Subject Code	Name of the Subject	L	T	P	C	
	Fundamentals of Python Programming	**3**	**0**	**1**	**4**	

UNIT:1 **(08 Hours)**

Introduction: Installation, First Python Program: Interactive Mode Programming, Script Mode Programming; Identifiers, Reserved Words, Lines and Indentation, Multi-Line Statements, Quotation & Comments; Assigning Values to Variables, Multiple Assignment.

Standard Data Types: Numbers, Strings, Lists, Tuples, Dictionary; Data Type Conversion; Basic Operators: Arithmetic, Comparison, Assignment, Bitwise; Operators: Logical, Membership, Identity; Operators Precedence; Python Numbers & Mathematical functions, Python Strings.

UNIT:2 **(10 Hours)**

Python Program Flow Control: Conditional blocks using if, else and elif, Simple for loops in python, for loop using ranges, string, list and dictionaries, Use of while loops in python, Loop manipulation using pass, continue, break and else, Programming using Python conditional and loops block

Python Functions, Modules and Packages: Organizing python codes using functions Organizing python projects into modules, Importing own module as well as external modules, Understanding Packages, Powerful Lamda function in python, Programming using functions, modules and external packages

Python String, List And Dictionary Manipulations : Building blocks of python programs, Understanding string in build methods, List manipulation using in build methods, Dictionary manipulation, Programming using string, list and dictionary in build functions

UNIT:3 **(12 Hours)**

Python File Operation: Reading config files in python, Writing log files in python, Manipulating file pointer using seek, Programming using file operations, Understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines()

Python Object Oriented Programming – Oops: Concept of class, object and instances, Constructor, class attributes and destructors, Real time use of class in live projects, Inheritance , overlapping and overloading operators, Adding and retrieving dynamic attributes of classes , Programming using Oops support

Python Regular Expression: Powerful pattern matching and searching, Power of pattern searching using regex in python, Real time parsing of networking or system data using regex, Password, email, url validation using regular expression, Pattern finding programs using regular expression

Python Exception Handling : Avoiding code break using exception handling, Safe guarding file operation using exception handling, Handling and helping developer with error code, Programming using Exception handling

UNIT:4 **(15 Hours)**

Python Database Interaction: SQL Database connection using python, Creating and searching tables, Reading and storing config information on database, Programming using database connections

Python Multithreading: Understanding threads, forking threads, Synchronizing the threads, Programming using multithreading

Python CGI Introduction : Writing python program for CGI application, Creating menus and accessing files, Server client program

Teaching Methods: Chalk& Board/ PPT/Video Lectures

Text Books:

1. "Python: The Complete Reference", Martin C. Brown, McGraw-Hill/Osborne Media.
2. "Learning Python", Mark Lutz, O'Reilly Media, Inc., Fifth Edition, 2013.

Reference Books:

1. *"Expert Python Programming", Tarek Ziad, Packt Publishing.*
2. *"Python Essential Reference, David Beazley", Dveloper's Library, Sams Publishing.*