

## Short Term Courses-NIELIT Delhi Centre

### Certificate Course in

### ARDUINO

#### **Course Objective:**

This Course mainly focus on Basic concepts along with training such as wireless sensing, actuation and communicating the data to Cloud using industry leading systems like, Ardiuno and ESP8266 (Node MCU). The course covers training on the development of Arduino platforms and integration of devices for sensing, actuation, processing, and communication—to enhance skills and expertise of students and professionals. The Platform like Arduino is the next wave of Application Specific computing which is used to design many prototypes of connected things in AI era.

#### **Learning Outcome:**

After the completion of the course, the students will be able design some Arduino based prototypes.

**Course Duration(In Hours): 4 week / 40 Hours.**

**Course Fees (INR): 2000/- + GST (18%)**

**Minimum Eligibility :**Pursuing/Passed BE/B.Tech/BCA/ BSc(Electronics)

**Prerequisite:** Basic Knowledge of C or any other programming language.

### COURSE OUTLINE

S. No.	Module to be covered
1	Introduction to Arduino Environment
2	Arduino integrated development environment
3	Interfacing Sensor & Actuators with Arduino
4	Basic Networking and Cloud Platform

## **DETAILED COURSE SYLLABUS:**

### **1. Introduction to Arduino Environment**

**Introduction - Embedded System.  
Microprocessor and Micro-controller Environment  
Understanding Arduino Platform.  
Arduino Boards, Arduino Shields.**

### **2. Arduino Integrated Development Environment**

**Arduino Uno Architecture.  
Atmega328P Specifications.  
Arduino IDE Setup - Downloading of Arduino IDE,  
Installing/Configuration of Arduino IDE,  
Integration Arduino with Laptop/PC.  
Embedded C programming for Arduino.  
Arduino Libraries.  
Arduino - Writing Sketches with C programming  
Arduino Interfacing - LED, Pointing Devices and Displays.**

### **3. Interfacing Sensor & Actuators with Arduino**

**Overview of Sensors working  
Analog and Digital Sensors  
Arduino Interfacing of Current, Sound, Accelerometer, water level,  
Temperature, Humidity, Motion, Force, Infrared, and Gas Sensors.  
Interfacing of Actuators with Arduino.  
Interfacing of Relay Switch and Actuators.**

### **4. Basic Networking and Cloud Platform**

**Wireless Networking.  
Web Server Design.  
Cloud Services  
Integration of GPS System (Neo GPS) and arduino with Web services.**