Understanding Sensors & Actuators using LabVIEW [USA-L]

Target Students: 2nd Year [3rd Semester/ 4th Semester] Total Hours: 30

✓ Skill Lab Course Objectives: The learners will be able to,

- CO1. Demonstrate the use of LabVIEW software.
- CO2. Understand the working principle of various sensors and actuators.
- CO3. Construct solutions for real-world engineering problems with LabVIEW software using various sensors and actuators.

✓ Collaborative Teaching - Learning Process:

- PowerPoint Presentation, Videos and Hands-on sessions.

✓ Skill Lab Course Content:

- Module-1 (5 Hours)
  - Introduction to LabVIEW Programming

    Introduction, Advantages of LabVIEW Software, LabVIEW Environment-Front Panel Windows, Block Diagram Windows, Icon/Connector Pane, Structures, Arrays, Plotting Data and Data Acquisition.
- Module-2 (10 Hours)
  - Understanding Sensors and Actuators

    Types of sensors: temperature, soil moisture, ultrasonic, PIR, IR, LDR.

    Types of actuators: relays, DC motor, servo motor and stepper motor.
- Module-3 (15 Hours)
  - Interfacing Sensors and Actuators with LabVIEW

    Interfacing temperature, soil moisture, ultrasonic, PIR, IR, LDR, relays, DC motor, servo motor, stepper motor, LED, buzzer, Bluetooth/ Wi-Fi.

✓ Skill Lab Course Assessment:

- Design, develop and demonstration of a project
- Report submission

✓ Skill Lab Course Instructor: Dr. Venkatratnam C, Professor & HOD, EEE Dept, JCE, Belagavi.