BCA 601: Python

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week Tutorials: 1 hr/Week Credits: 4	Class Test -12Marks Teachers Assessment - 6Marks Attendance – 12 Marks End Semester Exam – 70 marks

Course Objectives:

1. To give knowledge about python programming.
2. To introduce python development language.
3. To give knowledge about concept of python.
4. To explore the skills of web programming using python.

Detailed Syllabus

Unit-1

Introduction to Python: Importance of Python, Installing and working with Python in Windows, Linux and Mac, Using Python as calculator, Comments, how to define main function in Python
The concept of data types - Variables, Arithmetic Operators and Expressions.

Unit-2

Subscript Operator, Indexing, Slicing a string, Converting strings to numbers and vice versa, split function, **Control flow** - if statements, for and while loops, nested loops, Short-circuit (lazy evaluation), range() function, break and continue statements, pass statements.

Unit-3

Data Structures: **Lists** - Basic list operations, Replacing, inserting, removing an element; Searching and sorting a list, Methods of list objects, using lists as Stacks and Queues, how efficient lists are when used as stack or queue, List and nested list Comprehensions Tuple, Sets, Difference between list and tuple Dictionary - adding and removing keys, accessing and replacing values, traversing dictionaries

Unit-4

Python functions and modules - **OS** and **SYS** modules, defining python functions, calling a function, function arguments, Lambda and map function, Importing python module, **Useful Python Packages** – Beautiful Soup, NumPy, iPython, tkinter, **Classes and OOP** - Class definition syntax, objects, class and instance variables, Inheritance and multiple inheritance, Polymorphism, Overloading, Overriding, Data Hiding.

Unit-5

Regular Expressions - re module, Searching a string (match and search), Finding a string (findall), Break string into substrings (split), Replace part of a string (sub), **Examples of Regex** - Return the first word of a given string, Extract all the words of a given string, Extract domain name from given e-mail id's, Extract date from given string, Return all the words of a string that starts with vowel, Split a string with multiple delimiters, Retrieve some information from HTML or XML file.

Unit-6

File Handling - Reading keyboard input, opening and closing file, Read, Write and Append mode, Create and Read a text file, Looping over a file object, Writing on a file, with statements, splitting lines in a text file, Renaming and Deleting files, **Exception Handling** - Exceptions, Why use exceptions, Raising an exception, try and except, try, except and else clause; try and finally

Text and Reference Books

1. Python Programming for the Absolute Beginner By Laila M. Dawson
2. Learn Python the Hard Way By Zed A.Shaw
3. Learning Python By Mark Putz Python Documentation (https://docs.python.org)

Course Outcomes:

After completing the course, students will be able to:

1.	Understand various types of website development using python.
2.	Analyze the latest language designing and optimize new technology.
3.	Identify benefits of using python in the fiels of latest development in machine learning, web.
4.	Understand data structure using python implementation.
5.	Data mining and data analyzing.