B.A (Prog.) with Computer Science as Major

DISCIPLINE SPECIFIC CORE COURSE – 2: PROGRAMMING FUNDAMENTALS USING PYTHON

Credit Distribution, And Pre-Requisites of the Course

Semester	Title	L	T*	P*	Total credits	Pre-requisites
I	Programming Fundamentals Using Python	**3**	**0**	**1**	**4**	None

S. No.	Unit Name	Chapters	References	Weeks
1.	Unit 1 Introduction to Python Programming	2 1 (except 1.5)	[2] [3]	1 – 2
2.	Unit 2 Creating Python Programs	2, 3 (excluding 3.9), 4, 5	[1]	3 – 6
		9 (9.3-9.4)	[3]	
3.	Unit 3 User Defined Functions	6 (upto 6.7)	[1]	7 – 8
4.	Unit 4 Built-in Data Structures	7, 8, 11	[1]	9 – 15

Essential Readings

1. Kamthane, A. N. & Kamthane, A. A., "Programming and Problem Solving with Python", 2nd edition, McGraw Hill Education, 2020.

2. Balaguruswamy E., "Introduction to Computing and Problem Solving using Python", 2nd edition, McGraw Hill Education, 2018.

3. Taneja, S. & Kumar, N., "Python Programming- A modular Approach", Pearson Education India, 2018.

Practical List

1. WAP to calculate total marks, percentage and grade of a student. Marks obtained in each of three subjects are to be input by the user. Assign grades according to the following criteria:

   Grade A: if Percentage >= 80

   Grade B: if Percentage >= 60 and Percentage < 80

   Grade C: if Percentage >= 40 and Percentage < 60

   Grade D: if Percentage < 40

2. WAP to print factors of a given number.
3. WAP to add N natural numbers and display their sum.
4. WAP to print the following conversion table (use looping constructs):

Height (in Feet)	Height (in inches)
5.0 ft	60 inches
5.1ft	61.2 inches
. . .	. . .
5.8 ft	69.6 inches
5.9 ft	70.8 inches
6.0 ft	72 inches

5. WAP that takes a positive integer n and the produce n lines of output as shown:

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

(sample output for n = 4)

6. Write a menu driven program using user defined functions to print the area of rectangle, square, circle and triangle by accepting suitable input from user.
7. Write a function that calculates factorial of a number n.
8. WAP to print the series and its sum: (use functions)

   1/1! + 1/2! + 1/3! …….1/n!

9. WAP to perform the following operations on an input string
   a. Print length of the string
   b. Find frequency of a character in the string
   c. Print whether characters are in uppercase or lowercase
10. WAP to create two lists: one of even numbers and another of odd numbers. The program should demonstrate the various operations and methods on lists.

11. WAP to create a dictionary where keys are numbers between 1 and 5 and the values are the cubes of the keys.
12. WAP to create a tuple t1 = (1, 2, 5, 7, 2, 4). The program should perform the following:
    a. Print tuple in two lines, line 1 containing the first half of tuple and second line having the second half.
    b. Concatenate tuple t2 = (10, 11) with t1.