Progressive Education Society's

Modern College of Arts, Science and Commerce, Shivajinagar, Pune – 5
(Autonomous College)
Third Year of B.Sc. (Computer Science): Major Specific practical VSC
Under NEP_2020(NEP2023)
SEMESTER V

Course Code: 23CsEleU5501
Course Name: Lab course on Raspberry Pi and Computer maintenance
Teaching Scheme: PR: 4 hrs / Week **Credit : 02**

Examination Scheme: CIA: 20 Marks **End-Sem: 30 Marks**

Prerequisites: Basic knowledge of Digital Electronics and C programming

Course Objectives: This course will enable the students to:

1. Learn basic python programming.
2. Learn interfacing with Raspberry Pi.
3. Learn general input and Output connection.
4. Understand and apply Python syntax and semantics in program development.

Course Outcomes: At the end of the course the student should be able to:

1. Understand the architecture and operation of the Raspberry PI.
2. Develop interfacing skills for peripherals such as LCD, Keypad, ADC, DAC, motors, and sensors.
3. Implement embedded system applications using Raspberry PI.
4. Utilize Python & built-in data structures such as lists, tuples, sets, and dictionaries effectively.
5. Setting up the development environment.

Course Contents:(Any 12)

1. Program the Raspberry Pi to control light emitting diodes (LEDs) and to get feedback from a switch connected to the GPIO pins.
2. Program the Raspberry Pi to get the temperature from a sensor connected to the GPIO pins.
3. Program the Raspberry Pi to control light emitting diodes (LEDs) attached to the GPIO pins.
4. Program the Raspberry Pi to detect room light from a photocell sensor connected to the GPIO pins.
5. Program the Raspberry Pi for Motion detection using Raspberry pi.
6. Program the Raspberry Pi for interfacing the Camera to grab the image.
7. Program the Raspberry Pi for water level monitor.
8. To Interface LED/Buzzer with Raspberry PI
9. To interface Push Button / Digital Sensor (IR/LDR) with Raspberry PI
10. To interface DHT11 sensor with Raspberry PI

11. To interface DC motor using relay with Raspberry PI
12. To interface Bluetooth module with Raspberry pi.
13. Program the Raspberry Pi for interfacing the DHT11 sensor.
14. Program the Raspberry Pi for interfacing the Ultrasonic sensor.
15. Program the Raspberry Pi for interfacing PIR sensor.