INTRODUCTION TO PYTHON PROGRAMMING

Course Code	19CS2801A	**Year**	IV	**Semester**	II
Course Category	Inter Disciplinary Elective -III	**Branch**	EEE	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	NIL
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the basic constructs of Python Programming.	L2
CO2	Apply Python Programming constructs to solve problems and make an effective report.	L3
CO3	Apply python packages to write programs for a given application.	L3
CO4	Analyze and choose appropriate data structure for solving problems	L4

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)

Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation

* - Average value indicates course correlation strength with mapped PO

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	O2
CO1	3													
CO2	3								3	3				
CO3	3													
CO4		3												

Course Content

UNIT-1	**Introduction to Python** Features of Python, Writing and Executing First Python Program, Literal Constants, Variables and Identifiers, Reserved Words, Data Types, Input Operation, Operators and Expressions, Operations on Strings, Type Conversion, Conditional statements and iterative statements.	CO1,CO2
UNIT-2	**Functions in Python** Functions: Introduction, Built-in Math Functions, User Defined Functions: Function Call, Variable Scope and Lifetime, The return statement, Lambda Functions, Recursive functions Packages in python.	CO1,CO2
UNIT-3	**Strings and File Handling in Python** **Strings:** Introduction, Built-in String Functions, Slice Operation, Comparing Strings, Iterating String, Regular Expressions. **File Handling:** open, close, read and write operations.	CO1, CO2
UNIT-4	**Data Structures in Python** **Lists:** Accessing values in lists, Nested Lists, Basic List Operations. **Tuples:** Creating Tuple, Accessing values in a tuple, Basic Tuple Operations.	CO1,CO4

	Dictionaries: Creating and Accessing Dictionaries, Built-in Dictionary functions, List Vs Tuple Vs Dictionary.	
UNIT-5	**Packages:** Numpy -- Create, reshape, slicing, operations such as min, max, sum, search, sort, math functions etc. Pandas -- Read/write from csv, excel, json files, add/ drop columns/rows, aggregations, applying functions Matplotlib -- Visualizing data with different plots, use of subplots.	CO1,CO3

Learning Resources

Text books

1. Python Programming using Problem Solving Approach, Reema Thareja, 2017, OXFORD University Press
2. Python for Data Analysis, Wes McKinney, 2012, O.Reilly.

References

1. Core Python Programming, R. Nageswara Rao, 2018, Dreamtech press.
2. Programming with python, T R Padmanabhan, 2017, Springer.

e-Resources and other Digital Material

1. http://www.ict.ru.ac.za/Resources/cspw/thinkcspy3/thinkcspy3.pdf
2. https://zhanxw.com/blog/wp-content/uploads/2013/03/BeautifulCode_2.pdf