



न हि ज्ञानेन सदृशं पवित्रमिह विद्यते

Department of Computer Science & Engineering

Ghani Khan Choudhury Institute of Engineering and Technology

A Centrally Funded Technical Institute (CFTI) under Ministry of Education Govt of India



न हि ज्ञानेन सदृशं पवित्रमिह विद्यते

YEAR: 1st

SEMESTER: 2nd

COURSE: B. TECH

COURSE NAME: COMPUTER SCIENCE AND
ENGINEERING (AI & ML)

Batch of 2025 – 26

Code	Subject Name	Hours / week			Credit
		L	T	P	
ES-CS291	PROGRAM for PROBLEM SOLVING LAB	0	0	4	2



न हि ज्ञानेन सदस्यां धर्मेणमिह विभक्तं

NAME:

DEPARTMENT: CSE

REGISTRATION No.:

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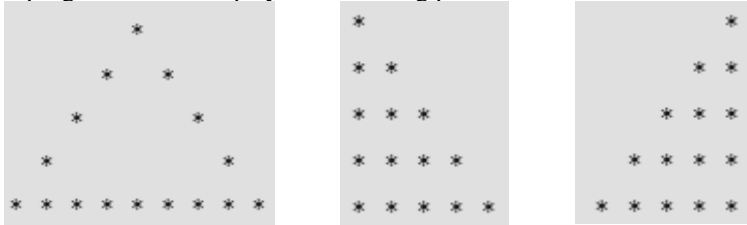
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Sl. No.	Topics	Date of 2025
Assignment 1	<p>Explain basic Commands in Linux</p> <ul style="list-style-type: none"> • pwd, ls, cd, • touch, gedit, cat, • mkdir, rmdir, rm, • cp, mv, • date 	04 th February
Assignment 2	<p>Write a C program to</p> <ol style="list-style-type: none"> 1. Display the name of your college. 2. Display your name and the name of your college in two different lines. 3. Assign an integer number and a floating-point number into different variables and print the same. 4. Add two integer numbers and print the result. 5. Add an integer number with a floating-point number. 	06 th February
Assignment 3	<p>Write a program in C to</p> <ol style="list-style-type: none"> 1. Add, subtract, multiply between integer and floating-point numbers. 2. Compute the area of a circle taking radius as input. 3. Compute the average of three numbers. 4. Swap between two numbers: <ul style="list-style-type: none"> I. Using a third variable. II. Without using a third variable. 5. Compare two integer values: <ul style="list-style-type: none"> I. Using conditional operator. II. Using logical operators only. 	11 th February
Assignment 4	<p>Write a program in C to</p> <ol style="list-style-type: none"> 1. Calculate the remainder of a division. 2. Take three numbers as input and print the average value. 3. Print even or odd using the ternary operator. 4. Print the equivalent ascii value of a character. 5. Check if a number is within a given range using logical operators. 6. Print the ratio of (a+b):(c+d), where a, b, c, and d are integers. 	13 th February
Assignment 5	<ol style="list-style-type: none"> 1. Largest among three numbers 2. Check whether the number is a leap year or not 3. Find the root of a quadratic equation 4. Check if a given number is even or odd 5. Check whether the number is positive, negative, or zero 6. Check the eligibility of voting 7. Check whether the character is a vowel or consonant 8. Check whether the number is divisible by 5 and 11 	18 th February
Assignment 6	<ol style="list-style-type: none"> 1. Write a program in C to find out the largest among three numbers. (Do not use if-else statement, ternary operator, or logical operators) 2. Write a program in C to take the number of days as input and print the year, month, and days. <i>(It's one year.)</i> 3. Write a program in C to find out the area of a triangle. 	20 th February
Assignment 7	<p>Write a program in C to</p> <ol style="list-style-type: none"> 1. Evaluate: $y = x^n$ (using while loop) (where n is an integer, and x can be integer or floating-point.) 2. Evaluate: $1^2 + 2^2 + 3^2 + \dots + n^2$, where n is given by the user. 3. Evaluate: $1 + (1+2) + (1+2+3) + \dots + (1+2+3+\dots+n)$, where n is given by the user (Number of terms). 	25 th February
Assignment 8	<p>Write a program in C to</p> <ol style="list-style-type: none"> 1. Print the sum of the digits of a number and check whether the number is a palindrome or not. 2. Print/evaluate: $1 + x^2/2! + x^3/3! + \dots + x^n/n!$ (where $0 < x < 1$) 3. Check whether a given number is prime or not. 4. Print the square root of a series of numbers using goto. <i>(without using sqrt function.)</i> 	27 th February



Assignment 9	<p>1. Write a program in C to display the following patterns:</p>  <p>2. Write a program in C to check whether:</p> <ol style="list-style-type: none"> An integer as input and checks whether it is an Armstrong number or not. Two integers as input representing a range (e.g., start and end) and finds all Armstrong numbers within that range. A number is prime or not in a given range. 	04 th March
Assignment 10	<p>Write a program in C to</p> <ol style="list-style-type: none"> Find out the sum and average of a set of positive numbers. The program will terminate when a negative number is entered. Calculate the factorial of a given number. Print the Fibonacci series up to n terms. Print the lcm and gcd of given numbers. Print z to a. 	06 th March
Assignment 11	<p>Write a program in C</p> <ol style="list-style-type: none"> To add two matrices To find the maximum from a table of values. 	18 th March
Assignment 12	<p>Write a C Program to</p> <ol style="list-style-type: none"> Implement Bubble sort using an array. Receive a table of values a sort it in row by row. 	20 th March
Assignment 13	<p>Write a program in C to:</p> <ol style="list-style-type: none"> Find the maximum element row-wise and column-wise from a table of numbers using an array. Implement Bubble Sort using an array. Receive a table of values and make it row-wise sorted. Merge two sorted arrays. 	25 th March
Assignment 14	<ol style="list-style-type: none"> Write a menu-driven program: <ol style="list-style-type: none"> To insert an element into a defined position in the array. To remove an element from a defined position of the array. To display the array. Write a program in C to remove a duplicate element from an array (if any). 	27 th March
Assignment 15	<p>Write a C program to compute the</p> <ol style="list-style-type: none"> Factorial value using function & recursion. Fibonacci series using function & recursion. Swap two values using function. Find a Sum of a Series of Number using Recursion. like $1 + 2 + 3 + \dots + n$ Implement Prime No., Armstrong, Perfect No. within a range using function. Implement GCD & LCM using Recursion. 	01 st April
Assignment 16	<ol style="list-style-type: none"> Add a new column in 4×3 array. Delete a Row from a 3×4 array. Find the frequency of duplicate elements in 3×5 array. Check the Matrix is Sparse or not. 	03 rd April
Assignment 17	<p>Write a program in C to:</p> <ol style="list-style-type: none"> Print the value and address of the variable. Implement call by reference. Access array elements and the addresses using pointers. Print the smallest element from an array using pointer. Print the marks of 4 subjects of 5 students by passing array to function. Compute the factorial of a set of numbers using function. 	08 th April
Assignment 18	<p>Write a program in C to perform:</p> <ol style="list-style-type: none"> Addition & Subtraction of two Complex Numbers. Display each Student's Marks & Gender. <p>Solve both problems using Structure.</p>	15 th April



Assignment 19	<p>Write a program in C to demonstrate</p> <ol style="list-style-type: none">pointer to pointer<ol style="list-style-type: none">Printing the address of pointersAccessing the value of a variableDefine a structure of Student. Consider members:<ol style="list-style-type: none">Pointer to character (for name)Roll numberTotal marksGive the values and print them.Structure of Rectangle with members: length, width. Implement functions to calculate: Area, Perimeter of the rectangle.	17 th April														
Assignment 20	<ol style="list-style-type: none">Check if the array is a palindrome or not using pointers.Apply sorting in an dynamically allocated array at the time when the element will be inserted.<p>Example:</p><table><tr><th>Input</th><th>Sorted Output (After Insertion)</th></tr><tr><td>2</td><td>2</td></tr><tr><td>-1</td><td>-1, 2</td></tr><tr><td>3</td><td>-1, 2, 3</td></tr><tr><td>15</td><td>-1, 2, 3, 15</td></tr><tr><td>1</td><td>-1, 1, 2, 3, 15</td></tr><tr><td>37</td><td>-1, 1, 2, 3, 15, 37</td></tr></table>	Input	Sorted Output (After Insertion)	2	2	-1	-1, 2	3	-1, 2, 3	15	-1, 2, 3, 15	1	-1, 1, 2, 3, 15	37	-1, 1, 2, 3, 15, 37	22 th April
Input	Sorted Output (After Insertion)															
2	2															
-1	-1, 2															
3	-1, 2, 3															
15	-1, 2, 3, 15															
1	-1, 1, 2, 3, 15															
37	-1, 1, 2, 3, 15, 37															
Assignment 21	<p>Write C programs to Implement strcmp and strcat:</p> <ul style="list-style-type: none">with Predefined functionwithout Predefined function	01 st May														
Assignment 22	<ol style="list-style-type: none">Write a C program to count the number of:<ul style="list-style-type: none">Vowels, ConsonantsDigits, Special CharactersUppercase, Lowercase lettersTabs, Spaces, Words, LinesWrite a C program to find the longest substring without repeating characters.<p>Example:</p><p>Input: abcabcbb</p><p>Output: abc</p>Write a C program for pattern matching, where:<ul style="list-style-type: none">? matches a single character* matches a sequence of characters<p>Example:</p><p>Pattern: a*b?c</p><p>Output: matches axxxbzc</p>Given an array of strings, group all anagrams together.<p>Example:</p><p>Input: ["act", "cat", "dog", "tac", "god"]</p><p>Output: [["act", "cat", "tac"], ["dog", "god"]]</p><p>Note: Do not use system-defined functions.</p>	13 th & 15 th May														
Practice 1	<ol style="list-style-type: none">Create a Structure Person. Members:<ul style="list-style-type: none">nameagegenderWrite a C program to sort person details based on age.Create a Structure Date. Members:<ul style="list-style-type: none">daymonthyearWrite a function to compare two dates and determine which one is earlier.	24 th April														
Practice 2	<ol style="list-style-type: none">Write a C program to check if a string is a palindrome (reads the same forward and backward).Write a C program to find and print all strong numbers between 1 and N (entered by user). A strong number is a number whose sum of factorial of digits is equal to the number itself. Ex: 145 => 1! + 4! + 5! = 145 → Strong number	20 th May														