EMBEDDED SYSTEMS LAB

(Common to CSE & IT)

Course Code : 15CT1122

L	T	P	C
0	0	3	2

Course Outcomes:

At the end of the Course, the Student will be able to:

CO 1 Implement number conversions.

CO 2 Create delays between events and speed control programs.

CO 3 Write programs in assembly language.

CO 4 Design applications by interfacing system peripherals.

CO 5 Create serial communication buses.

LIST OF PROGRAMS:

1. ELEMENTARY OPERATIONS USING DIRECT AND INDIRECT ADDRESS

   MODES:

   i. Multi precision Addition, Subtraction, Multiplication and division

   ii. Handling Fractional numbers

   iii. BCD-Binary Conversion examples

   iv. ASCII to BCD conversion

   v. Binary to ASCII conversion

2. INPUT OUTPUT CONTROL PROGRAMMING.

   i. Controlling the external logical switching, for DC motors, Steppers

   ii. Timers and Counters with and without Interrupts

iii. Pulse width modulation for speed control.

iv. Capture control of external events

3. PROGRAMMING USING BUILT IN TIMERS.

i. As Event Timers

ii. As fast Counters

iii. Frequency Generation

4. CAPTURE CONTROL AND ITS APPLICATION EXAMPLES

i. Measurement of pulse width

ii. Measurement of Duty cycle,

iii. Measurement of velocity and acceleration.

5. SERIAL COMMUNICATION METHODS.

i. USART and its programming

ii. SPI bus and its programming

6. SINE WAVE GENERATION.

TEXT BOOKS:

1. Ali Mazidi Mohammed Gillispie, Mazide Janice, "The 8051Microcontroller and Embedded Systems using assembly & C", 2nd Edition, Pearson Education, 2008.

2. Muhammad Ali Mazidi, SarmadNaimi and SepehrNaimi, "The AVR microcontroller and Embedded Systems Using Assembly and C", 1st Edition, Pearson Education,2011.