WORKSHOP REPORT
Title: Hands-on Training on Interfacing of Arduino Uno with CODESYS

Date: 2nd April 2026
Target Audience: 3rd Year Instrumentation & Control Engineering Students
Expert: Mr. Mohan Patel
Venue: Embedded Lab, Department of Instrumentation & Control Engineering

---

1. Introduction

A one-day hands-on workshop on *"Interfacing of Arduino Uno with CODESYS via Modbus Serial Communication"* was successfully conducted on 2nd April 2026 for 3rd-year Instrumentation & Control Engineering students. The workshop aimed to bridge the gap between embedded systems and industrial automation by integrating Arduino hardware with industrial-grade CODESYS software.

---

2. Objectives of the Workshop

- To introduce students to industrial communication protocols, especially Modbus RTU.
- To provide practical exposure to interfacing Arduino Uno with CODESYS.
- To enhance students' knowledge of PLC programming and SCADA integration.
- To develop real-time data communication skills between hardware and software platforms.

3. About the Expert

The session was conducted by **Mr. Mohan Patel**, an experienced professional in industrial automation and embedded systems. He provided valuable insights into real-world applications of Modbus communication and CODESYS programming.

. Workshop Content

The workshop was divided into theoretical and practical sessions:

4.1 Theoretical Session

- Introduction to Arduino Uno and its architecture
- Basics of CODESYS development environment
- Overview of Modbus protocol (RTU mode)
- Master-slave communication concept
- Industrial applications of Modbus communication

4.2 Hands-on Practical Session

Students actively participated in:

- Configuring Arduino Uno as a Modbus slave device

- Setting up CODESYS as Modbus master
- Establishing serial communication between Arduino and CODESYS
- Real-time monitoring and control using ladder logic in CODESYS
- Debugging communication errors and troubleshooting
- Learn remote SCADA concept using mobile and web page creation

---

5. Learning Outcomes

After completion of the workshop, students were able to:

- Understand Modbus serial communication practically
- Interface Arduino with industrial automation software
- Configure and use CODESYS for real-time control applications
- Develop basic industrial automation projects
- Gain confidence in handling embedded and PLC-based systems

6. Student Participation

All 3rd-year IC engineering 19 students actively participated in the workshop. The hands-on approach helped them understand concepts effectively and encouraged interactive learning.

---

7. Feedback and Response

The workshop received positive feedback from students. They appreciated:

- Practical exposure to industrial tools
- Clear explanation by the expert
- Real-time implementation and debugging experience

---

8. Conclusion

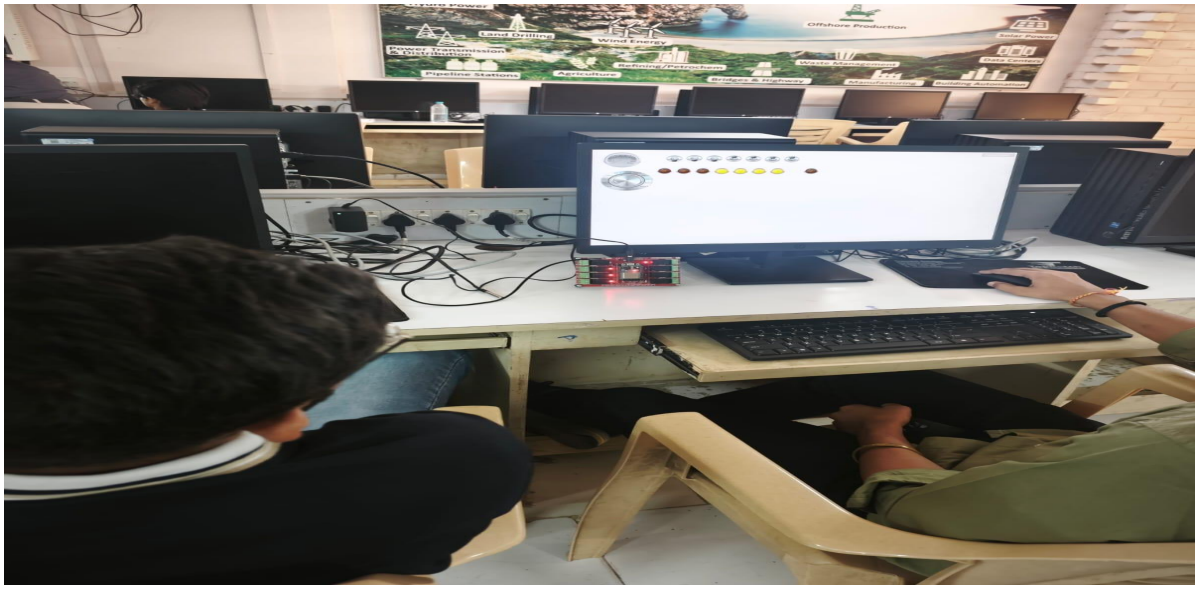
The workshop was highly beneficial in enhancing students' practical knowledge of industrial automation and embedded systems. It successfully provided a platform for students to gain hands-on experience in Arduino and CODESYS integration using Modbus communication, which is widely used in industry.

---

9. Acknowledgment

The department expresses sincere gratitude to **Mr. Mohan Patel** for delivering an informative and engaging session. We also thank the faculty members and organizing team for successfully coordinating the workshop.

Photo:


Land Drilling
Wind Energy
Offshore Production
Pipeline Stations
Agriculture
Bridges & Highway


SCHNEIDER ELECTRIC
PEC PANEL

Prepared by:
Dr. Bhavina Patel,
Department of Instrumentation & Control Engineering