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|-----------------------|---------------------------------------------------------------------------|
| <b>Branch Name:</b>   | <b>Information and Communication Technology</b>                           |
| <b>Semester/Year:</b> | <b>Semester I / First Year</b>                                            |
| <b>Subject Title:</b> | <b>Python for Data Science Practical</b>                                  |
| <b>Subject Code:</b>  | <b>2ET2080101P</b>                                                        |
| <b>Pre-requisite:</b> | <b>Basic programming fundamentals, Statistical and numerical concepts</b> |

### Course Objective:

The data collected by organization needs insights to take the decisions, for predictions as well as for finding hidden patterns inside the data. Python is an appropriate language supporting all the features and libraries to perform data science activities. This subject covers the overview of the python with emphasis on various python data structures and various libraries like Pandas, NumPy, Matplotlib for performing various data science function including data preparation, cleaning, exploratory analysis and visualization.

| Credit | Teaching Scheme<br>Hours per week |   |   |       | Evaluation Scheme (Marks) |      |      |      |                   |      |      |      |    |
|--------|-----------------------------------|---|---|-------|---------------------------|------|------|------|-------------------|------|------|------|----|
|        |                                   |   |   |       | Theory (Marks)            |      |      |      | Practical (Marks) |      |      |      |    |
|        | L                                 | T | P | Total | SEE                       |      | CCE  |      | SEE               |      | CCE  |      |    |
|        |                                   |   |   |       | Min.                      | Max. | Min. | Max. | Min.              | Max. | Min. | Max. |    |
| 1      | -                                 | - | 2 | 2     | -                         | -    |      |      | 10                | 25   | 10   | 25   | 50 |

### Course Outcome:

Upon successful completion of this course the student would be able to:

- Develop proficiency in creating based applications using the Python Programming Language.
- Do testing and debugging of code written in Python
- Apply various Python data structures to effectively manage various types of data.
- Design applications applying various operations for data cleansing and transformation.

- Use various data visualization tools for effective interpretations and insights of data.

**List of Experiments:**

1. Tour of Google Colaboratory and other online tools for Python Programming.
2. Develop programs to learn different types of structures (list, dictionary, tuples) in python.
3. Practice with panda, numpy and matplotlib.
4. Practice with numpy and matplotlib.
5. Practice with matplotlib.
6. Working with Panda: list, series, data frame.
7. Working with Numpy: array.
8. Working with various types of graphs in Python.
9. Data Preprocessing in Python: Web Scraping .
10. Data Wrangling.