

**MYSORE COLLEGE OF ENGINEERING AND MANAGEMENT**  
(Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi and Govt. of Karnataka) 1072, T.  
Narasipura Road, Near Big Banyan Tree, Chikkahalli, Mysore-570028



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**(ACADEMIC YEAR 2023-24)**

# **RECORD BOOK**

**SUBJECT: INTERNET OF THINGS**

**SUB CODE: 18CS81**

**SEMESTER: VIII**

**As per Outcome Based Education (OBE)**

**And**

**Choice Based Credit System (CBCS)**

**(Effective from the academic year 2018 -2019)**

**Name: .....**

**USN: .....**

**MYSORE COLLEGE OF ENGINEERING AND MANAGEMENT**  
(Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi and Govt. of Karnataka) 1072, T.  
Narasipura Road, Near Big Banyan Tree, Chikkahalli, Mysore-570028



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**CERTIFICATE**

*This is certify that Mr./Ms./Mrs. ....*

*Bearing University Seat Number .....*

*Has satisfactorily completed the Laboratory Experiments in  
practical.....*

*.....In the ..... Semester of B.E course, during the academic year 2023-  
2024 as prescribed by the Visvesvaraya technological University, Belgaum.*

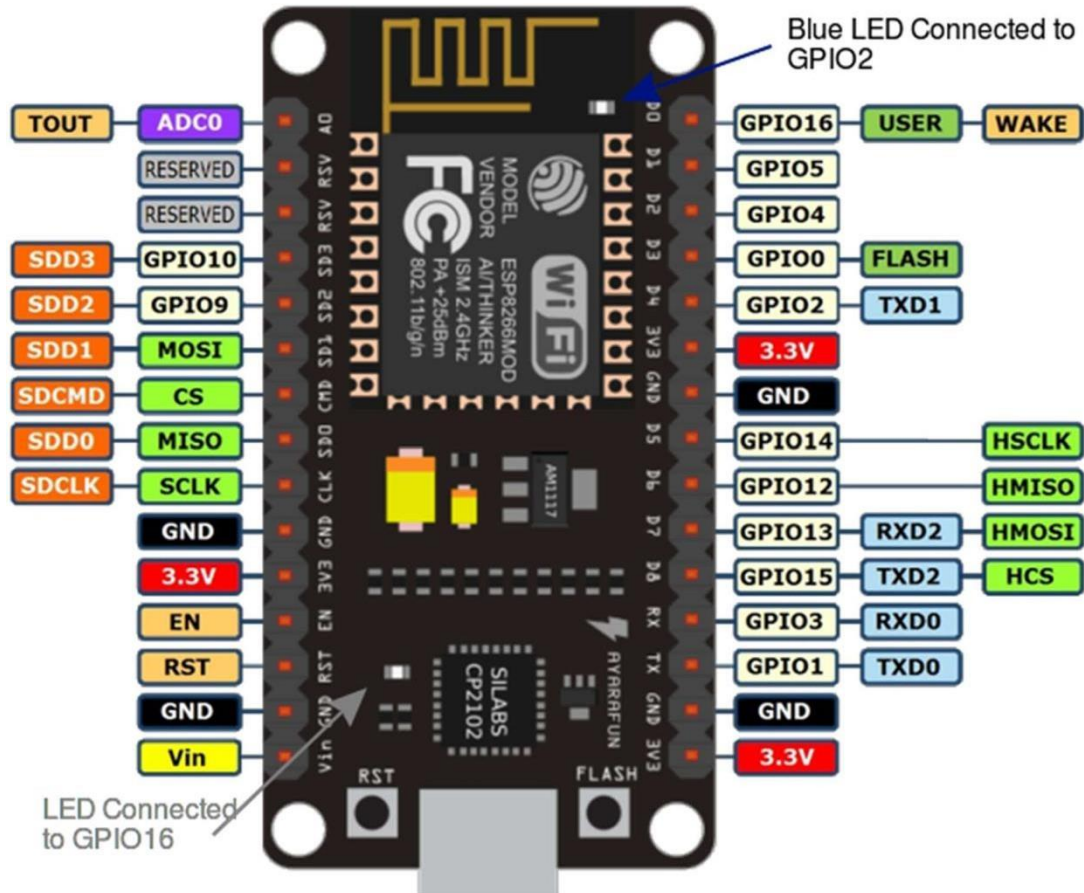
**Name & Signature of the Staff**

**Signature of the HOD**

## INDEX

Sl.No.	Experiments	Page No.
1	Program 1: Transmit a string using UART	
2	Program 2 : Point-to-Point communication of two Motes over the radio frequency	
3	Program 3 : Multi-point to single point communication over the radio frequency LAN (Sub-netting)	
4	Program 4: I2C protocol study	
5	Program 5 : Reading Temperature and Relative Humidity value from the sensor	

## NODE MCU Pin Diagram



**Expt -1****Aim: Transmit a string using UART****Program:**

```
int incomingByte = 0; // for incoming serial data

void setup() {
    Serial.begin(9600);    // opens serial port, sets data rate to 9600 bps
}

void loop() {

    // send data only when you receive data:
    if (Serial.available() > 0) {
        // read the incoming byte:
        incomingByte = Serial.read();

        // say what you got:
        Serial.print("I received: ");
        Serial.println(incomingByte, HEX);
    }
}
```

## Expt – 2

**AIM: Point-to-Point communication of two Motes over the radio frequency.**

### Program:

```
#include <ESP8266WiFi.h>

// Replace these with your WiFi network settings

const char* hotspot = "INSPIRON15R 3661"; //replace this with your WiFi network name

const char* password = "csedptbjp"; //replace this with your WiFi network password

void setup()

{

    delay(1000);

    Serial.begin(115200);

    WiFi.begin(hotspot, password);

    Serial.println();

    Serial.print("Connecting");

    while (WiFi.status() != WL_CONNECTED)

    {

        delay(500);

        Serial.print(".");

    }

    Serial.println("success!");

    Serial.print("IP Address is: ");

    Serial.println(WiFi.localIP());

}

void loop() {

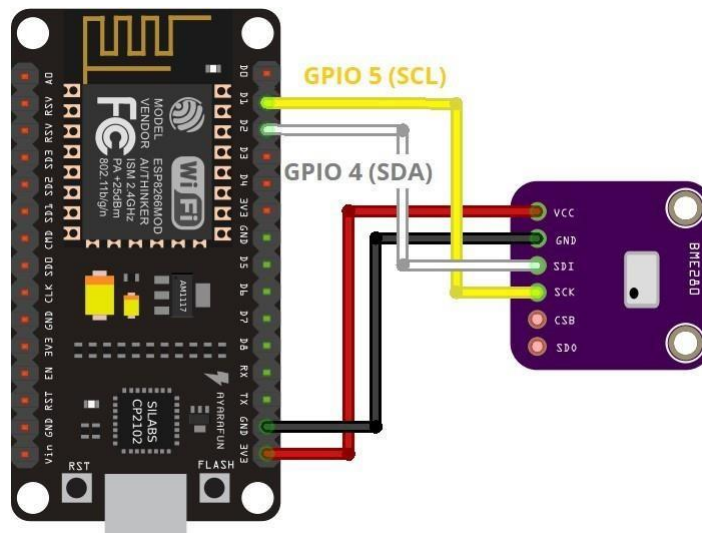
}
```

### Expt-3

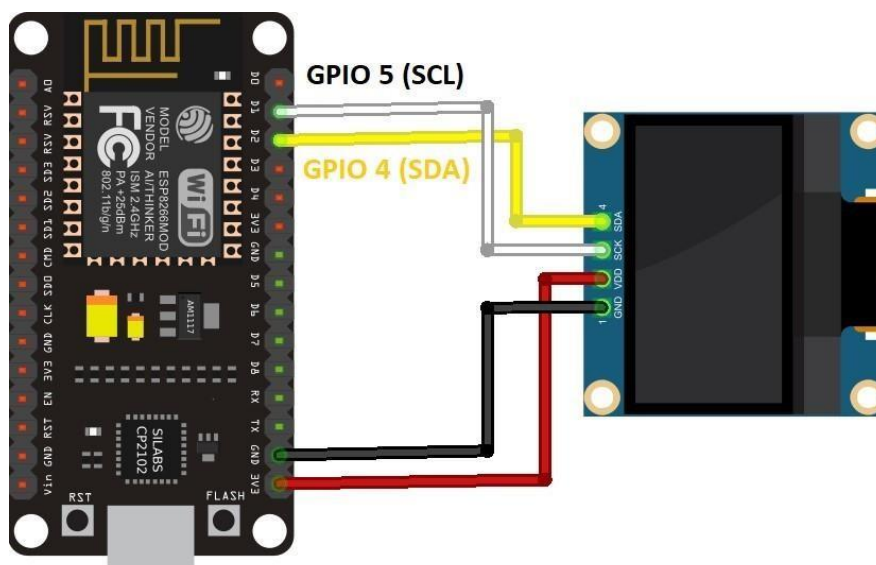
**AIM: Multi-point to single point communication of Motes over the radio frequency LAN (Sub-netting).**

### Circuit Diagram

#### ESP8266 Server Setup



#### ESP8266 Client (Station)



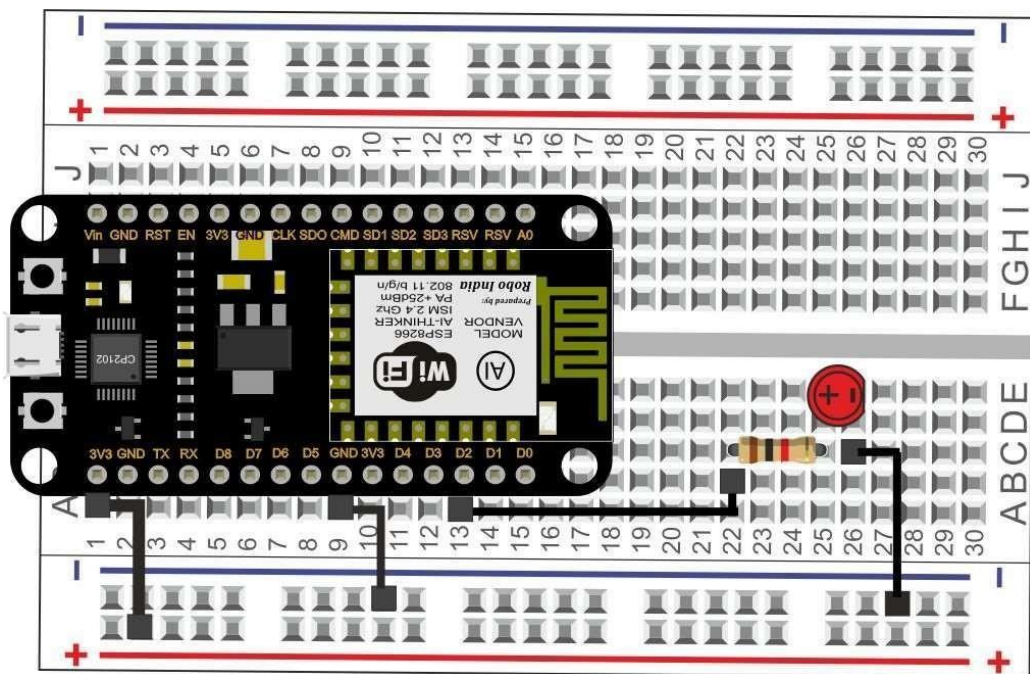
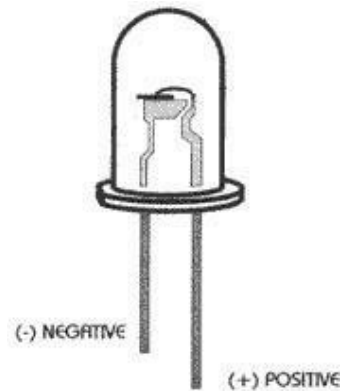
**Program:**

```
// Remove the password parameter, if you want the AP (Access Point) to be open
WiFi.softAP(ssid, password);
IPAddress IP = WiFi.softAPIP();
Serial.print("AP IP address: ");

Serial.println(IP);
server.on("/temperature", HTTP_GET, [](AsyncWebServerRequest *request){
  request->send_P(200, "text/plain", readTemp().c_str());
});
server.on("/humidity", HTTP_GET, [](AsyncWebServerRequest *request){
  request->send_P(200, "text/plain", readHumi().c_str());
});
server.on("/pressure", HTTP_GET, [](AsyncWebServerRequest *request){
  request->send_P(200, "text/plain", readPres().c_str());
});
bool status;
// default settings
// (you can also pass in a Wire library object like &Wire2)
status = bme.begin(0x76);
if (!status) {
  Serial.println("Could not find a valid BME280 sensor, check wiring!");
  while (1);
}

// Start server
server.begin();
}
void loop(){
}
```



**Expt-4****AIM: I2C protocol study****Circuit Diagram**

**Program:**

```
void setup()
{
  pinMode(D2, OUTPUT); // Initialize the LED pin as an output
}

// the loop function runs over and over again forever

void loop() {

  digitalWrite(D2, LOW); // Turn the LED on (Note that LOW is the voltage level
  // but actually the LED is on; this is because
  // it is active low on the ESP-01)

  delay(2000);          // Wait for a second

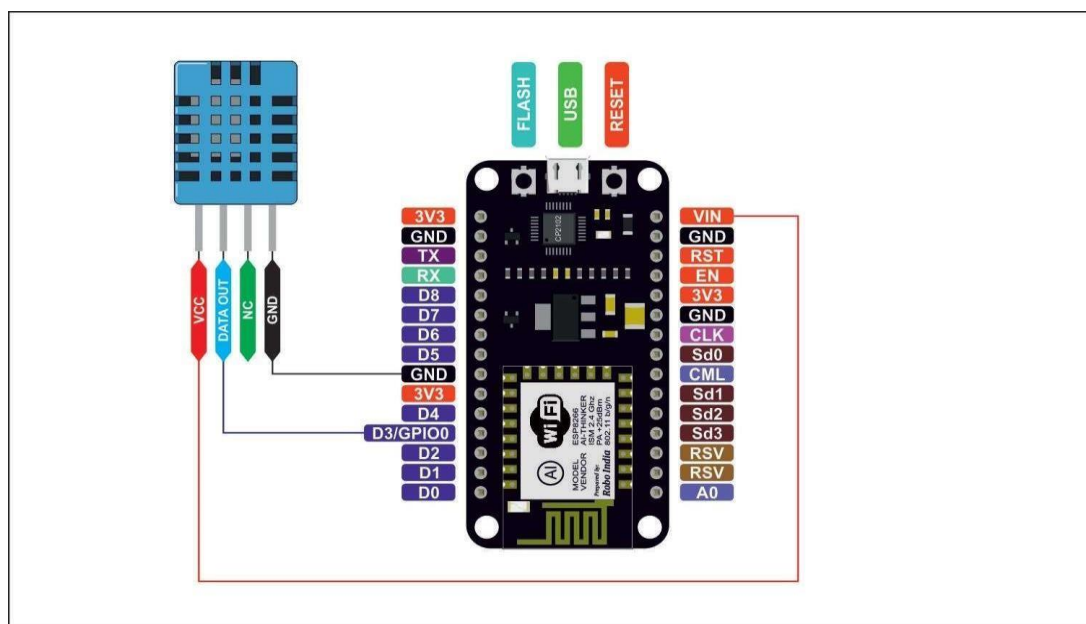
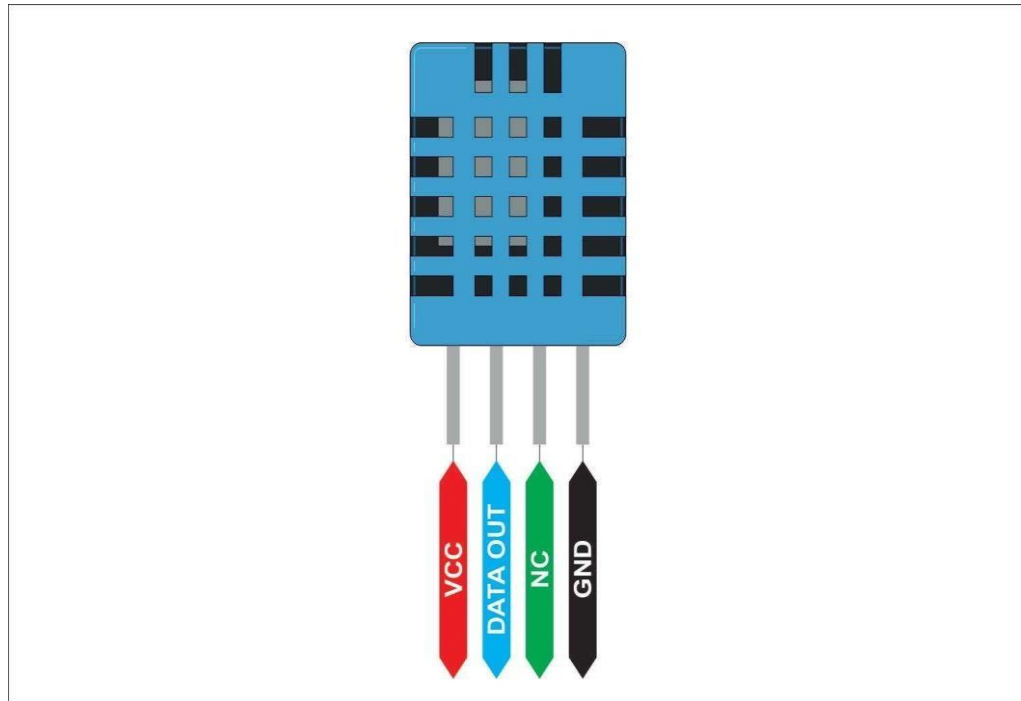
  digitalWrite(D2, HIGH); // Turn the LED off by making the voltage HIGH

  delay(2000);          // Wait for two seconds (to demonstrate the active low LED)

}
```

**Expt-5**

**AIM: Reading Temperature and Relative Humidity value  
from the sensor**

**Circuit Diagram**

**Program:**

```
#include "DHT.h" // including the library of DHT11 temperature and humidity sensor

#define DHTTYPE DHT11 // DHT 11

#define dht_dpin 0

DHT dht(dht_dpin, DHTTYPE);

void setup(void)
{
    dht.begin();

    Serial.begin(9600);

    Serial.println("Humidity and temperature\n\n");

    delay(700);
}

void loop() {
    float h = dht.readHumidity();

    float t = dht.readTemperature();

    Serial.print("Current humidity = ");

    Serial.print(h);

    Serial.print("% ");

    Serial.print("temperature = ");

    Serial.print(t);

    Serial.println("C ");

    delay(800);
}
```