**RASPBERRY PIE**

**Module 1:**

Unit 1  
Introduction to raspberry pi, OS  
Unit 2  
Introduction to Python and basic programming

**Module 2:**

Unit 1  
1. Introduction to LCD 16x 2, LCD Pin diagram Interfacing LCD to Raspberry pi  
. Interfacing LED and LCD

Unit 2  
Interfacing LCD to Raspberry Pi  
1. Displaying name on LCD  
2. Setting cursor position in LCD  
3. Display and NO display in LCD  
4. Scrolling Display towards left and right  
5. LCD display with LED status

**Projects:**

1. Interfacing 2 switches and 2 leds  
2. Interfacing 4 switches and 4 led’s with different pattern  
3. Interfacing 4 switches and leds and pattern displayed on LCD

**Module 3:**

Unit 3  
1. L293D Pin diagram ,Introduction to L293D Motor driver

Unit 4

Interfacing DC motors to Raspberry Pi , Designing robot

**Project 1:** Robot assemble and robot competition(Basic Robot)(controlling robot front , back , left , right direction)
MODULE 4

Unit 5
Introduction to soil moisture sensor, Introduction to gas sensor, Introduction to Ultra Sonic sensor and its pin configuration, Interfacing to Bluetooth and its pin configuration

Unit 8
1. Interfacing gas sensor to Raspberry Pi
2. Interfacing LED, LCD and gas sensor
3. Interfacing Ultrasonic sensor to Raspberry Pi and displaying distance on screen
4. Interfacing Ultrasonic sensor to LED
5. Interfacing Ultrasonic sensor to LCD
6. Interfacing Ultrasonic sensor to Raspberry Pi and displaying distance on screen
7. Interfacing Ultrasonic sensor to LED
8. Interfacing Soil moisture sensor to Raspberry Pi.

Project 2: Smart City (Gas Leakage Detection-Gas sensor Interfacing and Fire accident alert-Temp sensor Interfacing)

Project 3: Smart Stick for Blind person

Project 4: Smart garbage box using ultrasonic sensor

Module 5:

Unit 9
Bluetooth pin configuration, Introduction to metal detector, Introduction to LDR, Introduction to PIR sensor, Introduction to RFID

Unit 10
Project: Designing Automatic street Light
Project: Voice control based Home automation system
Project: Led tower