MICROPROCESSOR LABORATORY

[As per Choice Based Credit System (CBCS) scheme]

SEMESTER – IV (EC/TC)

Laboratory Code	15ECL47	IA Marks	20
Number of Lecture Hours/Week	01Hr Tutorial (Instructions) + 02 Hours Laboratory	Exam Marks	80
RBT Level	L1, L2, L3	Exam Hours	03

CREDITS – 02

Course objectives: This course will enable students to:

- Get familiarize with 8086 instructions and DOS 21H interrupts and function calls.
- Develop and test assembly language programs to use instructions of 8086.
- Get familiarize with interfacing of various peripheral devices with 8086 microprocessor for simple applications.

Laboratory Experiments:

1. Programs involving:

Data transfer instructions like:

i) Byte and word data transfer in different addressing Modes
ii) Block move (with and without overlap)
iii) Block interchange

2. Programs involving:

Arithmetic & logical operations like:

i) Addition and Subtraction of multi precision nos.
ii) Multiplication and Division of signed and unsigned Hexadecimal nos.
iii) ASCII adjustment instructions.
iv) Code conversions.

3. Programs involving:

Bit manipulation instructions like checking:

i) Whether given data is positive or negative
ii) Whether given data is odd or even
iii) Logical 1's and 0's in a given data
iv) 2 out 5 code
v) Bit wise and nibble wise palindrome

4. Programs involving:

Branch/ Loop instructions like

i) Arrays: addition/subtraction of N nos., Finding largest and smallest nos., Ascending and descending order.
ii) Two application programs using Procedures and Macros (Subroutines).

5. Programs involving

String manipulation like string transfer, string reversing, searching for a string.

6. Programs involving

Programs to use DOS interrupt INT 21h Function calls for Reading a Character from keyboard, Buffered Keyboard input, Display of character/ String on console.

7. Interfacing Experiments:

Experiments on interfacing 8086 with the following interfacing modules through DIO (Digital Input/Output - PCI bus compatible card / 8086 Trainer)

1. Matrix keyboard interfacing
2. Seven segment display interface
3. Logical controller interface
4. Stepper motor interface
5. ADC and DAC Interface (8 bit)
6. Light dependent resistor (LDR), Relay and Buzzer Interface to make light operated switches

Course Outcomes: On the completion of this laboratory course, the students will be able to:

- Write and execute 8086 assembly level programs to perform data transfer, arithmetic and logical operations.
- Understand assembler directives, branch, loop operations and DOS 21H Interrupts.
- Write and execute 8086 assembly level programs to sort and search elements in a given array.
- Perform string transfer, string reversing, searching a character in a string with string manipulation instructions of 8086.
- Utilize procedures and macros in programming 8086.
- Demonstrate the interfacing of 8086 with 7 segment display, matrix keyboard, logical controller, stepper motor, ADC, DAC, and LDR for simple applications.

Conduct of Practical Examination:

- All laboratory experiments are to be included for practical examination.
- For examination, one question from software and one question from hardware interfacing to be set.
- Students are allowed to pick one experiment from the lot.
- Change of experiment is allowed only once and Marks allotted to the procedure part to be made zero.

H. O. D.
Dept. Of Electronics & Communication
Alva's Institute of Engg & Technology
Mijar, MOODBIDRI - 574 225