



# **Hands-On Workshop on Embedded Systems fundamentals for Basic Microcontrollers 8051 & Arduino.**

## **Workshop Objectives:**

By providing Hands-on workshop to students, they will get idea on hardware components. By using this knowledge they can develop simple real time problems. In this workshop we will use Embedded C for microcontroller programming .This Workshop aims at imparting job-oriented training on Microcontroller architectures and concepts of Embedded C language from an industry perspective. More emphasis shall be given to hands-on (practical) sessions for better understanding.

## **About Embedded Systems:**

An embedded system is a system that has software embedded into hardware, designed for specific application. Today, Embedded Systems are found in cell phones, digital cameras, camcorders, portable video games, calculators, and personal digital assistants, microwave ovens, answering machines, home security systems, washing machines, lighting systems, fax machines, copiers, printers, and scanners, cash registers, alarm systems, automated teller machines, transmission control, cruise control, fuel injection, anti-lock brakes, active suspension and many other devices/ gadgets.

## **Workshop Topics:**

1. 8051 Microcontroller.
2. Arduino.
3. Embedded C Languages.

## **Workshop Duration:**

3 Days [7 Hours/Day]-→Total 20hours

The main concept to be covered in this workshop:

**Note:** All the required software's and tools will be provided by us before the workshop.

**Resource Persons:** APSSDC

**Registration Fee:** Rs:250/- for 3<sup>rd</sup> years and 4<sup>th</sup> years.

NOTE: Registration for the workshop by submitting the duly filled registration form is mandatory. Only spot registrations are allowed.



## ARDUNIO programming

### LED Based Projects:

- LED blink.
- LED delay.
- Switch LED.
- Fading LED.
- RGB LED.
- Traffic signal LED's.
- Print output on serial monitor in LED.
- Using relay's

### LCD Based projects:

- LCD display.
- 7-segment display.
- LCD with Motor.

### Motor Projects:

- DC motor.
- Stepper motor.
- Servo motor.

### Sensor based projects:

- LDR sensor.
- Temp sensor.
- RGB sensor.
- Humidity sensor.
- Ultrasonic sensor.
- Touch sensor.
- Buzzer sensor. .
- Keypad Interfacing.
- RTC Interfacing.

## ❖ One Sample mini Project

**Software Using:** Arduino IDE and Proteus 8



# Andhra Pradesh State Skill Development Corporation

(Department of Skill Development, Entrepreneurship & Innovation, Govt. of Andhra Pradesh)



## 8051 Embedded C programming

### LED Based Projects:

- LED blink.
- LED delay.
- Switch LED.
- Traffic signal LED's.
- Using relay's

### LCD Based projects:

- LCD display.
- 7-segment display.
- LCD and Motor display.
- Keypad Interfacing.
- RTC Interfacing.

### UART based projects:

- UART interfacing.
- UART with LCD interfacing.
- UART with LED interfacing.
- LCD, UART and Motor interfacing.

### Motor Projects:

- DC motor.
- Stepper motor.
- Servo motor.

## Sample mini Project's

**Software Using:** Keil and Proteus 8

**Contact:** If you have any queries, please contact

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