**IoT Practical**

**20CSP358**

**BE CSE 6th SEMESTER**

**Course Objectives:**

1.     To study hardware and software related to IoT.

2.     To understand the functions of Node MCU, Arduino Uno and Raspberry Pi.

3.     To grasp knowledge about interfacing using non-wired connections.

**Course Outcomes:**

1.     Analyze the components of an IoT system. (BT-4)

2.     Testing of models on IoT based Simulation. (BT-5)

3. Illustrate real time applications using Node MCU/Arduino Uno/Rasberry Pi. (BT-3)

4.     Develop an interface between controller and sensor to capture real time data. (BT-6)

5. Design an application to control actuators using wireless connectivity. (BT-6)

**Syllabus**

**Unit 1**

1.     Familiarization with Arduino/Raspberry Pi hardware and perform necessary software installation. (CO-1)

2.     Identification of different sensors used in IoT applications. (CO-1)

3.     Demonstration of Autodesk Tinkercad Simulation Platform. (CO-2)

4.     Program to interface the Arduino/Raspberry Pi with LED and blinking application. (CO-3)

**Unit 2**

5.     To measure the distance of an object using an ultrasonic sensor. (CO-3)

6.     Interfacing of Arduino/Raspberry Pi with temperature and humidity sensor with real time application. (CO-4)

7.     To display data generated by sensor on LCD using Aduino/Raspberry Pi. (CO-4)

**Unit 3**

8.     Interfacing Air Quality Sensor (MQ135), displays data on LCD. (CO-4)

9.     Real time application of controlling actuators through Bluetooth application using Arduino. (CO-5)

10.  Study the Implementation of Zigbee Protocol using Raspberry Pi/Arduino. (CO-5)