# 19CS32P1- INTERNET OF THINGS LABORATORY

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Category:** | Program Core | **Credits** | 1.5 |
| **Course Type:** | Laboratory | **Practical:** | 0-0-3 |
| **Prerequisite:** | Python Programming and Knowledge about Linux operating system is required | **Sessional Evaluation:****Univ. Exam Evaluation:****Total Marks:** | 4060100 |
| **Objectives** | * To design various simple programs using Raspberry Pi kit.
* To develop and implement applications using IoT kit
 |

|  |  |
| --- | --- |
| **Course Outcomes** | Upon the successful completion of the course, the students will be able to: |
| CO1 | Know about the definition and characteristics of Internet of Things, Establishment of communication, connecting various devices and components to support different operating systems for application development |
| **Course Content** | 1. Study of Raspberry Pi kit and Installation of NOOBS
2. Writing Hello World program
3. Connecting LED and changing its color
4. Connecting a Push Switch and toggling the switch to Raspberry Pi
5. Connecting a buzzer and touch sensor to Raspberry Pi
6. Sending SMS from a Python kit on the Raspberry Pi
7. Measuring the Humidity and Temperature using appropriate sensors (DHT22/AM2302)
8. Send email from a Linux terminal on the Raspberry Pi
9. Setting up a Web Server on Raspberry Pi
10. Setting up Wireless Access Point using Raspberry Pi
11. Controlling Raspberry Pi GPIO Pins using Telegram App
 |
| **Components Required** | 1. Raspberry Pi toolkit
2. Memory card
3. DHT22/AM2302 sensor
4. Bread board
5. Jumper cables
6. Buzzer
7. Multi colored LEDs
8. Any
 |
| **References** | 1. For Telegram GPIO Experiment

<https://circuitdigest.com/microcontroller-projects/control-raspberry-pi-gpio-with-telegram>1. For Webserver on RaspberryPi

<https://thepi.io/how-to-set-up-a-web-server-on-the-raspberry-pi/>1. For configuring a Raspberry as an Access point

<https://circuitdigest.com/microcontroller-projects/setting-up-wireless-access-point-using-raspberry-pi>1. A link for Good number of IoT Projects

https://circuitdigest.com/simple-raspberry-pi-projects-for-beginners |
| **E-Resources** | **1. www.w3schools.com** **2. http://nptel.ac.in/courses** |