ANURAG ENGINEERING COLLEGE

(An Autonomous Institution)

(CS207ES) PYTHON PROGRAMMING LABORATORY

I Year B.Tech. IT- II Sem

L	T	P	C
0	1	2	2

Course Objectives:

The objective of this course is to provide:

- Able to introduce core programming basics.
- To construct Python programs with control structures.
- To structure a Python Program as a set of functions
- To use Python data structures-lists, tuples, dictionaries.
- To do input/output with files in Python and create Window wizard programs with various buttons

Note: All the Programs should be implemented using functions.

Week1

1. Use a web browser to go to the Python website http://python.org. This page contains information about Python and links to Python-related pages, and it gives you the ability to search the Python documentation.

   ii)Start the Python interpreter and type help() to start the online help utility.
2. Start a Python interpreter and use it as a calculator.

3.Write a program to calculate compound interest when principal, rate and numbers of periods are given.

ii)Given coordinates(x1, y1),(x2, y2)find the distance between two points

4.Read name, address ,email and phone number of a person through keyboard and print the details.

Week-2:

1. Print the below triangle using for loop. 5

   44

   333

   2222

   11111
2. Write a program to check whether the given input is digit or lower case character or uppercase character or a special character (use 'if-else-if' ladder)
3. Python Program to Print the Fibonacci sequence using while loop
4. Python program to print all prime numbers in a given interval(use break)

Week-3:

1.i)Write a program to convert a list and tuple into arrays.

ii)Write a program to find common values between two arrays.

2.Write a function called g cd that takes parameters a and b and returns their greatest common divisor.

3.Write a function called palindrome that takes a string argument and returns True if it is a palindrome and False otherwise. Remember that you can use the built-in function lento check the length of a string.

Week-4:

1. Write a function called is sorted that takes a list as a parameter and returns True if the list is sorted in ascending order and False otherwise.
2. Write a function called has duplicates that take a list and returns True if there is any element that appears more than once. It should not modify the original list.

   i). Write a function called remove duplicates that takes a list and returns a new list with only the unique elements from the original .Hint: they don't have to be in the same order.

   ii). The word list I provided, words. txt, doesn't contain single letter words. So you might want to add "I", "a", and the empty string.

   iii). Write a python code to read dictionary values from the user. Construct a function to invert its content. i.e., keys should be values and values should be keys.
3. i)Add a comma between the characters. If the given word is 'Apple', it should become 'A,p,p,l,e'

   ii) Remove the given word in all the places in a string?

   Write a function that takes a sentence as an input parameter and replaces the first letter of every word with the corresponding upper case letter and the rest of the letters in the word by corresponding letters in lower case without using a built-in function?
4. Writes are cursive function that generates all binary strings of n-bit length

Week-5:

1. i) Write a python program that defines a matrix and prints

   ii) Write a python program to perform addition of two square matrices

   iii) Write a python program to perform multiplication of two square matrices
2. How do you make a module ? Give an example of construction of a module using different geometrical shapes and operations on them as its functions.

3. Use the structure of exception handling all general purpose exceptions.

Week-6:

1. a. Write a function called draw rectangle that takes a Canvas and a Rectangle as arguments and draws a representation of the Rectangle on the Canvas.
   b. Add an attribute named color to your Rectangle objects and modify draw rectangle so that it uses the color attribute as the fill color.
   c. Write a function called draw point that takes a Canvas and a Point as arguments and draws a representation of the Point on the Canvas.
   d. Define a new class called Circle with appropriate attributes and instantiate a few Circle objects. Write a function called draw circle that draws circles on the canvas.
2. Write a Python program to demonstrate the usage of Method Resolution Order (MRO) in multiple levels of Inheritances.
3. Write a python code to read a phone number and email-id from the user and validate it for correctness.

Week-7:

1. Write a Python code to merge two given file contents into a third file.
2. Write a Python code to open a given file and construct a function to check for given words present in it and display on found.
3. Write a Python code to Read text from a text file, find the word with most number of occurrences
4. Write a function that reads a file file1 and displays the number of words, number of vowels, blank spaces, lower case letters and uppercase letters.

Week-8:

1. Import num p y,Plot py and Sci py and explore their functionalities.
2. a)Install Num Py package with pip and explore it.
3. Write a program to implement Digital Logic Gates– AND,OR,NOT, EX-OR
4. Write a program to implement Half Adder ,Full Adder, and Parallel Adder
5. Write a GUI program to create a window wizard having two text labels ,two text fields and two buttons as Submit and Reset.

Course Outcomes:

Up on the successful completion of this course ,the student will be able to:

1. Able to develop programs using control statements.
2. Able to code programs using modular approach.
3. Read and write data from/to files in Python Programs
4. To write GUI program to create window wizard using various buttons.
5. Implement digital systems using python and to install and use various libraries.

Text Books:

1. Super charged Python :Take your code to then ext level, Overland
2. Learning Python ,Mark Lutz, O'reilly

Reference Books:

1. Python for Data Science, Dr.Mohd. Abdul Hameed ,Wiley Publications-1stEd. 2021.
2. Python Programming :A Modern Approach ,Vamsi Kurama ,Pearson
3. Python Programming A Modular Approach with Graphics, Database, Mobile and Web Applications, Sheetal Taneja, Naveen Kumar, Pearson
4. Programming with Python,A User's Book, Michael Dawson,CengageLearning,India Edition
5. Think Python ,Allen Downey ,Green Tea Press
6. Core Python Programming ,W. Chun, Pearson
7. Introduction to Python, Kenneth A. Lambert, Cengage

CO-PO-PSO Mapping:

	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	M	M	M	M									M	M
CO-2	L	M	M	M									M	M
CO-3	L	M	M	M									M	H
CO-4	L	M	H	M	H								H	H
CO-5	H	H	H	H	H								H	H

H-HIGH **M**-MODERATE **L**-LOW