

**UNIVERSITY OF MADRAS**  
**B.Sc. DEGREE COURSE IN COMPUTER SCIENCE**  
**SYLLABUS WITH EFFECT FROM 2020-2021**

**BCE-CSC02**

**PRACTICAL: PROBLEM SOLVING USING PYTHON LAB**

(Common paper to B.Sc. Software Applications, B.Sc. Computer Science with AI & B.C.A.)

**I YEAR**  
**I / II SEM**

**OBJECTIVES:**

- To implement the python programming features in practical applications.
- To write, test, and debug simple Python programs.
- To implement Python programs with conditionals and loops.
- Use functions for structuring Python programs.
- Represent compound data using Python lists, tuples, dictionaries , turtles, Files and modules.

**OUTCOMES:**

- Understand the numeric or real life application problems and solve them.
- Apply a solution clearly and accurately in a program using Python.
- Apply the best features available in Python to solve the situational problems.

**LIST OF EXERCISES:**

1. Program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Program to calculate total marks, percentage and grade of a student. Marks obtained in each of the five subjects are to be input by user. Assign grades according to the following criteria:

Grade A: Percentage $\geq 80$	Grade B: Percentage $\geq 70$ and $< 80$
Grade C: Percentage $\geq 60$ and $< 70$	Grade D: Percentage $\geq 40$ and $< 60$
Grade E: Percentage $< 40$	
3. Program, to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
4. Program to display the first n terms of Fibonacci series.
5. Program to find factorial of the given number using recursive function.
6. Write a Python program to count the number of even and odd numbers from array of N numbers.
7. Python function that accepts a string and calculate the number of upper case letters and lower case letters.
8. Python program to reverse a given string and check whether the give string is palindrome or not.
9. Write a program to find sum of all items in a dictionary.

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10. Write a Python program to construct the following pattern, using a nested loop

```
1
22
333
4444
55555
666666
7777777
88888888
999999999
```

11. Read a file content and copy only the contents at odd lines into a new file.

12. Create a Turtle graphics window with specific size.

13. Write a Python program for Towers of Hanoi using recursion

14. Create a menu driven Python program with a dictionary for words and their meanings.

15. Devise a Python program to implement the Hangman Game.

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