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**School of Computing & Information Technology**

**Department of Department of CSE/IT/CCE**

**LAB MANUAL**

**CS1433**

**MICROPROCESSOR AND MICROCONTROLLER (MPMC) LAB**

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| Program : | B. Tech. Semester : IV CSE/IT/CCE |
| Session : | 2018-2019 Subject Code : CS1433 |
| Course Name : | MPMC LAB |
| Credits : | [LTPC] [0 1 2 2] |

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| **(Course Instructors)** | **(Course Coordinators)** | **(HODs)** |
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# AIM

# The aim of this laboratory is to have a basic understanding of microprocessor and explore a 16-bit one from a hardware and software point of view in implementation. The major stress would be on architectural aspects and the programmer’s model with an intensive coaching on assembly programming. The design aspects of a micro-computer system comprising of various peripherals would be another major area of discourse.

# ASSESSMENT CRITERIA:

Continuous Evolution throughout the Semester

Ratio of Internal and External : 70:30

Internal assesment :- Continous Evaluation comprises of lab records, viva and performance in lab.

External assesment :- 2 hrs. lab exam followed by viva.

# LAB OBJECTIVE:

1. To provide a sound introduction to the discipline of database management as a subject
2. To give a good formal foundation on the relational model of data.
3. To present SQL and procedural interfaces to SQL comprehensively.
4. To teach the student how to populate and query a database using SQL DML/DDL commands.

# GUIDELINES TO STUDENTS:

1 The objective of this laboratory is to have a basic understanding of microprocessor and explore a 16-bit one from a hardware and software point of view in implementation.

2 Students are required to carry their observation / programs book with completed exercises while entering the lab.

3 Students are supposed to occupy the machines allotted to them and are not supposed to talk or make noise in the lab. The allocation is put up on the lab notice board.

4 Lab can be used in free time / lunch hours by the students who need to use the systems should take prior permission from the lab in-charge.

5 Lab records need to be submitted on or before date of submission.

6 Students are not supposed to use pen drives/CD.

# FORMAT OF INDEX

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Aim of the Program** | **Date of**  **Performance** | **Date of**  **Submission** | **Remark** | **Signature** |
|  | *write*  *complete aim of the program that student has written in the*  *aim section in every program* | *DD/MM/YYYY* | *DD/MM/YYYY* | *Here faculty will write some remark/grade/comment/etc.* | *Signature of the faculty* |
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# HOW TO WRITE PROGRAM IN THE LAB RECORD

Student will need to write program in following format.

1. **Aim:** write the complete aim of the program to be developed.

2. **Software Used:** What types of different software used to develop this program.

3. **Source Code:** Write complete source code with name of the file in the middle of the sheet and program should be written in proper indentation.

4. **Output:** write the compete output with set of input entered by user during execution.

For example:

**1. Aim :** 1.Write an Assembly language program to copy contents of one register from another.

**2**.  **Software Used :** **EMU 8086 simulator**

**Operating System** : Windows 2007 ®

**3**.  **Source Code**  :

MOV AX, 1234H

MOV BX, AX

**4. Output :**

DATA FROM AX TO BX IS COPIED.

**Department of Computer Science & Engineering**

MPMC Laboratory

Course Code: - CS1433 Credit: - [0 0 2 1]

**List of Experiments**

Semester – Even (IV)

1. Write an Assembly language program to copy contents of one register from another.
2. Write an Assembly language program to copy contents of one register to a specific memory location.
3. Write an Assembly language program to copy contents of one memory location to another memory location.
4. Write an Assembly language program to Add 2 8-bit numbers.
5. Write an Assembly language program to Add 2 16-bit numbers.
6. Write an Assembly language program to Subtract 2 8-bit numbers.
7. Subtraction of 2 16-bit numbers.
8. Negation and comparison.
9. Multiplication of two 16 bit numbers.
10. Write an Assembly language Program to multiply two 8 bit numbers.
11. Division of two 16 bit numbers.
12. Write an Assembly language program to divide two 8 bit numbers.
13. Compute ((AL+BL)\*BH)+CX
14. Multiplication using repetitive addition
15. Division using repetitive subtraction
16. Implement fast multiplication using SHIFT and ADD
17. Write an Assembly language program to compute 1’s and 2’s complement of a number.
18. Write a program for right shift and left shift of a 16 bit and 8 bit numbers.
19. Write a program to find out whether a number is even or odd.
20. Write a program to find out a year is leap or not.
21. Write a program to calculate the sum of the number range from 1 to 10.
22. Write a program to calculate sum of the digits of a given number.
23. Find the number of bits equal to 1
24. To get 10 hex-digit input and find the minimum
25. Search for an element using SCASB
26. Write a program to show how to declare an array and calculate the sum of the elements of the array.
27. Write a program to search for an element in an Array.
28. Move content of array in reverse order
29. Compare two arrays using CMPSB
30. Write a program to find out the length of a string.
31. Write a program to reverse a string.
32. Write a program to copy string from one location to other.
33. Signed Multiplication and Division
34. Write a program to sort the array elements.
35. Displaying the Character on Led Display
36. Write a program for implementing a traffic control system.