  **Deccan Education Society’s**

**Brihan Maharashtra College of Commerce (AUTONOMOUS)**

**845, Shivajinagar, Pune-411004**

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Programme **– T.Y.BBA(CA)**

Subject Title – **Recent Trends in IT (Python Programming) (Revised 2017 Pattern)**

Subject code – 4603 Semester – VI Credit – 3

**Course Objectives:**

* To introduce various concepts of programming to the students learning Python.
* Students should be able to use Python programming language to solve simple problems.

**Course Outcomes:**

On completion of this course, students will be able to –

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| 1. Understand features and applications of Python |
| 1. Explore keywords, operators, built-in functions |
| 1. Comprehend data types through code |
| 1. Explore File handling techniques |
| 1. Understand Object Oriented Programming concepts |
| 1. Write relevant programs |

**Syllabus -**

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| **Unit No.** | **Contents** | **No. of Lectures** |
| **1** | **Introduction to Python Programming**   * What is Python? * Why Python? Script or Program? * Applications of Python * Types of Python IDE – Python flavors * How to install Python IDE on laptops and PCs? * Getting Started | **05** |
| **2** | **Basic Python**   * Python identifiers and reserved words * Lines and indentation, multi-line statements * Comments * Input / Output with print and input functions * Command line arguments and processing command line arguments * Standard data types – basic, none, Boolean (true and false), number * Python strings * Data type conversion * Python basic operators (arithmetic, comparison, assignment, bitwise logical) * Python membership operators (in and not in) * Operator precedence * Control statements, Python loops, Iterating by subsequence index, loop control statements (break, continue, pass) * Mathematical functions and constants (import math), Random number functions | **10** |
| **3** | **Python Strings**   * Concept, escape characters * String special operations * String formatting operator * Single quotes, Double quotes, Triple quotes * Raw string, Unicode strings, Built-in string methods * Python Lists – concept, creating and accessing elements, updating and deleting lists, basic list operations, reverse * Indexing, Slicing and Matrices * Built-in list functions * Functional Programming tools – filter(), map() and reduce() * Using lists as stacks and Queues, List comprehensions   **Python tuples and sets**   * Creating and deleting tuples * Accessing values in a tuple * Updating tuples, delete tuple elements * Basic tuple operations * Indexing, Slicing and Matrices, built-in tuple functions * Sets – concept and operations   **Python Dictionary**   * Concept (mutable) * Creating and accessing values in a dictionary * Updating dictionary, delete dictionary elements * Properties of dictionary keys * Built-in dictionary functions and methods | **10** |
| **4** | **Functions**   * Defining a function (def) * Calling a function * Function arguments – Pass by value, Keyword arguments, Default arguments * Scope of variable – basic rules * Documentation Strings * Variable number of Arguments * Call by Reference * Order of arguments (positional, extra and keyword) * Anonymous functions * Recursion | **10** |
| **5** | **File Handling**   * Introduction to Files * Types of Files * Opening and Closing a Text File * Writing to a Text File * Reading from a Text File * Setting Offsets in a File * Creating and Traversing a Text File * The Pickle Module | **05** |
| **6** | **Classes and Objects**   * Classes as User Defined Data Type * Objects as Instances of Classes * Creating Class and Objects * Creating Objects By Passing Values * Variables & Methods in a Class   **Inheritance**   * Single Inheritance * Multilevel Inheritance * Multiple Inheritance * Hybrid Inheritance * Hierarchical Inheritance * IS-A Relationship and HAS-A Relationship | **05** |
|  | **Total** | **45** |

**Teaching Methodology** – Lecture, Presentation, Guest lecture, Lab activity

**Recommended Books:**

1. Learning Python by Mark Lutz

2. The Complete Reference by Martin.C. Brown