**Z. H. Sikder University of Science and Technology Department of Computer Science and Engineering** 

**Course Outline**

**Semester :** Fall 2023

**Course Title :** CSE 1104 (Structured Programming Language Lab)

**Credit Hour :** 1.50

**Class Schedule :** Wednesday (12:00 PM - 01:40 PM) **Room No. :** 103

**Consultation Hour :** Tuesday (12.50 PM -1:40 PM) **Faculty Name :** Md. Rafiul Islam

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| **Mark Distribution** | |
| --- | --- |
| Attendance | 10% |
| Contest | 30% |
| Lab Report | 10% |
| Viva | 20% |
| Lab Final (Contest) | 30% |
| **Total** | **100%** |

| **Class No.** | **Date** | **Topics of Experiments** | **Activities** |
| --- | --- | --- | --- |
| 1 | 20-09-23 | Basic | LE |
| 2 | 27-09-23 | Expression | LE |
| 3 | 04-10-23 | If else | LE |
| 4 | 11-10-23 | If else (Continued) | LE |
| 5 | 18-10-23 | **Contest 1**: If Else | Exam |
| 6 | 25-10-23 | Loop | LE |
| 7 | 01-11-23 | Loop (Continued) | LE |
| Mid-Term Examination (1st Session) (06/11/2023 to 10/11/2023) | | | |
| 8 | 15-11-23 | Array | LE |
| 10 | 22-11-23 | Array (Continued) | LE |
| 11 | 29-11-23 | **Contest 2**: Loop | Exam |
| 12 | 06-12-23 | Array (Continued) | LE |
| Mid-Term Examination (2nd Session) (11/12/2023 to 15/12/2023) | | | |
| 13 | 20-12-23 | **Contest 3**: Array | Exam |
| 14 | 27-12-23 | Function | LE |
| 15 | 03-01-24 | Recursion | LE |
| 16 | 10-01-24 | Structure | LE |
| 17 | 17-01-24 | Structure Array | LE |
| Lab Final Exam (Lab Test, Viva) | | | Exam |
| Final Examination (20/01/2023 to 31/02/2023) | | | |

**\*LE = Lab Experiment**

**Book References:**

1. The C Programming Language, Prentice Hall **-** Kernighan and Ritchie

2. Programming with C, Schaum's Outline Series, Tata McGraw Hill – Gotfreid 3. The Art of Computer Programming, Addison-Wesley Professional - D.E. Knuth 4. Programming with ANSI C, Tata McGraw Hill - E. Balagurusamy

5. Teach yourself C,McGraw-Hill Publishers - H. Schildt

**Course Policy:**

Standard ZHSUST rules will be observed for all disciplinary issues. Cases of extra-collaboration, in other words, cheating, will lead to penalties to both the source and destination, irrespective of the individuals’ intent or motive, without warning. Any case of plagiarism will be severely punished

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**Lab Experiment List** (Total 62 Problems):

**Simple**:

1. Print Hello World

2. Take Two Number as Input, Make Summation/Subtraction and print that

3. Take Two Number as Input, Swap them and print

4. Take Input as a, b, c, d; make calculation using the following formula and print X. *X = a\*b + c/d*

**Expression**:

5. Temperature Conversion

a. Celsius to Kelvin

b. Celsius to Fahrenheit

c. Fahrenheit to Kelvin

6. Day to year, month, date conversion

**If Else**:

7. Positive, Negative

8. a is divided by b or not

9. Even - Odd problem

10. Grading System

11. Find Min-Max between two numbers

12. Bharaskular Formula

13. Small or Capital Latter

14. Vowel or Consonant

15. Triangle or Not

16. Alphabet, Digit or Special Character

**Loop:**

17. Print n Stars (\*) Sequentially

18. **1** to ***n*** Print

19. Make Sum and Average from 1 to n

20. find Factorial of given number n

21. Make Sum from **1*2***to ***n2***and print in each 10th.

22. Print all Even/Odd from **1** to ***n*** (Using Continue)

23. Print All Divisors of ***m*** from **1** to ***n***

24. Print first nth numbers Fibonacci Numbers

25. Prime Number or Not?

26. Find Sum using the following formula



27. find Sin(x) using the following formula:

28. *Sin(x) = x – (x3/ 3!) + (x5/ 5!) – (x7/ 7!) + …*

**Nested Loop:**

29. Pattern **Printing**

**29.1** The pattern like:

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**29.2** The pattern like:

1

2 3

4 5 6

7 8 9 10

**29.3** The pattern like:

1

2 3

4 5 6

7 8 9 10

**29.4** Pascal Triangle:

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

**29.5** The pattern like:

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30. all Possible Sum from 2 array

**Array**: (1D)

31. Take n Numbers as input and Display it

32. Take n Numbers as input and Display it in reverse order.

33. Take n Numbers as input and store it into array, then **linear search**

34. Frequency Count

35. Find Max and Min elements from an array.

36. Separate odd and even Elements into separate arrays

37. Copy the Elements from one array to another array.

38. Make an array using all unique elements from another array, which is ascending order. 39. Make One array by Merging two ascending ordered arrays.

**Array**: (2D)

40. Input a Matrix (2D array) of size 3x3 and print the matrix

41. Take Input of two matrixes, make Sum/Subtract and output it.

42. Find the sum of the left/right diagonals of a matrix

43. Identity Matrix or Not?

**Function**:

44. Without return and without parameter:

a. Take two input ***a*** and ***b***, n times and make summation and print the value

45. With return and without parameter

a. Take two input ***a*** and ***b***, n times and make summation and print the value

b. Take n number as input, make summation and return it.

46. Without return and with parameter

a. Take two input ***a*** and ***b***, n times and make summation and print the value

b. Pass an array into function using **Pass by Value**, make sum and print it inside the function

c. Pass an array into function using **Pass by reference**, make sum and print it inside the function

47. With return and with parameter

a. Take 3 length of each side of a triangle, pass them into area function, calculate the area and return it.

b. Pass an array into function using **Pass by reference** and one value ***S***, Make Search on

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the array if there exist the S or not and return the output.

**Recursion**:

48. 1 to n and n to 1 print

49. Factorial

50. Fibonacci

**Structure**:

51. A Student profile

52. All Students Profile