

# ECE662:IOT WITH NODEMCU

L:3 T:0 P:2 Credits:4

**Course Outcomes:** Through this course students should be able to

- CO1 :: define the use of NodeMCU Board along with Arduino IDE and the supported IO peripherals
- CO2 :: explain the programming of Input, Output devices and PWM control with NodeMCU
- CO3 :: apply the concept of interfacing with display devices and do its programming with NodeMCU
- CO4 :: analyze the usage of Thingspeak IoT server and its programming with NodeMCU
- CO5 :: develop smart devices with Blynk and Cayenne application

## Unit I

**Getting started with NodeMCU** : NodeMCU Board and supported peripherals, Serial port programming for NodeMCU, Configuring GPIO of NodeMCU as output, Configuring GPIO of NodeMCU as input

**Input devices with NodeMCU** : Programming NodeMCU for DHT11, Programming NodeMCU for Ultrasonic sensor

## Unit II

**Output devices with NodeMCU** : LED interfacing with NodeMCU, DC motor interfacing with NodeMCU

**Programming NodeMCU for PWM** : Controlling brightness of LED, Speed control of DC motor, Servo motor control

## Unit III

**Liquid crystal display with NodeMCU** : LCD interfacing with NodeMCU, Programming NodeMCU for LCD

## Unit IV

**Seven Segment with NodeMCU** : Seven segment interfacing with NodeMCU, Programming NodeMCU for seven segment

## Unit V

**IoT with Thingspeak** : Introduction to Thingspeak IoT server, Programming NodeMCU for Thingspeak IoT server

## Unit VI

**IoT with Blynk** : Introduction to Blynk IoT application, Creating smart device with Blynk application

**IoT with Cayenne** : Introduction to Cayenne IoT application, Creating smart device with Cayenne application

## List of Practicals / Experiments:

### List of practicals

- Programming NodeMCU for LED interfacing
- Interfacing DHT11 with NodeMCU
- DC motor interfacing with NodeMCU
- Programming NodeMCU for Ultrasonic sensor
- Controlling brightness of LED
- Interfacing LCD with NodeMCU
- Seven segment interfacing with NodeMCU
- Programming NodeMCU for Thingspeak IoT server
- Creating smart device with Cayenne application
- Creating smart device with Blynk application

**References:**

1. PROGRAMMING NODEMCU USING ARDUINO IDE by UPSKILL LEARNING, KINDLE EDITION