

Semester	VI	Course Title	Python Programming	Course Code	18 EC 652
Teaching Period	50 Hours	L - T - P - TL*	3- 1 - 0 - 4	Credits	3
CIE*	40 Marks	SEE*	60 Marks	Total	100 Marks

CREDITS- 03

Course Objectives:

- Learn syntax and semantics and create functions in python
- Handle iteration and strings in python
- Understand list dictionaries and regular expressions in pythons
- Analyze tuples and files in python
- Implement object oriented programming concepts in python

Module 1

INTRODUCTION: what is programming? Running Python, the first program, values and types, variables, variable and keywords, expression and statements, script mode, order of operations, string operations, comments,

FUNCTIONS: function calls, type conversion functions, math functions, composition, adding new functions, definition and uses, flow of execution, parameters and arguments, variables and parameters are local, stack diagrams.

Module 2

CONDITIONAL & RECURSION: Floor division & Modulus operator, Boolean expression, logical operators, conditional execution (if), alternative execution(if-else) ,chained conditionals (if-elif-else), nested conditionals, recursion:

ITERATION: re-assignment, updating variables, the while statement, break, square root,

STRING: string slices, immutability, searching, looping and counting, string methods, The in operator, string comparison.

Module 3

LIST: list operations, list slices, list methods, list loop, mutability, aliasing, list arguments. list and tuples.

DICTIONARIES: A dictionary is a mapping, dictionary as a collection of counters, looping and dictionaries, reverse look up, dictionaries and lists, memos.

Module 4

TUPLES: tuples are immutable, tuple assignment, tuples are return values, variable-length argument tuples, list and tuples, dictionaries and tuples.

FILES: Files reading and writing, format operator, file names and paths, catching exceptions, pickling and pipes, writing modules.

Module 5

CLASSES AND OBJECTS: programmers defined types, attributes, rectangles, instances as written values, objects are mutable, copying, pure functions, printing objects, the init method.

INHERITANCE: inheritance, class diagram, data encapsulation, operator overload, polymorphism.

Course Outcomes

- Understanding syntax and semantics of python and working with functions.
- Demonstrating Operators, Control statements and Strings
- Create applications using python data structures like list and dictionaries
- Usage of tuples and file system in python
- Interpreted the concepts of OOPS as used in python.

Text Books

- Think Python: How to Think Like a Computer Scientist Allen B. Downey Shroff
O'Reilly Publishers 2nd edition 2016
(<https://greenteapress.com/thinkpython2/thinkpython2.pdf>)
- Introducing Python- Modern Computing in Simple Packages – Bill Lubanovic, O'Reilly Publication , 1st edition 2014.

Reference Books

- Introduction to Programming in Python: An Inter-disciplinary Approach Robert Sedgewick, Kevin Wayne, Robert Dondero Pearson India Education Services Pvt. Ltd 2016
- Fundamentals of Python: First Programs Kenneth A. Lambert CENGAGE Learning 2012