

Progressive Education Society's
Modern College of Arts, Science and Commerce, (Autonomous)
Shivajinagar, Pune – 5
Third Year of B.Sc. (Computer Science) Electronics (NEP 2024)

SEMESTER IV

Code: 23CsEleU----- **Course Name:** Lab Course on Raspberry Pi and Electronic Communication Protocols

Teaching Scheme: TH: 2 hrs / Week

Credit : 02

Examination Scheme: CIA: 20 Marks

End-Sem: 30 Marks

Prerequisite Courses:

- Basic knowledge of Electronics Communication
- Knowledge regarding basics of sensors, transducers and actuators.

Course Objectives:

- To study concept of wireless communication.
- To learn the concepts of cellular telephony.
- To learn the IoT basics and its architecture.
- To learn the application areas of IoT.

Course Outcomes: On completion of the course, student will be able to

- Understand the Raspberry Pi and it interfacing.
- Understand the basics of different wireless technologies used in IoT implementation.
- Interface the different sensors with Raspberry Pi.
- Understand the programming language – Python.
- Write and execute the different programmes using Python.

List of the Experiments (Any 12 experiments form the following list)

1. Study of GSM
2. Study of ZigBee and ZigBee Network
3. Study of LoRA interfacing
4. Study of RFID
5. LED switching using mobile
6. Interfacing PIR sensor to Raspberry Pi
7. LCD interfacing to Raspberry Pi.
8. Interfacing temperature sensor to Raspberry Pi.
9. Interfacing ultrasonic sensor to Raspberry Pi.
10. Interfacing LDR to Raspberry Pi.
11. Interfacing stepper motor to Raspberry Pi.
12. DHT 11 interfacing to Raspberry Pi
13. Arithmetic operations using Python
14. Find number of digits in the number using Python.
15. Calculation of mean, variance , standard deviation of given data
16. Plot graph for given observation table using Python/GNU plot.