# 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:** | 40  60  100 |
| **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** | |