II Year II Semester	**L**	**T**	**P**	**C**
Code:20CS4705	**3**	**0**	**0**	**3**

PYTHON PROGRAMMING (Minors)

Course Objectives:

The aim of Python Programming Lab is,

1. To learn about Python programming language syntax, semantics, and the runtime environment
2. To be familiarized with universal computer programming concepts like data types
3. To be familiarized with general computer programming concepts like conditional execution, loops & functions
4. To be familiarized with data structures and object-oriented programming
5. To acquire exception handling skills in Python

Course Outcomes:

By the end of this lab, the student is able to

1. Write, Test and Debug Python Programs
2. Develop essential programs in computer programming concepts like data types
3. Solve coding tasks related conditional execution, loops
4. Use functions and represent Compound data using Lists, Tuples and Dictionaries etc. and solve coding tasks related to the techniques used in object-oriented programming
5. Handle different kinds of exceptions

UNIT I

Introduction: History of Python, Need of Python Programming, Applications Basics of Python Programming Using the REPL(Shell), Running Python Scripts, Variables, Assignment, Keywords, Input-Output, Indentation.

UNIT II

Types, Operators and Expressions: Types - Integers, Strings, Booleans; Operators- Arithmetic Operators, Comparison (Relational) Operators, Assignment Operators, Logical Operators, Bitwise Operators, Membership Operators, Identity Operators, Expressions and order of evaluations Control Flow- if, if-elif-else, for, while, break, continue, pass

UNIT III

Data Structures Lists - Operations, Slicing, Methods; Tuples, Sets, Dictionaries, Sequences. Comprehensions.

UNIT IV

Functions : Defining Functions, Calling Functions, Passing Arguments, Keyword Arguments, Default Arguments, Variable-length arguments, Anonymous Functions, Fruitful Functions(Function Returning Values), Scope of the Variables in a Function - Global and Local Variables.

Modules: Creating modules, import statement, from. Import statement, name spacing, Python packages Introduction to PIP, Installing Packages via PIP, Using Python Packages

UNIT V

Object Oriented Programming OOP in Python: Classes, 'self variable', Methods, Constructor Method, Inheritance, Overriding Methods, Data hiding, Error and Exceptions: Difference between an error and Exception, Handling Exception, try except block, Raising Exceptions, User Defined Exceptions

Text Books:

1. Python Programming: A Modern Approach, Vamsi Kurama, Pearson
2. Learning Python, Mark Lutz, Orielly

Reference Books:

1. Think Python, Allen Downey, Green Tea Press
2. Core Python Programming, W.Chun, Pearson. 3. Introduction to Python, Kenneth A. Lambert, Cengage