

# Arduino Level I: Course Content

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## **Introduction to Embedded Systems, Physical Computing & Arduino**

- Introduction to Arduino, Open Source Hardware and its Features
- Different Flavors of Arduino, Evolution of Arduino
- Pin Out / Description of Arduino UNO
- I/O Port Programming
- A.D.C. Programming
- Using Delays, Timers
- Serial Communication (U.A.R.T.), Serial Port Programming
- Using Serial Plotter
- Introduction to Interrupts

## **Embedded C Programming in Arduino IDE**

- Introduction to Arduino IDE
- Features and S/w Development
- Compiling, Debugging and Uploading sketch
- Programming Arduino
- Burning the Arduino Boot loader on a ATmega 328

## **Hardware Interfacing and Practical Sessions**

- LED, RGB LED's
- Character LCD (16x2)
- Seven Segment, Multiplexing of Seven Segment
- Switches, Keypad Matrix
- Relays
- IR, LDR (Using ADC)
- LM 35 (Temperature Sensor)
- Ultrasonic Sensor (Distance Sensor)
- DC Motor
- Servo Motor
- Bluetooth Module

## **Minor Project Based on Arduino**

- Based on Various Technologies (RF Communication, Graphic LCD, R.T.C., IR, Access Systems, Security Systems, Robotics, Automation Systems, Accelerometer, Graphic L.C.D. etc)

## **Kit Contents**

- Arduino UNO Clone + ATmega328 + USB Programmer with Connectors