# 20IT32P1 - INTERNET OF THINGS LABORATORY

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| Course Category: | Professional Core | Credits: | 1.5 |
| Course Type: | Practical | Lecture-Tutorial-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 | | |

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| Course Outcomes | Upon 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. Create a traffic light signal with three colour lights (Red, Orange and Green) with a duty cycle of 5-2-10 seconds 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 | |
| Reference | **REFERENCE BOOKS:**   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](http://www.w3schools.com) 2. <http://nptel.ac.in/courses> | |

**CO-PO Mapping:** 3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | 3 |  | 2 |  |  |  | 3 |  |  |  | 2 |  |