MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA-8

(Affiliated to Krishna University, Machilipatnam)

SYLLABUS

Subject: Computer Science **Semester: V**

Course Title: Programming in Python-Practical **Course Code: 20CSP722PP2**

No. of Hours: 45 **LTP: 003** **Credits: 2**

Objectives

- To acquire programming skills in core python.
- To implement lists, tuples, and dictionaries in Python programs.

Course Outcomes

CO1: Implement programs related to various data structures like lists, dictionaries, etc.

CO2: Implement programs related to files.

CO3: Implement applications related to databases, Web services and IOT.

List of Practicals: (30 Hrs.)

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Write a python program 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 python program to display the first n terms of Fibonacci series.
4. Write a python program to calculate the sum and product of two compatible matrices.
5. Write a function that takes a character and returns True if it is a vowel and False otherwise.
6. Write a menu-driven program to create mathematical 3D objects

I. curve

II. sphere

III. cone
IV. arrow
V. ring
VI. Cylinder

7. Write a python program to read n integers and display them as a histogram.
8. Write a python program to display sine, cosine, polynomial and exponential curves.
9. Write a python program to plot a graph of people with pulse rate p vs. height h. The values of P and H are to be entered by the user.
10. Write a python program to calculate the mass m in a chemical reaction. The mass m (in gms) disintegrates according to the formula m=60/ (t+2), where t is the time in hours. Sketch a graph for t vs. m, where t>=0.
11. A population of 1000 bacteria is introduced into a nutrient medium. The population p grows as follows:
    P (t) = (15000(1+t))/ (15+ *e)*
12. Where the time t is measured in hours. WAP to determine the size of the population at given time t and plot a graph for P vs t for the specified time interval.
13. Input initial velocity and acceleration, and plot the following graphs depicting equations of motion:
    I. velocity wrt time (v=u+at)
    II. distance wrt time (s=u*t+0.5*a*t*t)
    III. distance wrt velocity (s=(v*v-u*u)/2*a)
14. Write a program that takes two lists and returns True if they have at least one common member.
15. Write a Python program to print a specified list after removing the 0th, 2nd, 4th and 5th elements.
16. Write a program to implement exception handling.
17. Try to configure the widget with various options like: bg=”green”, family=”times”, size=20.
18. Write a Python program to read last 5 lines of a file.
19. Design a simple database application that stores the records and retrieve the same.
20. Design a database application to search the specified record from the database.
21. Design a database application to that allows the user to add, delete and modify the records.

Skill/Hands-on: Field Work/Mini Project (15 Hrs.)

1. Choosing a Problem for IoT solution (agriculture, aquaculture, smart home appliances, testing moisture levels, oxygen levels, etc), reasons why IoT solution is feasible for the said problem, material required, Design and architecture for the proposed IoT device.
2. Implement Python program to connect the IOT device.

Prescribed Text Book

1. Let Us Python – Yashavanth Kanetkar and Aditya Kanetkar , BPB Publications ISBN: 9789388511568, 9789388511568.

Reference Text Book

1. Core Python Programming, Wesley J. Chun, Second Edition, Pearson.

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Practical-Scheme of Valuation

Time: 3 Hrs. **Max. Marks: 50**

Practical	**Marks**
Program Writing	15 M
Program Execution	15 M
Viva	10 M
Practical Record	10 M
Total	**50 M**