INTRODUCTION TO PYTHON PROGRAMMING

Course Code	19CS2801D	**Year**	IV	**Semester**	II
Course Category	Inter Disciplinary Elective-III	**Branch**	Common to All	**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		**Level**
After 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

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1: Low)														
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3													
CO2	3													
CO3	3													
CO4		3												

Syllabus		
Unit No.	**Contents**	**Mapped COs**
I	**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
II	**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
III	**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
IV	**Data Structures in Python** **Lists:** Accessing values in lists, Nested Lists, Basic List Operations. **Tuples:** Creating Tuple, Accessing values in a tuple, Basic Tuple erations. **Dictionaries**: Creating and Accessing Dictionaries, Built-in Dictionary functions, List Vs Tuple Vs Dictionary.	CO1, CO4

V	**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 Recourse(s)
Text Book(s)
1. Python Programming using Problem Solving Approach, Reema Thareja, 2017, OXFORD University Press 2. Python for Data Analysis, Wes McKinney, 2012, O.Reilly.
Reference Book(s)
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