



School of Engineering & Technology
Department of Mechanical Engineering
Academic Year 2024-25
Expert Lecture on
Further Study in PLC and SCADA
Delivered By
Mr. Harshal Chaughule

Date: 25th March 2025
Venue: Department of Mechanical Engineering
Expert Speaker: Mr. Harshal Chaughule, Assistant Professor, EEED, SOET, Sandip University, Nashik

Introduction

Following the success of the previous expert lecture on "Introduction to PLC and SCADA," the Department of Mechanical Engineering organized an advanced session on "Further Study in PLC and SCADA" on 25th March 2025. The session was once again delivered by Mr. Harshal Chaughule, an esteemed Assistant Professor from the Electrical and Electronics Engineering Department (EEED) at the School of Engineering and Technology (SOET), Sandip University, Nashik.

This session aimed to provide deeper insights into advanced PLC programming techniques, SCADA system integration, and real-world industrial applications. The lecture was attended by students and faculty members who were keen on exploring the practical and technical aspects of automation systems.

Overview of the Lecture

Building upon the fundamental concepts covered in the previous session, Mr. Harshal Chaughule focused on advanced topics, practical implementations, and real-time challenges in PLC and SCADA systems. The session was divided into the following key segments:

1. Advanced PLC Programming

- Recap of basic PLC concepts and programming
- Introduction to structured programming techniques in PLC
- Advanced functions: Timers, Counters, Analog Input/Output, and Data Handling
- PLC Communication Protocols: Modbus, Profibus, and Ethernet/IP
- Integration of PLC with external devices such as sensors, actuators, and VFDs
- Hands-on demonstration of ladder logic programming and troubleshooting

2. SCADA System Integration and Applications

- Recap of SCADA fundamentals and architecture
- Advanced SCADA features: Historical Data Logging, Alarm Management, and Trend Analysis
- Security aspects of SCADA systems and cybersecurity concerns
- Integration of SCADA with IoT and cloud-based monitoring
- Case studies on SCADA implementation in real-world industries
- Practical demonstration of SCADA interfacing with PLC for real-time monitoring and control

Interactive Session and Live Demonstration

The session was highly interactive, with students actively engaging in discussions and hands-on exercises. Mr. Chaughule demonstrated advanced PLC programming using simulation software, allowing students to write and test complex control algorithms.

For SCADA, the expert provided a live demonstration of data acquisition and control processes. He showcased how industrial plants use SCADA for remote monitoring and decision-making, emphasizing the importance of real-time data analysis. The session also included a troubleshooting

segment, where students learned how to diagnose and resolve common PLC and SCADA-related issues.

Key Takeaways

- Enhanced understanding of advanced PLC programming techniques
- Knowledge of industrial communication protocols and their applications
- Practical insights into SCADA integration with modern technologies like IoT
- Awareness of cybersecurity threats and mitigation strategies in automation systems
- Hands-on experience with programming and troubleshooting industrial control systems
- Career opportunities in industrial automation and process control engineering

Conclusion

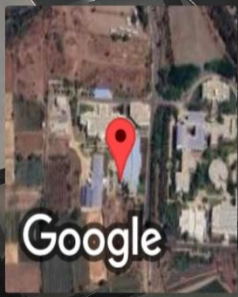
The expert lecture on "Further Study in PLC and SCADA" provided an in-depth exploration of advanced concepts in industrial automation. The session successfully enhanced students' technical proficiency and equipped them with practical skills relevant to modern industrial control systems.

The Department of Mechanical Engineering extends its gratitude to Mr. Harshal Chaughule for delivering yet another insightful and engaging lecture. His expertise and practical demonstrations greatly benefited the attendees, inspiring them to further explore the field of industrial automation. The department looks forward to organizing more such sessions to keep students updated with emerging technologies and industry trends.

Glimpses of the Expert Talk:



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422213, India
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