BCC302 / BCC402/ BCC302H / BCC402H :

PYTHON PROGRAMMING

Course Outcome (CO)		Bloom's Knowledge Level (KL)
At the end of course , the student will be able to understand		
CO 1	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.	K_1, K_2
CO 2	Express proficiency in the handling of strings and functions	K_1, K_2
CO 3	Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.	K_3
CO 4	Identify the commonly used operations involving file systems and regular expressions.	K_1, K_2
CO 5	Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python	K_2, K_3

DETAILED SYLLABUS

Unit	Topic	Lecture
I	**Introduction to Python:** Python variables, Python basic Operators, Understanding python blocks. Python Data Types, Declaring and using Numeric data types: int, float etc.	**03**
II	**Python Program Flow Control Conditional blocks:** if, else and else if, 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 loop blocks.	**05**
III	**Python Complex data types:** Using string data type and string operations, Defining list and list slicing, Use of Tuple data type. String, List and Dictionary, Manipulations Building blocks of python programs, string manipulation methods, List manipulation. Dictionary manipulation, Programming using string, list and dictionary in-built functions. Python Functions, Organizing python codes using functions.	**04**
IV	**Python File Operations**: Reading files, Writing files in python, Understanding read functions, read(), readline(), readlines(). Understanding write functions, write() and writelines() Manipulating file pointer using seek Programming, using file operations.	**04**
V	**Python packages:** Simple programs using the built-in functions of packages matplotlib, numpy, pandas etc. GUI Programming: Tkinter introduction, Tkinter and PythonProgramming, Tk Widgets, Tkinter examples. Python programming with IDE.	**04**

Text books:

1. Wesley J. Chun, "Core Python Applications Programming", 3rd Edition , Pearson Education, 2016
2. Lambert, Fundamentals of Python: First Programs with MindTap, 2nd 1st edition , Cengage Learning publication
3. Charles Dierbach, "Introduction to Computer Science using Python", Wiley, 2015
4. Jeeva Jose &P.SojanLal, "Introduction to Computing and Problem Solving with PYTHON", Khanna Publishers, New Delhi, 2016
5. Downey, A. et al., "How to think like a Computer Scientist: Learning with Python", John Wiley, 2015
6. Mark Lutz, "Learning Python", 5th edition, Orelly Publication, 2013, ISBN 978- 1449355739
7. John Zelle, "Python Programming: An Introduction to Computer Science", Second edition, Course Technology Cengage Learning Publications, 2013, ISBN 978- 1590282410
8. Michel Dawson, "Python Programming for Absolute Beginers" , Third Edition, Course Technology Cengage Learning Publications, 2013, ISBN 978-1435455009
9. David Beazley, Brian Jones., "Python Cookbook", Third Edition, Orelly Publication, 2013, ISBN 978-1449340377