

Arduino

Arduino is an open source computing tool based on simple micro controller that can sense and control the physical world more than your Desktop computers. It simplifies the process of dealing with micro controller to develop software. You could automate your home even without an expensive and large circuit.

Introduction to Embedded System

- Introduction to Embedded System
- Applications & Scope of Embedded System in various industries

Introduction to Open Source platform

- An Overview of Open Hardware
- Arduino Board Description

Introduction to Microcontroller

This session would deal with the basics of Microcontroller. The focus will be on the AVR Micro controller, which is one of the most powerful and widely used 8 bit microcontroller.

- What is Microcontroller?
- Difference between Microcontroller and Microprocessor
- Microcontroller architecture and Interfacing
- Introduction to Microcontrollers & the Arduino Platform
- How can we use microcontroller in our circuits

Introduction to Programming Language

- Programming Languages- Assembly Vs Embedded 'C'
- Microcontroller Programming using Embedded 'C'

Introduction to software tool chain

- Software Installation
- Getting started with the Arduino IDE to start writing your first program
- Writing your First 'Embedded C' Program

Interfacing of I/O devices

LEDs

- Types of LEDs.
- How LEDs works?
- How LEDs will glow in sequence?
- Interfacing of LED with Arduino

Switch

- Types of switches
- Their Functions
- Interfacing of switch with Arduino

Buzzer

- Types of Buzzer
- Uses of Buzzer in Real Time
- Interfacing of Buzzer with Arduino

Display Devices

- Types of Display Devices
- What is a Seven Segment Display?
- Internal Structure of Seven Segment
- How to glow Seven Segment?
- Interfacing of Seven Segment with Arduino
- Multiplexing

ADC

- What is ADC?
- Use of ADC
- What is Resolution?
- Uses of different ADC Registers
- Interfacing of Analog Devices with Digital World

Serial Communication

- Difference between Parallel and Serial Communication
- USART / UART Protocol
- RS232 Standard
- TTL Converter
- UART Programming

Query Session

After completing workshop there will be a query session which will help students to clear all their doubts.

Competition

After the hand on theory and practical experience from the workshop, Competition will be conducted for the participants.

Certificate Distribution

Participants will get Participation Certificate and winners will get winning Certificates.