

Certificate Course in Internet of Things (IOT)

Detailed Course Syllabus:

1. Introduction to IOT

- Understanding IoT fundamentals
- IOT Architecture and protocols
- Various Platforms for IoT
- Real time Examples of IoT
- Overview of IoT components and IoT Communication Technologies
- Challenges in IOT

2. Arduino Simulation Environment

- Arduino Uno Architecture
- Setup the IDE, Writing Arduino Software
- Arduino Libraries
- Basics of Embedded C programming for Arduino
- Interfacing LED, push button and buzzer with Arduino
- Interfacing Arduino with LCD
- Arduino Coding Basics
- Syntax & Program Flow
- Serial & Serial.begin()
- Serial.print ()
- Serial.available()
- Serial.read() & Serial.write()
- Arduino analogRead ()
- Arduino Functions
- Arduino Data Types
- Arduino Variables
- Arduino Constants
- Arduino Operators
- Arduino Array
- Arduino Delay
- Arduino If statement
- if-else & else-if
- Arduino for Loop

- Arduino while loop
- Arduino switch case
- Arduino String
- Arduino String Object

3. Basic Project

- Blinking an LED
- Blinking Two LED
- Blinking various LEDs using Arrays
- Blinking multiple LEDs using loop
- Blinking multiple LEDs using switch case

4. IOT Advance

- Arduino Simulator
- Arduino Web Editor
- Arduino Switch
- Arduino button
- Arduino PWM
- Arduino Library
- Arduino LCD Display
- Arduino Potentiometer
- Arduino Interrupt
- Arduino SPI

5. Sensor & Actuators with Arduino

- Overview of Sensors working
- Analog and Digital Sensors
- Interfacing of Temperature
- Humidity, Motion,
- Light and Gas Sensor with Arduino
- Interfacing of Actuators with Arduino.
- Interfacing of Relay Switch and Servo Motor with Arduino

6. Control Moter

- Arduino Stepper motor
- Arduino Servo Motor
- Arduino Servomotor using
- Potentiometer
- Arduino DC motor

7. Basic Networking with ESP8266 WiFi module

- Basics of Wireless Networking
- Introduction to ESP8266 Wi-Fi Module
- Various Wi-Fi library
- Web server- introduction, installation, configuration
- Posting sensor(s) data to web server

8. IoT Protocols

- M2M vs. IOT
- Communication Protocols

9. Project