SUBJECT CODE: Python Programming (BCSG1001)

COURSE OBJECTIVE

The course is designed to provide an introduction to the Python Programming language. The focus of the course is to provide students with an introduction to programming, I/O, and visualization using the Python Programming language.

Credits: 03 **L–T–P: 4–0–0**

Module No.	Content	Teaching Hours
I	**Introduction:** History, Features, Python Interpreters and coding standards. **Working with Python:** Basic Syntax, Variable and Data Types, Operators. **Input-Output**: Printing on screen, Reading data from keyboard, built-in functions. **Control Structures**: if-else, elif, nested if, looping, iteration control structures, break, continue & pass. **String Manipulation:** String Literals, Basic Operations, String slices, Multiline Strings and String Methods. **Lists:** Introduction, Accessing List, Operations, List Methods, List Comprehensions and nested list. **Tuple:** Introduction, Accessing tuples, Operations Working, Functions and Methods.	16 hours
II	**Dictionary:** Introduction, Accessing values in dictionaries, working with dictionaries, Properties and methods and dictionary Comprehensions. **Functions:** Defining & Calling a function, Passing arguments to functions – Mutable & Immutable Data Types, Different types of arguments, Scope of Variables local, global and nonlocal, Anonymous functions. **Modules and Packages:** Standard Modules, random, math, Date & Time Module and numpy. **Exception Handling**: Introduction, try-except, use of else clause, try and finally clause. **Python File Handling:** Create, Open, Append, Read, Write.	16 hours

Text Books:

- Paul Barry: "Head First Python "O'Reilly Media, Inc.".
- Learn Python 3 the Hard Way: A Very Simple Introduction to the Terrifyingly Beautiful World of Computers and Code (Zed Shaw's Hard Way Series)
- Python Data Science Handbook: Essential Tools for Working with Data

Reference Books:

- Bret Slatkin: "Effective Python: 59 Specific ways to write better Python", Addison Wesley, 2015.

Outcome:

After completion of course, the student will be able to:

- Understand to solve problems with smaller Lines of Code using Python as compared to other programming languages
- Use Object-Oriented Programming concepts while programming in Python
- Use in-built packages defined in Python
- Gain knowledgeof Python visualization libraries
- Create a plot of retrieved data
- Work advance searching operation with string in using regular expression