CS-305A	Python Programming	L-T-P	Cr
		4-0-0	4

OBJECTIVE

To build programming logic and thereby developing skills in problem solving using Python programming language; To be able to do testing and debugging of code written in Python Emphasize the concepts and constructs rather than on language features.

UNIT 1: Introduction to Python: History, features & benefits of Python, Structure of a Python Program, Identifiers and keywords, concept of variable, memory allocation for variable, data types in python, conversion functions, Operators (Arithmetic Operator, Relational, Logical or Boolean operator, Assignment, Operator, ,Bit wise operator, membership operator).Input and output function, Control Statements (Looping- while Loop, for Loop, Loop Control, Conditional Statement-if...else, Difference between break, continue and pass).

UNIT 2: Data Structures & Function: String**,** lists tuples, sets, Dictionary data structure, built-in library function, method and operation on these data structure .Python Date & Time, Defining Function, type of function arguments (Required arguments, keyword arguments, default arguments, Variable-length arguments), pass by reference Vs pass by value, Concept of recursion, Lambda functions, scope of a variable, global Vs local variable, Python modules & packages, import statement, dir(), globals(), locals() and reload() functions, collections

UNIT3: Python Object Oriented Programming: Introduction to object oriented programming, Concept of abstraction, encapsulation, class, object and instances. Creating classes, _init_() method, creating instance object, class attributes, UML class diagrams, access specifiers in python, instance method Vs class method Vs static method,. Inheritance & polymorphism, overriding and overloading methods, overloading operators, relationships, Programming using Oops support.

UNIT 4: Python File handling, exception handling & concurrency: opening & closing files ,file access modes, file object attributes, reading and writing files, Manipulating file pointer using seek and tell. Programming using file operations. Exception handling in python, Multithreading programming in Python

UNIT 5: Python Database Integration, Data visualization, Statistical data analysis: MySQL/Oracle Database connection using python. Creating database tables, SELECT, INSERT, UPDATE, and DELETE operation, performing commit, rollback operation, error handling Programming using database connections, Python data visualization, statistical data analysis using python

Text Books:

1. John V Guttag. “Introduction to Computation and Programming Using Python”, Prentice Hall of India

Reference Books:

1. T. Budd, Exploring Python, TMH, 1st Ed, 2011
2. Allen Downey, Jeffrey Elkner, Chris Meyers ,How to think like a computer scientist :Learning with Python,Freelyavailableonline.2012

Web Reference:

3. http://docs.python.org/3/tutorial/index.html
4. http://interactivepython.org/courselib/static/pythonds
5. http://www.ibiblio.org/g2swap/byteofpython/read/
6. https://www.tutorialspoint.com/python