

**DEPARTMENT OF ELECTRICAL  
ENGINEERING  
INDUSTRIAL POWER LABORATORY-5**

**LVDC MICRO GRID LAB and IoT LAB**

**List of Compulsory Experiments:**

1. Introduction to developing environments(Arduino, raspberry pi, esp8266, Zigbee, LoRa)
2. “AT+” commands with Wi-Fi modules (ESP8266, Nodemcu, GSM).
3. ESP8266 communication with Arduino and connection to the internet.
4. Working with cloud services (thingspeak, IFTTT) and HTTP protocol.
5. Working with MQTT protocol. Collecting data and controlling devices with MQTT.
6. Establishing Bluetooth mesh network and determining range of operation.
7. Server-Client communication with Wi-Fi modules.

**IoT mini projects:**

1. Smart Electricity energy meter based on ESP12 and Arduino.
2. Industrial pollution monitoring system.
3. Smart Toll booth management with computer vision
4. Street light monitoring and control system.
5. Smart Health monitoring system.
6. IoT based unmanned vehicle.
7. Real-time fluid level monitoring and control system using Nodemcu.