COURSE CODE	COURSE NAME	L-T-P-C	YEAR OF INTRODUCTION
EC334	**Microcontroller Lab**	0-0-3-1	2016

Prerequisite: EC305 Microprocessors & Microcontrollers

Course objectives:

1. To understand Assembly Language/embedded C programming of Microcontroller.
2. To interface simple peripheral devices to a Microcontroller.
3. To equip student groups to design and implement simple embedded systems.

List of Experiments:

PART –A (At least 6 experiments are mandatory)

Assembly Language Programming experiments using 8051 Trainer kit.

1. Data transfer/exchange between specified memory locations.
2. Largest/smallest from a series.
3. Sorting (Ascending/Descending) of data.
4. Addition / subtraction / multiplication / division of 8/16 bit data.
5. Sum of a series of 8 bit data.
6. Multiplication by shift and add method.
7. Square / cube / square root of 8 bit data.
8. Matrix addition.
9. LCM and HCF of two 8 bit numbers.
10. Code conversion – Hex to Decimal/ASCII to Decimal and vice versa.

PART –B (At least 4 experiments are mandatory)

Interfacing experiments using 8051 Trainer kit and interfacing modules.

1. Time delay generation and relay interface.
2. Display (LED/Seven segments/LCD) and keyboard interface.
3. ADC interface.
4. DAC interface with wave form generation.
5. Stepper motor and DC motor interface.
6. Realization of Boolean expression through port.
7. Elevator interfacing.

PART -C(At least 2 experiments are mandatory)

Programming / interfacing experiments with IDE for 8051/PIC/MSP/Arduino/Raspberry Pi based interfacing boards/sensor modules (Direct downloading of the pre-written ALP/'C'/Python programs can be used).

1. Relay control
2. Distance measurement.
3. Temperature measurement / Digital Thermometer
4. Txr-Rxr interface.
5. Alphanumeric LCD display interface.
6. Simple project work including multiple interfaces.

Expected outcome:

The students will be able to:

1. Program Micro controllers.
2. Interface various peripheral devices to Micro controller.
3. Function effectively as an individual and in a team to accomplish the given task.