

CO151R PYTHON PROGRAMMING

TeachingScheme:03L+00T

Credit:03

EvaluationScheme:30MSE+10ISA +60ESE

TotalMarks:100

Duration Of ESE:03 Hrs

Course Description:

This course introduces basic proficiency in programming for solving real life problems using Python Programming Language.

Desirable Awareness/skills:

Basic computer fundamentals.

Course Objectives:

The objectives of offering this course are:

- 1 To use the concepts of computing systems for problem solving
- 2 To understand various structures like List, tuple, dictionary etc.
- 3 To implement algorithms for solving problems using programming languages.

Course Outcomes:

On the successful completion of this course student will learn:

CO1	Understand tokens, identifiers, operators, data types supported by python
CO2	Implement a program using decision making and loop statements in python.
CO3	Use various inbuilt python data structures to manage data at runtime.
CO4	Implement user defined functions for given problems.
CO5	Implement different techniques to handle exceptions.

The relevance of PO's and strength of correlation:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	2	3	3		2	2			2
CO2	3	3	2	3	3	3		2	2			2
CO3	3	3	2	2	3	3		2	2		2	
CO4	3	3	3	2	3	3		2	2			
CO5	3	3	2	3	3	3		2	2			

Course Contents

Introduction to Python : Introduction, python overview, getting started with python – installing python interpreter, simple python program, comments, python identifiers, reserved keywords, variables, standard data types, operators, statements and expressions, string operations, Boolean expressions

Flow control statements. control statement(if statement, if else statement, else if ladder, switch case). Iterations (while, do while, for, range, xrange).

Built In data structures and String handling: List, Tuples, Dictionary, set. Strings-compound data type, len function, string slices, strings traversal, escape characters, string formatting operator, string formatting functions

Functions:Built-in-functions, user defined functions, parameters and arguments, types of arguments, functions calls, the return statement, python recursive functions, composition of

functions, the anonymous functions, writing python scripts.

File handling and exception handling:

Files and Exceptions : Files- Text files, directories, exceptions- built-in exceptions, handling exceptions, exceptions with arguments, user defined exceptions.

Text Books:

1. Introduction to computing and Problem Solving Using Python, E Balagurusamy McGraw Hill Education Pvt. Ltd, ISBN-13: 978-93-5260-258-2
2. Programming and Problem Solving with Python ,Kamthane, McGraw Hill Education Pvt. Ltd, ISBN: 9789387067578

Reference books:

1. Python Programming:An introduction to Computer Science,John Zelle, Franklin, Beedle and Associates, Inc.
2. Learning Python ,Mark Lutz,O'reilly,5e
3. Python the complete reference, Brown, McGraw Hill Education Pvt. Ltd, ISBN : 9789387572942.
4. Programming in Python, Dr,PoojaSharma, BPB publications,ISBN:978-93-8655-127-6

CO152R PYTHON PROGRAMMING LAB

Teaching Scheme: 02P, Total: 02

Credit: 01

Evaluation Scheme: 50ICA

Total Marks: 50

COURSE DESCRIPTION:

This course introduces basic proficiency in programming for solving real life problems.

DESIRABLE AWARENESS/SKILLS:

Basic computer fundamental and computer programming using C

COURSE OBJECTIVES:

The objectives of offering this course are:

- 4 To Use The Concepts Of Computing systems for problem solving
- 5 To Understand Various python constructs like array, dictionary, set
- 6 To Implement Algorithms for solving problems using python language

COURSE OUTCOMES:

On the successful completion of this course; student will learn;

On The Successful Completion Of This Course; student will learn;

CO1	Understand tokens, identifiers, operators, data types supported by python
CO2	Implement a program using decision making and loop statements in python.
CO3	Use various inbuilt python data structures to manage data at runtime.
CO4	Implement user defined functions for given problems.
CO5	Implement different techniques to handle exceptions.

MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Outcomes												
CO1	3	3	2	2	3	3		2	2			2
CO2	3	3	2	3	3	3		2	2			2
CO3	3	3	2	2	3	3		2	2		2	
CO4	3	3	3	2	3	3		2	2			
CO5	3	3	2	3	3	3		2	2			
CO6	3	3	2	2	3	3		2	2			2

COURSE CONTENTS:

Minimum five experiments from each Group A and Group B shall be performed to cover the entire curriculum of course CO152R. The list given below is just a guideline.

GROUP-A

1. A. Program for basic arithmetic operations and expressions: Performing simple arithmetic operations like Addition, Subtraction, Multiplication, and Division. B. Find area and volume of geometric objects: Calculate area and volume of geometric objects (circle, square, triangle etc.)
2. Finding greatest and smallest of 3 numbers: To find smallest and largest numbers from given 3 numbers.
3. Implement a program to find the largest element from the list of numbers given as input by the user.
4. Implement a program to remove the duplicate from the list given by the user as an input.
5. Write a program to check if the key given by the user is present in the dictionary or not.
6. Write a python program to demonstrate various string functions and operations.
7. Write a program to check whether a string is a palindrome or not.

GROUP-B

1. Write a function to display the factorial of given numbers using recursion.
2. Given an integer number n, write a program to generate a dictionary that contains (i,i*i) such that i is an integer number between 1 and n(both included).The program should then print the dictionary.
3. Linear / binary search: To search a number from given n numbers using linear and binary search.
4. **Write a function to print the hash of any given file in python (Hint: Use SHA-1 Algorithm).**
5. **Write a Python program to copy the contents of a file to another file.**
6. **Write a program to catch on divide by zero exception. Add a finally block too.**

Text Books

1. Byron Gottfried, Schaum's Outline of Programming with C, 3rd edition, McGraw-Hill 2007
2. E. Balagurusamy , Programming in ANSI C, 4th edition, Tata McGraw Hill, 2007.
3. YashavantKanetkar, Let us C, 10th edition, BPB Publications, 2010.

Reference Books

1. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, 2nd edition Prentice Hall of India 1998.
 2. K. R. Venugopal and S. R. Prasad, Mastering C, 1st edition, Tata McGraw Hill, 2011.
 3. Stephen G Kochan, Programming in C, 3rd edition, Pearson Education, 2004.
 4. Ashok N Kamthane, Computer Programming, 2nd edition, Pearson Education, 2008.
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