

## **Python Syllabus**

### **1. Program Logic and Flowcharts**

- a. Introduction to programming Logic
- b. Methodology of Problem Solving
- c. Algorithm & Flowcharts

### **2. Introduction to Python**

- a. Features of Python
- b. How to run Python
- c. Identifiers
- d. Reserved Keywords
- e. Variables
- f. Comment in Python
- g. Indentation in Python
- h. Multiline Statements
- i. Multiple Statements Group(Suite)
- j. Quotes in Python
- k. Input, output and Import Functions
  - i. Displaying the Output
  - ii. Reading the Input
  - iii. Import Function
- l. Operators
  - i. Arithmetic
  - ii. Comparison
  - iii. Assignment
  - iv. Bitwise
  - v. Logical
  - vi. Membership

- vii. Identity
- viii. Operator Precedence

### **3. Data types and Operators**

- a. Numbers
  - i. Mathematical Functions
  - ii. Trigonometric Functions
  - iii. Random Number Function
- b. Strings
  - i. Escape Characters
  - ii. String Formatting Operator
  - iii. String Formatting Functions
- c. List
  - i. Built in List Functions
  - ii. Built in List Methods
- d. Tuple
  - i. Built in Tuple Functions
- e. Set
  - i. Built in set Functions
  - ii. Built in set Methods
  - iii. Forzenset
- f. Dictionary
  - i. Built in Dictionary Functions
  - ii. Built in Dictionary Methods
- g. Mutable and Immutable Objects
- h. Data Type Conversion

#### **4. Flow Control**

- a. Decision Making
  - i. If statement
  - ii. If-else statement
  - iii. If—elif-else statement
  - iv. Nested If statement
- b. Loops
  - i. For loop
  - ii. For loop with else
  - iii. While loop
  - iv. While loop with else statement
- c. Nested Loops
- d. Control statements
  - i. Break statement
  - ii. Continue statement
  - iii. Pass statement
- e. Types of Loops
  - i. Infinite Loop
  - ii. Loops with condition at the top
  - iii. Loops with condition in the middle
  - iv. Loops with condition at the bottom

#### **5. Functions**

- a. Function definition
- b. Function calling
- c. Function arguments
  - i. Required arguments
  - ii. Keyword Arguments

- iii. Default Arguments
- iv. Variable Length arguments
- d. Anonymous Functions(Lambda Functions)
  - i. Uses of Lambda Functions

## **6. Modules and Packages**

- e. Built in Modules
- f. Creating Modules
- g. Import Statements
  - i. Import with renaming
  - ii. from—import statement
  - iii. Import all names
- h. Locating Modules
  - i. PYTHONPATH Variable
- i. Namespaces and scope
- j. The dir() function
- k. The reload() Function
- l. Packages in Python
  - i. Importing modules from a package
- m. Date and Time Modules
  - i. The time module
  - ii. The Calendar Module
  - iii. The datetime module

## **7. File Handling**

- n. Opening a File
  - i. Modes for Opening a file
  - ii. Attributes of file Object
- o. Closing a File

- p. Writing to a file
- q. Reading from a File
- r. File Methods
- s. Renaming a File
- t. Deleting a file
  
- u. Directories in Python
  - i. mkdir() Method
  - ii. chdir() method
  - iii. getcwd() method
  - iv. rmdir() method

## **8. Object Oriented Programming**

- v. Class Definition
- w. Creating Objects
- x. Built in Attribute Methods
- y. Built in Class Attributes
- z. Destructors in Python
- aa. Encapsulation
- bb. Data Hiding
- cc. Inheritance
  - i. Deriving a child Class
  - ii. Multilevel Inheritance
  - iii. Multiple Inheritance
  - iv. Invoking Base Class Constructor
- dd. Method Overriding
- ee. Polymorphism
  - i. Operator Overloading

## **9. Exception Handling**

- ff. Built in Exception
- gg. Handling Exceptions
  - i. try—except
  - ii. except clause with no Exception
  - iii. except clause with multiple Exceptions
  - iv. try—finally
  - v. Exception with Arguments
  - vi. Raising an Exception
  - vii. Assertions in Python

## **10. Regular Expressions**

- hh. The match() function
- ii. The search() function
- jj. Search and Replace
- kk. Regular Expression Modifiers: Option Flags
- ll. Regular Expression Patterns
- mm. Character Classes
- nn. Special Character Classes
- oo. Repetition cases
- pp. findall() method
- qq. Compile() method

## **11. Database Programming Basics**

- rr. Connecting to a Database
- ss. Creating Tables
- tt. Insert Operation
- uu. Update Operation
- vv. Delete Operation

ww. Read/Select Operation

xx. Transaction Control

i. COMMIT Operation

ii. ROLLBACK Operation

yy. Disconnecting from ad Database

zz. Exception Handling in Databases