

**COURSE TITLE** : **INDUSTRIAL AUTOMATION LAB**  
**COURSE CODE** : **6038**  
**COURSE CATEGORY** : **A**  
**PERIODS/WEEK** : **5**  
**PERIODS/SEMESTER** : **75**  
**CREDITS** : **3**

Course Outcome:

| Sl. | Sub | On completion of this course the student will be able:  |
|-----|-----|---|
|     | 1   | To comprehend with various microcontrollers.            |
|     | 2   | To comprehend microcontrollers programming.             |
|     | 3   | To interface the microcontroller with external devices. |
|     | 4   | To comprehend with PLC.                                 |
|     | 5   | To interface the PLC with control circuits.             |

#### LISTOF EXPERIMENTS

1. To write assembly language programmes, execute and verify the result for the following;
  - i. Various arithmetic operations.
  - ii. Various data transfer operations.
  - iii. Finding the maximum value in an array.
  - iv. Arrange an array in ascending order / descending order.
  - v. BCD to Hex conversion.
2. To write an assembly language programme to Interface LEDs through port 1 including time delay.
3. To write an assembly language programme and control a stepper motor.
4. To write an assembly language programme and control a DC motor.
5. To wire up hardware, write and implement ladder programmes for the following controls.
  - i. Lamp control for various situations.
    - a. Staircase control, hospital etc.
    - b. Traffic light control.
  - ii. Induction motor controls as in direct on Line (DOL) starter, Star-delta starter.
  - iii. Conveyor motor controls.
  - iv. Lift controls
  - v. Water level control using level sensors.