# PYTHON PROGRAMMING

**CREDITS: 3**

**OBJECTIVE:**
- ➢ Use Python Programming for decision making.
- ➢ Apply appropriate programming and generate solution.

## UNIT I - INTRODUCTION                                        9
Introduction to Computer Systems – Computer Hardware – Computer Software – Programming Languages – AlgorithmicProblem Solving – BuildingBlocks of a Program – Fundamentalsof Python Programming – Syntaxand Styles: Data types – Literals – Variable – Operators and Expressions.

## UNIT II - DATA COLLECTIONS AND LANGUAGE COMPONENT           9
Control Flow: If, While, For, Break, Continue, Pass Statements – Entry Controlled Loop – Exit Controlled Loop – Counter Controlled Loop – Condition Controlled Loop – Nested Loops – Sample Programs – Sequences– Lists – Tuples: Need of Tuple - Sequence Unpacking - Methods.

## UNIT III - FUNCTIONS AND MODULES                            9
Dictionaries: Making a Dictionary – Basic Operations – Dictionary Operations – Sets – Iterators and Generators – Functions: Introduction – Defining Functions – Calling Functions – Passing Arguments – Keyword Arguments – Default Arguments – Required Arguments – Variable –length Arguments – Return Statement – Nesting of Passing Arguments – Anonymous Functions – Recursive Function – Scope of Local and Global Variable – Sample Programs – Modules.

## UNIT IV - OBJECT AND CLASSES                                9
Object Oriented Programming Principles: Class Statement – Class Body – Objects – Class Methods – Self Variable – Class Properties and Instance Properties – Static Method – Data Hiding – Deleting an Object – Constructor – Method Overriding – Inheritance – Packages – Strings and Regular Expressions

## UNIT V -  I/O, ERROR HANDLING AND THREADS                  9
Files and Directory Access: Files and Streams – Opening a File – Reading/Writing Operations on a File – Other File Operations – Iterating through Files – Splitting Words – Serialization and De-serialization – Hash files – Directory Access – Errors and Exceptions – Multithreading: Introduction to Thread – Differences between Process and Thread – Threading Module – Thread Synchronization.

**TOTAL: 45 PERIODS**

**OUTCOME:**
- ➢ Understand the use of Python Programming and generate solutions.

**REFERENCES:**

1. ChSatyanarayana, M Radhika Mani, B N Jagadesh, "Python Programming", Universities Press (India) Private Ltd 2018.
2. Kenneth A. Lambert, B.L. Juneja, M. Arunachalam, G. Balakrishnan, "Problem Solving and Python Programming", Cengage Learning India Pvt. Ltd.
3. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", II edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016 (http://greenteapress.com/wp/thinkpython/)
4. Robert Sedgewick, Kevin Wayne, Robert Dondero, ―Introduction to Programming in Python: An Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
5. Timothy A. Budd, ―Exploring Python‖, Mc-Graw Hill Education (India) Private Ltd., 2015.
6. Kenneth A. Lambert, ―Fundamentals of Python: First Programs‖, CENGAGE Learning, 2012.