

# BASIRHAT COLLEGE

## DEPARTMENT OF COMPUTER SCIENCE

### LESSON PLAN-2018-2019 JULY-DEC

B.Sc. Program with Computer Science (GE/DSC)

Semester-I

Paper Title- Problem Solving with Computer

Paper Code- CMSGCOR01T

Credits-4+2

COURSE OUTCOME: -

**After completion of this course the students will be able –**

CO1 Recognize the basic Basic Computer Organization like CPU, ALU, memory hierarchy, registers,I/O devices etc.

CO2 Recognize the basic data types , control statements and Loop in Python Program.

CO3. Summarize the concept of Objects and Classes, Inheritance, Regular Expressions,Event Driven Programming in Python Program.

CO4. To create efficient program using functions to implement reusability.

CO5. Apply the structures in making application software using GUI Programming.

CO6. Generate files and use preprocessor for real world application.

MONTH	COURSE/ TOPIC	TEACHER	CLASS HOUR	REMARKS
July				
August				
September		DP	12	Theoretical-5 Practical-5

	<p>Introduction to Computers: Characteristics of Computers, Uses of computers, Types and generations of Computers.</p> <p>Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.</p> <p>Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.</p> <p>Structure of a Python Program, Elements of Python</p> <p>1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.</p> <p>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 :</p> <p>a. Grade A: Percentage <math>\geq 80</math> b. Grade B: Percentage <math>\geq 70</math> and <math>&lt; 80</math> c. Grade C: Percentage <math>\geq 60</math> and <math>&lt; 70</math> d. Grade D: Percentage <math>\geq 40</math> and <math>&lt; 60</math> e. Grade E: Percentage <math>&lt; 40</math></p> <p>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.</p>			Tutorial-02
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	<p>4. WAP to display the first n terms of Fibonacci series.</p> <p>5. WAP to find factorial of the given number.</p>			
October	<p>Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator,</p>	DP	18	<p>Theoretical-8  Practical-8  Tutorial-02</p>

	<p>Increment or Decrement operator).</p> <p>Input and Output Statements, Control statements (Looping-whileLoop, for Loop , Loop Control, Conditional Statement- if...else, Difference between break, continue and pass).</p> <p>6. WAP to find sum of the following series for n terms: <math>1 - 2/2! + 3/3! - - - - n/n!</math></p> <p>7. WAP to calculate the sum and product of two compatible matrices.</p> <p><b>Section: B (Visual Python):</b>  <i>All the programs should be written using user defined functions, wherever possible.</i></p> <p>1. Write a menu-driven program to create mathematical 3D objects I. curve</p> <p>II. sphere  III. cone  IV. arrow  V. ring  VI. Cylinder.</p>			
November	<p>Numbers, Strings, Lists, Tuples, Dictionary, Date &amp; Time, Modules, Defining Functions, Exit function, default arguments.</p> <p>2. WAP to read n integers and display them as a histogram.</p> <p>3. WAP to display sine, cosine, polynomial and exponential curves.</p> <p>4. WAP 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.</p>	DP	16	Theoretical-7 Practical-7 Tutorial-02
December	<p>Objects and Classes, Inheritance, Regular Expressions, Event Driven Programming, GUI Programming.</p>	DP	14	Theoretical-6 Practical-6 Tutorial-02

	<p>5. WAP to calculate the mass <math>m</math> in a chemical reaction. The mass <math>m</math> (in gms) disintegrates according to the formula <math>m=60/(t+2)</math>, where <math>t</math> is the time in hours. Sketch a graph for <math>t</math> vs. <math>m</math>, where <math>t \geq 0</math>.</p> <p>6. A population of 1000 bacteria is introduced into a nutrient medium. The population <math>p</math> grows as follows:  <math>P(t) = (15000(1+t))/(15+ e)</math>  where the time <math>t</math> is measured in hours. WAP to determine the size of the population at given time <math>t</math> and plot a graph for <math>P</math> vs <math>t</math> for the specified time interval.</p> <p>7. Input initial velocity and acceleration, and plot the following graphs depicting equations of motion:  I. velocity wrt time (<math>v=u+at</math>)  II. distance wrt time (<math>s=u*t+0.5*a*t*t</math>)  III. distance wrt velocity (<math>s=(v*v-u*u)/2*a</math>)</p>			
		TOTAL	60	

Resources :

Books:

1. P. K. Sinha & Priti Sinha , “Computer Fundamentals”, BPB Publications, 2007.
2. Dr. Anita Goel, Computer Fundamentals, Pearson Education, 2010.
3. T. Budd, Exploring Python, TMH, 1st Ed, 2011
4. Python Tutorial/Documentation [www.python.org](http://www.python.org) 2010
5. Allen Downey, Jeffrey Elkner, Chris Meyers , How to think like a computer scientist : learning with Python , Freely available online.2012
6. <http://docs.python.org/3/tutorial/index.html>
7. <http://interactivepython.org/courselib/static/pythonds>
8. <http://www.ibiblio.org/g2swap/byteofpython/read/>