

## Guidelines

Semester	DSC No.	Title	L	T*	P*	Total credits	Pre-requisites
<b>I</b>	DSC-1	<u>Programming using Python</u>	<b>3</b>	<b>0</b>	<b>1</b>	<b>4</b>	None

S. No.	Unit Name	Chapters	References	Weeks
1.	Unit 1 Introduction to Programming	2 1	[2] [1]	1-2
2.	Unit 2 Creating Python Programs	2 (2.1 to 2.3), 3	[1]	3-6
3.	Unit 3 Built-in data structures	6 (6.1, 6.2), 7 (except 7.1.11)		7-11
4.	Unit 4 Object Oriented Programming	10 (10.1, 10.2)		12-13
5.	Unit 5 File and exception handling	9 (except 9.2 and 9.5)		14-15

### References

1. Taneja, S., Kumar, N., *Python Programming- A modular Approach*, Pearson Education India, 2018.
2. Balagurusamy E., *Introduction to Computing and Problem Solving using Python*, 2nd edition, McGraw Hill Education, 2018.

### Additional References

1. Brown, Martin C., *Python: The Complete Reference*, 2nd edition, McGraw Hill Education, 2018.
2. Guttag, J.V. *Introduction to computation and programming using Python*, 2nd edition, MIT Press, 2016.

### Practical List

1. WAP to find the roots of a quadratic equation

2. WAP to accept a number 'n' and
  - a. Check if 'n' is prime
  - b. Generate all prime numbers till 'n'
  - c. Generate first 'n' prime numbers

This program may be done using functions

3. WAP to create a pyramid of the character '\*' and a reverse pyramid

```

      *
     ***
    *****
   ********
  *********
 *****
  *****
   *****
    ****
     ***
      *
  
```

4. WAP that accepts a character and performs the following:
  - a. print whether the character is a letter or numeric digit or a special character
  - b. if the character is a letter, print whether the letter is uppercase or lowercase
  - c. if the character is a numeric digit, prints its name in text (e.g., if input is 9, output is NINE)
5. WAP to perform the following operations on a string
  - a. Find the frequency of a character in a string.
  - b. Replace a character by another character in a string.
  - c. Remove the first occurrence of a character from a string.
  - d. Remove all occurrences of a character from a string.
6. WAP to swap the first n characters of two strings.
7. Write a function that accepts two strings and returns the indices of all the occurrences of the second string in the first string as a list. If the second string is not present in the first string then it should return -1.
8. WAP to create a list of the cubes of only the even integers appearing in the input list (may have elements of other types also) using the following:
  - a. 'for' loop

b. list comprehension

9. WAP to read a file and

- a. Print the total number of characters, words and lines in the file.
- b. Calculate the frequency of each character in the file. Use a variable of dictionary type to maintain the count.
- c. Print the words in reverse order.
- d. Copy even lines of the file to a file named 'File1' and odd lines to another file named 'File2'.

10. WAP to define a class Point with coordinates x and y as attributes. Create relevant methods and print the objects. Also define a method distance to calculate the distance between any two point objects.

11. Write a function that prints a dictionary where the keys are numbers between 1 and 5 and the values are cubes of the keys.

12. Consider a tuple t1=(1, 2, 5, 7, 9, 2, 4, 6, 8, 10). WAP to perform following operations:

- a. Print half the values of the tuple in one line and the other half in the next line.
- b. Print another tuple whose values are even numbers in the given tuple.
- c. Concatenate a tuple t2=(11,13,15) with t1.
- d. Return maximum and minimum value from this tuple

13. WAP to accept a name from a user. Raise and handle appropriate exception(s) if the text entered by the user contains digits and/or special characters.