COURSE TITLE	**DATA ANALYSIS USING PYTHON**
COURSE CODE	**04BA0201**
COURSE CREDITS	**3**

Course Outcomes: After completion of this course, student will be able to:

1 To understand fundamentals of python for business analytics

2 To comprehend the foundations of python data structures, functions, NumPys and Pandas for data analytics.

3 To utilize visualizations and plotting software for enhancing utility of data analytics.

Pre-requisite of course: None

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**Python programming Basic** Python interpreter, Python Basics, Tab completion, Introspection, %run command, magic commands, matplotlib integration,, python programming, language semantics, scalar types. Control flow	9
2	**Data Structure, functions, files** tuple, list, built-in sequence function, dict, set, functions,, namescape, scope, local function, returning multiple values, functions are objects, lambda functions,, error and exception handling, file and operation systems	8
3	**NumPy: Array and vectorized computation** Multidimensional array object. Creating ndarrays,, arithmetic with numpy array, basic indexing and slicing, Boolean indexing, transposing array and swapping axes, universal functions, array-oriented programming with arrays, conditional logic as arrays operations, file input and output with array	10
4	**Pandas** Pandas data structure, series, Data Frame, Index Object, Reindexing, dropping entities from an axis, indexing, selection and filtering, integer indexes, arithmetic and data alignment, function application and mapping, soring and ranking,, correlation and covariance, unique values, values controls and membership, reading and writing data in text format	10

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Contents : Unit	Topics	Contact Hours
5	**Visualization with Matplotlib** Figures and subplots, colors, markers, line style, ticks, labels, legends, annotation and drawing on sublots, matplotlib configuration, Plotting with pandas and seaborn: line plots, bar plots, histogram, density plots, scatter and point plots, facet grids and categorical data	8
Total Hours		**45**

Textbook :

1 Python for Data Analysis: Data Wrangling with pandas, NumPy, and Jupyter, Wes, McKinney, Shroff/O'Reilly, 2022

References:

1 Dr. RData Science and Machine Learning using Pythoneema Thareja, Dr. RData Science and Machine Learning using Pythoneema Thareja, Dr. Reema Thareja, McGrawHill, 2022

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
20.00	30.00	25.00	15.00	10.00	0.00

Instructional Method:

1 theory

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