

**COURSE TITLE** : **MICROCONTROLLER LAB**  
**COURSE CODE** : **6139**  
**COURSE CATEGORY** : **A**  
**PERIODS/WEEK** : **5**  
**PERIODS/SEMESTER** : **75**  
**CREDITS** : **3**

**General Outcomes :**

Sl.	G.O	Student will be able to
1	1	To know AVR Assembly Language Programming
2	1	To understand Embedded C
	2	To understand AVR Programming in C
3	1	To understand Timer/Counter and Interrupt Programming
4	1	To understand the interfacing of various systems with AVR microcontroller

**Specific Outcomes:**

- 1.1 Familiarisation with microcontroller development system board based AT Mega32 (such as Arduino, MicroHope etc)
  - 1.1.1 The interfacing with computer, transfer of programs, executing simple programs.
- 1.2 To Understand Assembly Programming of AVR
  - 1.2.1 Write simple assembly language programs ( Bit manipulation instructions - on/off , flashing, rotating LEDs)
- 2.1 Familiarisation with compilers – gcc compiler tools
  - 2.1.1 Write simple programs in AVR using C to implement Bit manipulation, arithmetic and logical, data conversion
- 3.1 To understand Interrupts and Timer/Counter Programming
  - 3.1.1 Write C programs to demonstrate the working of interrupts and timer/counters
- 4.1 To understand Interfacing in AVR
  - 4.1.1 Write C programs implement interfacing of peripherals (LCD, Serial port, keyboard, ADC,DAC, sensors)