

T.S. Negi Government College Reckong Peo Kinnaur H.P.

Teaching Lesson Plan

B.Sc. (Physical Science) With Computer Science

B.Sc. Ist Year

Course Title: Problem solving with Computers (COMP 101TH)

Unit	Topic	Month	Method of Teaching	Activities
I	Computer Fundamentals: Introduction to Computers: Characteristics of Computers, Uses of Computers, Types and generations of Computers. Basic Computer Organization: Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices.	August	PPT/Lectures/Videos	Class test Assignments Presentation
II	Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation. Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.	September, October	PPT/Lectures/Videos	Class test Assignments Presentation
III	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, 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, Control statements (Looping- while Loop, for Loop , Loop Control, Conditional Statement- if...else, Difference between break, continue and pass).	November, December	PPT/Lectures/Videos	Class test Assignments Presentation Practical's
VI	Structures: Numbers, Strings, Lists, Tuples, Dictionary, Date & Time, Modules, Defining Functions, Exit function, default arguments. Introduction to Advanced Python: Objects and Classes, Inheritance, Regular Expressions, Event Driven Programming, GUI Programming.	February, March	PPT/Lectures/Videos	Class test Assignments Presentation Practical's

Total Credit =2

Unit	Topic	Time/Duration	Activates
I	<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>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</p>	August, September	Practical
II	<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> <p>4. WAP to display the first n terms of Fibonacci series.</p> <p>5. WAP to find factorial of the given number.</p> <p>6. WAP to find sum of the following series for n terms: $1 - 2/2! + 3/3! - \dots + n/n!$</p> <p>7. WAP to calculate the sum and product of two compatible matrices</p>	October, November	Practical
III	<p>1. Write a menu-driven program to create mathematical 3D objects.</p> <p>I. Curve II. Sphere III. Cone IV. Arrow V. Ring VI. Cylinder</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>	December	Practical
IV	<p>5. WAP 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 $t \geq 0$.</p> <p>6. A population of 1000 bacteria is introduced into a nutrient medium. The population p grows as follows: $P(t) = (15000(1+t))/(15 + e^t)$ 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.</p>	February, March	Practical

