. Dongare

Duration:16/11/2022 To 22/11/2022

Following topics are covered in the Module-IV

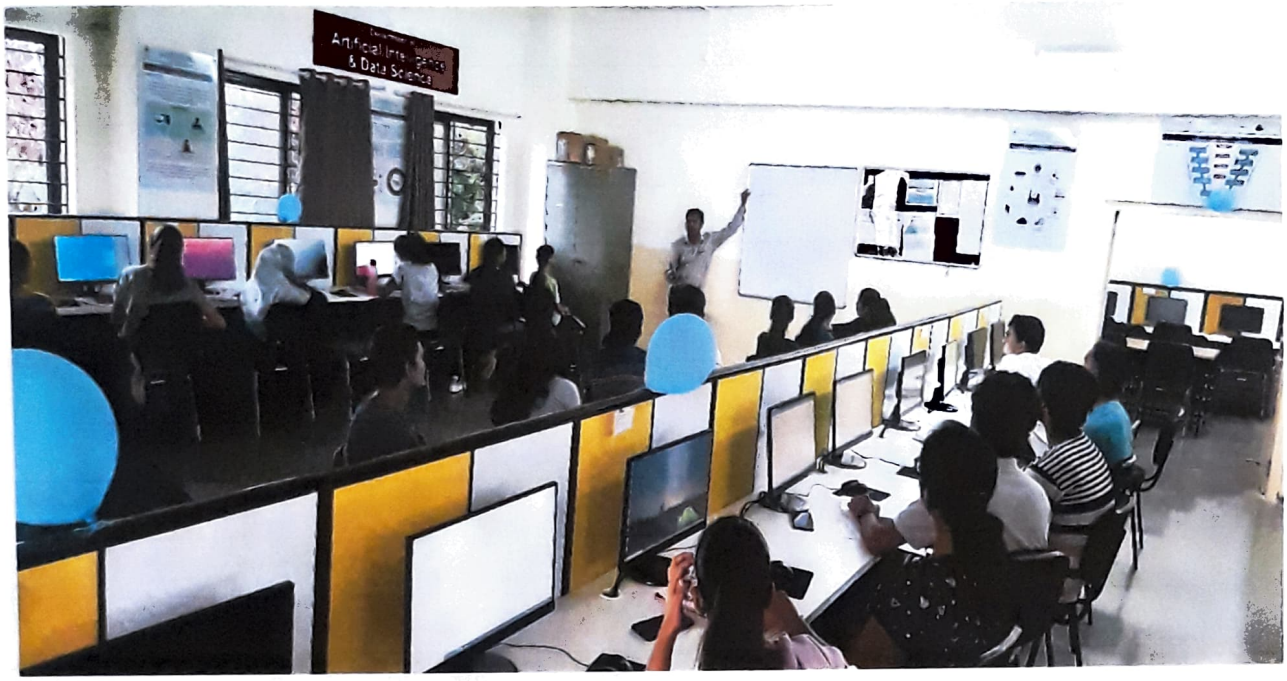
- Components of plot
- Data visualization toolkit
- functionalities of plots
- Bar charts
- Scatter plots
- Count plots
- line plots
- Histogram
- Pie charts
- Donut charts
- Plotting distribution across categories

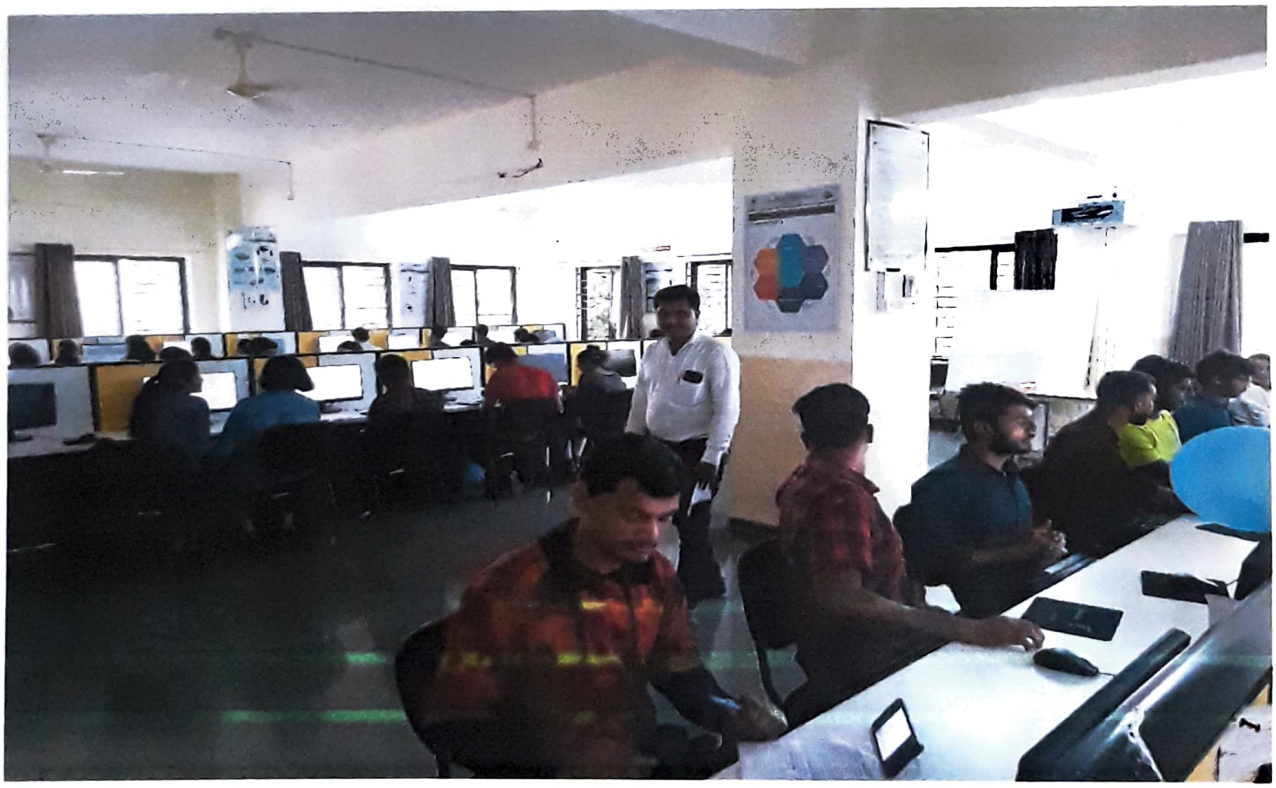
Program Outcomes:

After completion of this Add-on course, Learner

- Implemented basic data types in Python.
- Implemented operators, how to clean and merge datasets.
- Implemented Numpy Library to perform mathematical operations on data.
- Implemented pandas library, the main methods for DataFrames.
- Implemented visualization using Matplotlib
- Knew how to import data in Python.
- Used Jupyter Notebook/Google Colabs for data manipulation

Session photos






OTHER METHODS
For arranging elements in an order Python provides a method sort ( ) and a function sorted ( ). sort ( ) modifies the list in place and sorted ( ) returns a new sorted list.