



## Course Content

**Day 1:** Introduction to the Course. Introduction to Embedded System. History of Electronics. Introduction To Microprocessor and Microcontroller. Difference between Microcontroller and Microprocessor

**Day 2:** Introduction To Atmega328 Architecture and It's Datasheet. Advantage Of Atmega328. Introduction to arduino, and Its community. Software installation and Introduction to arduino IDE.

**Day 3:** Introduction to Arduino Starter Board. Digital Write: LED Blink, LED Run, LED Glow. Buzzer Control .

**Day 4:** Digital Read - Switch Interfacing. Switch to LED. Serial Monitor - Switch to Serial Monitor

**Day 5:** Analog Read – interfacing Potentiometer- Pot to Serial Code. Digital Voltmeter Coding . Digital Oscilloscope.

**Day 6:** Understanding LDR. Automatic Night Light. Introduction to Temperature Sensor LM35. Digital Thermometer.

**Day 7:** LCD Display and Understanding Library concept in Arduino. Understanding Objects in Arduino and Writing LCD Display code.

**Day 8:** Introduction to DC Motors. Introduction to L293D motor Driver. Differential Drive. Motor Control

**Day 9:** Keyboard Control LED Light. Keyboard Control Robot. TV Remote Controlled LED Light. TV Remote Controlled Robot.

**Day 10:** Introduction to IR Sensor. Interfacing of 2 IR Sensors. Black & White Line Follower Robot. Edge Avoider Robot

**Day 11:** IOT Introduction and its Architecture (Why, What and How). Trends in IOT. Hardware in IOT. Future in IOT.

**Day 12:** Introduction to DHT11. Reading Moisture & Temperature values from DHT11. Digital Thermometer.

**Day 13:** Website Basics and HTML. Creating 1<sup>st</sup> Website

**Day 14:** Hosting Basics. Publish Website online.

**Day 15:** Introduction to ESP8266 Wi-Fi Module. Interfacing ESP8266 with Arduino. Introduction to AT Command

**Day 16:** Connecting to Wi-Fi and getting an IP Address. Formatting Website as online Humidity and Temperature Monitor. Publishing data to website created previously.

**Day 17:** Introduction to Home Automation. Introduction to Relay. Interfacing Relay and Assembling the Home Automation Setup. Controlling Home Appliances using Keyboard

**Day 18:** Create four buttons to control Lights through Webpage. Reading Data from Webpage. Hands on with Home Automation. Building and Debugging

**Day 19:** IOT Using Prebuilt Platforms(Thingspeak). Graphical Weather Monitoring.

**Day 20:** Introduction to Other Tools available for IoT and Embedded Development.

**Day 21:** Future Scope and implementation . Revision to the course.