GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY
(AUTONOMOUS)

Accredited by NAAC with 'A' Grade, Accredited by NBA (B.Tech.,-ECE, EEE & Mech : 2024-2027
(Approved by AICTE & and UGC, New Delhi & Affiliated to JNTUA, Anantapur.)
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TRAINING , PLACEMENTS & CAREER GUIDANCE CELL

I-II CICTT Logic Building Through PYTHON Curriculum for Non-CSE & Allied Branches   AY:2025-26

Lecture	Topic	Description	Time	Trainer Explination problems	Student Practice Problems
Programming Constructs	python Basic Constructs	Comments,Operators,Input and Output,Wrapper classes, Type conversion in python	WEEK-1 & 2	1) Write a program to Convert Fahrenheit to Celsius and vice-versa. 2) Finding the square root of a given number 3) Finding compound interest 4) Area of a triangle using heron's formulae 5) Write a program to find the max and min of four	1)greatest number among 3 numbers 2)swap with out temporary variable 3)area of rectangle , circle 4)Fizz buzz 5)Check the numbr is power of 2 6)Happy Birthday
	python Flow Control	if...else,nested-if,else-if laddur,Switch-Case ,Example programs			
	Loops	while loop,for loops,for-else,break,continue statement,Math Problems using loops			
	Patterns ,Series	Introduction to patterns & Series,Series Programs,Basic Patterns, Square Patterns, Triangular Patterns, Character Patterns, Reverse Triangle, Inverted patterns,Isosceles triangles	WEEK-3	1) Write a Program to check whether given number is a Armstrong or not 2) Write a Program to compute sine and cosin series 3) Write a program to print first n terms of a fibonacci series 4)print natural number series upto N 5) Write a program to check whether given number is prime number or not. 6)sum of digits 7) Write a program to check whether given number is Perfect or not. 8) Write a program to print rightTriangle stars 9)print square rectangle ' * 'square pattern 10)print primes in range	1)factors of a number 2)print even number series upto N 3) sum of digits up to single digit 4) find GCD ,LCM 5)reverse a number 6)strong number 7) convert binary to decimal 8)convert decimal to octal 9)Inverted Right-Angled Triangle '*'
Problem Solving Techniques	Function	Inroduction to function,Scope of Variable in Python,Function Arguments,*args and **kwargs in Python,Packing and Unpacking Arguments in Python,Lambda Expresion	WEEK-4	1)Convert Decimal to Binary 2)Convert Binary to Hexadecimal 3)Write a program to calculate factorial of a given number using recursive function.	1))print odd number series upto N 2)check harshad number 3)cyclic sum of digits 4)Find sum of digits using recursion
	Recursion	Introduction to recursion, Principle of mathematical induction, Fibonacci numbers		4)Check the number is power of 3 5)Write a recursive function to generate Fibonacci series. 6)Write a recursive function to find the lcm of two numbers	5)Find GCD using recursion
	Time and space complexity	Theoretical Time and Space complexity analysis, Time and Space complexity analysis of non-recursive and recursive algorithms	WEEK -5	1) Explain Prime number logic with different approaches 2)Finding Time complexity for Different Coding snipets	
Python Data Structures	LIST	What is List in Python,Methods in List,predefined Mthods on collection	WEEK-6	1)Write a program to find the min and max of a 1D integer array 2)Write a program to reverse of a 1D integer array. 3)find second smallest of 1D array 4)finding frequency of characters of string using dictionay	1)Find pair whoes sum is target in array 2)sum of all odd numbers in array 3)Adjacent Zeros
	TUPLE	What is Tuple in Python,Methods in Tuple			
	SET	What is Set in Python,Methods in Set			
	DICTIONARY	What Dict in Python,Methods in Dict,application of Dict			

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ARRAYS	Introduction to 1D arrays	Introduction to arrays, How arrays are stored in memory, Passing arrays to functions,Problems on 1D array	WEEK-7	1) find missing number in array 2)finding frequency of elements of array using dictionay	1)Rotate Array K elements to Right 2)check High Fever employees in COVID 3)Cumulative Sum of elements of array
	Searching	Understanding & Analysis of Linear Search, Binary Search,Probalems on Searching	WEEK-8	1)Write a program to perform Linear search on 1D array. 2)Write a program to perform Binary search on 1D array. 3)Search Insert Position 4)Missing Number	1)Find Smallest Letter Greater Than Target 2)Find First and Last Position of Element in Sorted Array 3)Kth Missing Positive Number 4)Count Negative Numbers in a Sorted Matrix
	Sorting	Understanding & Analysis of Selection sort, Bubble sort, Insertion sort,Merging two sorted arrays,Problems on Sorting	WEEK-9 & WEEK-10	1)implement bubble sort 2)implement selection sort 3)implement InsertionkSort 4)implement frequency sort(using Lambda expession)	1)How Many Numbers Are Smaller Than the Current Number 2)Sort the People 3)Remove Duplicates from Sorted Array
Strings & 2DArrays	Strings	Introduction to strings, storage of strings and their inbuilt functions,Problems on Strings , Recurion using in string problems	WEEK-11 &WEEK-12	1)Implementation of string manipulation operations without library function. a) Copy b) Concatenate c) Length 2)check string is palindrome 3)count vowels and consonents 4)print ascii value of char	1)Words in Sentence 2)Remove Special Characters from a String 3)upper case and lower case convertion 4)Replace Each Vowel with the Next Character 5)Find the First Repeating Character
	2D Arrays	2D arrays, Storage of 2D arrays, Example problems using 2D Arrays,Recursion using in 2D array problems	WEEK-13	1)Write a program for Addition of two square Matrices. 2)Write a program for Multiplication of two square Matrices 3)Print Sum of Both Diagonals of a Matrix 4) Print Row wise Sum of Matrix	1) Print Column wise Sum of Matrix 2) Set Matrix Zeroes 3) Lucky Numbers in a Matrix 4)Find Winner on a Tic Tac Toe Game
Files	Introduction to Files	Introduction to Files, Types of Files, File Operations:opening,closing,read,write,append	WEEK-14	1) writing data into file 2) copying data from one file to another file 3) Remove N characters from a file 4) Merging Two Files into Third File	1)Reverse the words of File 2)Convert the First character of each word to capital letter of a file

NOTE: Problems will be discussed limited as per their IQ and weekly Asessement (50 min)