Internet of Things

using NodeMCU

A two days workshop on
Internet of Things using NodeMCU.

Workshop Content

Session 1
Introduction Of Internet Of Things

> Introduction of IOT
> Why do we need IoT?
> Role of IoT In Various Field
> Application of IOT
> Future Scope of IOT
> Architecture Of IOT

Session 2
IoT Components

> Sensor
> Cloud
> Networking
> Arduino
> Raspberry Pi
> Node MCU
> ESP8266
> Various Cloud Provider

Session 3
NodeMCU Programming

> Introduction to Node Mcu
> Introduction of Node Mcu Architecture
> Interfacing I/o Devices with NodeMcu
> Interfacing DhT11 and Ultersonic Sensor
> Connecting nodemcu with wifi gateway
> Server ,client Configuratio
> Hosting Html Web site into NodeMCU

Session 4
Serial Communication Programming
Introduction of Serial Communication
USART-Serial Communication Protocol
Serial Communication Library
Communication Between NodeMCU and Computer
Interfacing DhT11 and Ultersonic Sensor
Controlling Home Appliances using Computer
Displaying Room Temperature on serial monitor

Session 5
Introduction of ThingSpeak
What is ThingSpeak
Collecting Sensor Data on Thingspeak Cloud
Analysis Data
Sending Room Temperature over ThingSpeak
Sending UlteraSonic Sensor Data Over ThingSpeak

Session 6
Implementation of MQTT Protocol
Introduction to Node MCU
Introduction of MQTT Protocol
Publish Subscribe Architecture
Concept of Broker
Understand working of broker, web-sockets demo and mqtt phone-app Installing MQTT Protocol in NodeMcu
Controlling Devices or home Appliances Using MQTT Protocol

List of Projects / Practicals
1. Integrating Sensors & Reading Environmental Physical Values.
2. Controlling Devices using Web page.
3. Collecting Sensor Data on Thingspeak Cloud.
4. Controlling Devices using Web page.
5. Weather Station.
6. Smart Home Automation.
7. Monitor Water and Air Temperature with NodeMCU and MQTT.
8. Transmit NodeMCU Data to Google Sheets.
9. Controlling Home Appliances Using Node MCU Via MQTT.
10. Controlling Device Using Voice

Prerequisites & Eligibility

- This is a basic level workshop and however knowledge of C and PHP will be very much helpful.

- The course and curriculum of this workshop is more inclined towards Electronics / Electricals / Computer Science/ Information Technology / Related streams to it however anybody can join this workshop even from different department.

- Mode of Training/Teaching will be English only.