Guidelines for Programming using Python (CSGE101)
(Generic Elective - GE)

S NO	Units Name	Chapters	References
1.	Unit I	Chapter 1 [1.1, 1.2] Chapter 2 [2.2]	Ref [3]
2.	Unit II	Chapter 1	Ref [2]
3.	Unit III	Chapter 2 [2.1 to 2.4] Chapter 3 Chapter 9 [9.3] Chapter 7	Ref [2] Ref [1]
4.	Unit IV	Chapter 6 [6.1, 6.2] Chapter 7 [7.1] except 7.1.11	Ref [2]
5.	Unit V	Chapter 10 [10.1, 10.2] Chapter 9 [9.1]	Ref [2]
6.	Unit VI	Chapter 7 [7.2, 7.3, 7.4] Chapter 12 [12.1.1 and 12.2.1] Chapter 13 [13.1, 13.2] Only concept of Stack and Queue without implementation	Ref [2]

References
1. Guttag, J.V (2017) Introduction to computation and programming using Python, 2nd Edition, MIT Press.
2. Taneja, S., Kumar, N.(2018), Python Programming - A modular approach Pearson Education India
3. Liang, Y.D (2017) Introduction to Programming using Python, Pearson Education

Haur Dharm 19. HemaBanale 08/19 Mythili 13/8/19 Richa 13/8/19 Prouanyt Ku 13/8/19 Rakhi

Practical List (CSGE101)

Use of functions and exception handling to be encouraged wherever applicable.

1. Execution of expressions involving arithmetic, relational, logical, and bitwise operators in the shell window of Python IDLE.
2. Write a Python program to illustrate the various functions of math module.
3. Write a program that reads an integer value and prints "leap year" or "not a leap year"
4. Write a Python function that takes a number as an input from the user and computes its factorial.
5. Write a Python function to generate the Fibonacci sequence till a given number "n".
6. Write a function that takes a number as an input and finds its reverse and computes the sum of its digits.
7. Write a function that takes two numbers as input parameters and returns their least common multiple.
8. Write a function that takes a number as an input and determine whether it is prime or not.
9. Write a function that finds the sum of the
   a. first n odd terms
   b. first n even terms
10. Write a Python function to produce the outputs such as:
    a. 1
       21
       321
       4321

    b.   1
          121
         12321
        1234321
         12321
          121
           1
11. Write a Python function that takes a string as an input from the user and determines whether it is palindrome or not.
12. Write a function that reads a text file and calculates the frequency of vowels. Use a variable of dictionary type to maintain the count.
13. Write a Python function that prints a dictionary where the keys are numbers between 1 and 5 and the values are cubes of the keys.
14. Consider a tuple t1=(1,2,5,7,9,2,4,6,8,10). Write a program to perform following operations:
    a. Print half the values of 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.
15. Write a function called "check_duplicates" that takes a list and returns true if there is any element that appears more than once. Also find the frequency of that element. The original list should not be modified.
16. Write a menu driven program to perform the following functions on strings:

a. Find the length of string
b. Return maximum of three strings
c. Accept a string and replace every successive character with '#' Example - For Given string 'Hello World' returned string is 'H#l#o W#r#d'.
d. Find number of words in the given string

17. Write a Python program to perform the following using list:
    a. Check if all elements in list are numbers or not
    b. If it is a numeric list, then count number of odd values in it
    c. If list contains all Strings, then display largest String in the list
    d. Display list in reverse form
    e. Find a specified element in list
    f. Remove the specified element

18. Write a program to implement a class for finding area and perimeter of a rectangle. Write constructor, destructor, and functions for calculating area and perimeter.

19. Implementation of linear search technique.

20. Implementation of selection sort technique.