DEPARTMENT OF COMPUTER SCIENCE

PYTHON PROGRAMMING

The objective of a Python programming course as an add on course offered to the students of BCA first year in the session 2024-25 typically aim to equip students with the foundational and practical skills to write, debug, and apply Python code effectively**.** Following are the main objectives:

- Understand Python Fundamentals
- Develop Problem-Solving Skills
- Learning control structures and functions

Duration of the course: 30 hours

Classes per week: Two

SYLLABUS

MODULE 1:

Overview of Programming: Structure of a Python Program, Elements of Python Introduction to Python: Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings

MODULE 2:

Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator). Creating Python Programs: Input and Output Statements

MODULE 3:

Control statements (Looping while Loop, for Loop, Loop Control, Conditional Statement-if...else, Difference between break, continue and pass).

MODULE 4:

Defining Functions, Exit function, default arguments.

Reference Books:

- T. Budd, Exploring Python, TMH, 1st Ed, 2011 4. Python Tutorial/Documentation www.python.or 2010
- Allen Downey, Jeffrey Elkner, Chris Meyers, how to think like a computer scientist : learning with Python , Freely available online.2012
- http://docs.python.org/3/tutorial/index.html
- http://interactivepython.org/courselib/static/pythonds

PRACTICALS

Section: A (Simple programs)

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius andvice versa depending upon user's choice.
2. WAP to calculate total marks, percentage and grade of a student. Marks obtained in

each of the three subjects are to be input by the user. Assign grades according to the following criteria:

Grade A: Percentage >=80
Grade B: Percentage>=70 and <80
Grade C: Percentage>=60 and <70
Grade D: Percentage>=40 and <60
Grade E: Percentage<40

3. Write a menu-driven program, using user-defined functions to find the area of rectangle,square, circle and triangle by accepting suitable input parameters from user.
4. WAP to display the first n terms of Fibonacci series.
5. WAP to find factorial of the given number.
6. WAP to find sum of the following series for n terms: 1 – 2/2! + 3/3! ----------n/n!
7. WAP to calculate the sum and product of two compatible matrices.

Course Outcome:

- Ability to automate tasks and solve real problems using Python.
- Build small projects like calculators, games, simple web apps, or data dashboards.

Evaluation criteria

- A minimum of 60% attendance is compulsory for the examination.
- Maximum marks for the final examination are 100. The distribution of marks is as follows:
  - Theory written paper: 50 marks
  - Practical: 25 marks
  - Class test: 20 marks
  - Attendance: 5 marks
    - 75%-80% = 1 mark
    - 80%-85% = 2 mark
    - 85%-90% = 3 mark
    - 90%-95% = 4 mark
    - 95%-100% = 5 mark
  - Minimum qualifying marks for the course is 40 % marks.
  - Certificates will be provided on the successful completion of the course.
  - Grades will be given to the students as follows:

Marks Grading		
Marks Obtained	**Grade**	**Division**
70% and above	'A'	1st
60% and less than 70%	'B'	2nd
50% and less than 60%	'C'	3rd
40% and less than 50%	'D'	Pass
Less than 40%	'E'	Fail