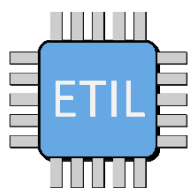
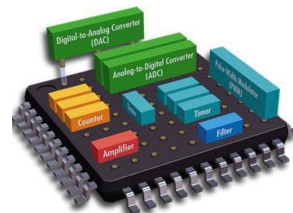


# Project based Workshop on Embedded Systems using 8051

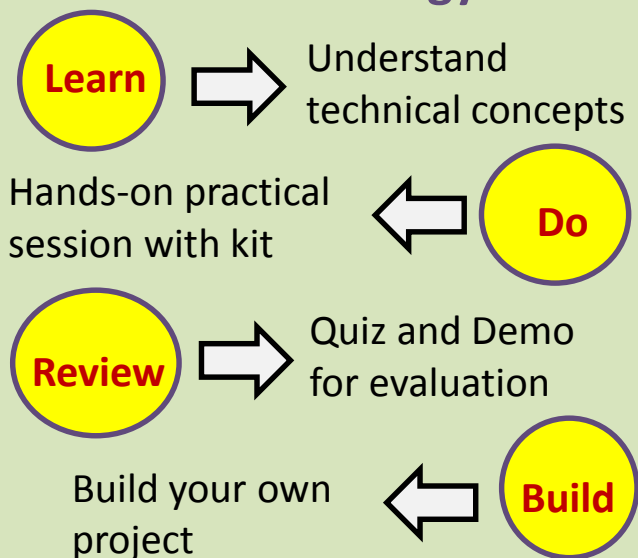


## By ETI Labs



1 week [7<sup>th</sup> to 13<sup>th</sup> June 2018]

### Methodology



### Workshop Outline

- Embedded systems and 8051 microcontrollers
- Programming 8051 microcontroller in Assembly and embedded C language with Keil IDE & Flash Programming
- Interfacing various Peripherals and communication module with 8051
- Creating Mobile Application
- Making real life projects

### Hardware KIT

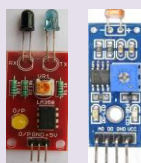
- ✓ Embedded development board based on 8051 microcontroller
- ✓ Sensors ( IR, LDR)
- ✓ Bluetooth module
- ✓ Display (2\*16 LCD)
- ✓ USB cable and connecting wires
- ✓ Manual
- ✓ Software, drivers & sample codes



ESD board



LCD



Sensors



Bluetooth

### Who Can Attend this Training?

- ✓ Students from B.E/B.Tech/ M.Tech/Diploma(ECE/EEE/CSE/IT/M ECH), developers, hobbyist can join this training.
- ✓ Anyone who have interest in this field and have pre-requisite knowledge.

### Award & Certificate

- ✓ All the participant will get a certificate
- ✓ Top performers may get internship at ETI labs Pvt. Ltd.

Students can take away basic kit and can also purchase complete kit

**Training Venue: E-107, Electrical Block, IGDTUW, Delhi**

# Workshop Content

- Embedded systems & microcontroller
- 8051 Architecture in brief.
- Programming in Embedded C and Assembly.
- Setting up the tools and drivers
  - Keil IDE
  - Flash Programming
- **Peripherals interfacing and programming**
  - Sensor interfacing
    - LDR sensor ( Ambient light sensor)
    - DHT11(Temp & Humidity sensor)
    - IR (obstacle detection)
    - Gas sensor ( LPG leakage detection)
    - PIR sensor (Motion sensor)
  - Communication module interfacing
    - Bluetooth interfacing
    - GSM interfacing
    - GPS interfacing
    - Wi-Fi interfacing
  - Actuator Interfacing
    - Relay interfacing
    - Motor Interfacing

- **Timer**
  - Generating Delay with timers
  - Counting objects with counters
- **Serial Communication Programming**
  - Sending/Receiving chars using Bluetooth
- **Interrupt Programming**
  - External hardware interrupt Programming
  - Timer Interrupts
  - Serial Interrupts
- **Sensor interfacing**
  - LDR interfacing
  - IR interfacing
- **Mobile App development**
  - Creating android application for receiving sensor data on phone
  - Creating android application for controlling device through phone
- **Real Life Projects**

Smart home, smart irrigation system, weather monitoring system, smart kitchen, intrusion detection system & many more..

## TRAINING COST

Rs. 2,000 per student including basic kit

## KIT COST

Kit Contents	Amount(Rs.)
Basic kit- Microcontroller Board (with USB cable)	500
Microcontroller Board (with USB cable) + LCD(16*2) + Sensors (IR & LDR)	900
Microcontroller Board (with USB cable) + LCD+ Sensors + Bluetooth	1,200
Microcontroller Board (with USB cable) + LCD, Sensors and Bluetooth + Supporting material(Book)	1,350
<b>Contact Details</b>	



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Please Visit our Website [www.etilabs.com](http://www.etilabs.com) for more information about ETI Labs Pvt. Ltd.