

# WORKSHOP REPORT

## "NEXT-GEN INDUSTRIAL AUTOMATION AND CONTROL SYSTEM FOR SMART MANUFACTURING"



18<sup>TH</sup> DEC 2025 TO 29<sup>TH</sup> DEC 2025



START AT 9:00 A.M.



COMPUTER LAB ELECTRICAL DEPARTMENT,  
A.Y. DADABHAI TECHNICAL INSTITUTE, KOSAMBA, SURAT.



*: Organized By :*

Electrical Department

*: Collaboration :*

With SVMIT Bharuch



*: Supported By :*



STTP under ISTE  
Student Chapter

With SVMIT Bharuch



# DETAILED REPORT

## Training Workshop on

### “Next-Gen Industrial Automation and Control System for Smart Manufacturing”

#### 1. Introduction

The **Electrical Engineering Department** of **A.Y. Dadabhai Technical Institute (Polytechnic), Kosamba**, successfully organized a **30-hour Training Workshop** titled “Next-Gen Industrial Automation and Control System for Smart Manufacturing” from **18th December 2025 to 29th December 2025**.

The training program was conducted to enhance the **practical and industry-oriented knowledge** of students and faculty members in the area of **industrial automation, PLC systems, and modern control techniques**. The program aimed to bridge the gap between academic learning and industrial requirements by providing hands-on exposure to PLC hardware and software.

The workshop was organized **under ISTE Students Chapter** and **supported by The Institution of Engineers (India), South Gujarat Local Centre, Surat**.



#### 2. Objectives of the Training Program

The main objectives of the training workshop were:

- To introduce students to **modern industrial automation systems**
- To provide **hands-on training on PLC programming**
- To understand **real-time industrial control applications**
- To develop practical skills required by **smart manufacturing industries**
- To expose participants to **industry standards and professional practices**

### 3. Organizing Department

The training workshop was organized by the **Electrical Engineering Department, A.Y. Dadabhai Technical Institute (Polytechnic), Kosamba.**

### 4. Resource Persons / Expert Faculty

The training sessions were conducted by experienced faculty members from **Shri Sad Vidhya Mandal Institute of Technology (SVMIT), Bharuch:**

1. **Mr. Chirayu R. Patel** – Assistant Professor
2. **Mr. Abhishek P. Mehta** – Assistant Professor
3. **Dr. Payal P. Patel** – Assistant Professor

The expert faculty members shared their **technical expertise, industrial exposure, and practical knowledge**, which made the sessions highly interactive and effective.



### **5. Hours-Wise Distribution of Training Content (Total: 30 Hours)**

#### **Module 1: Fundamentals of PLC and Industrial Automation (4 Hours)**

- Introduction to Industrial Automation
- Basic concept of PLC
- Block diagram of PLC
- Functions and applications of PLC in industry
- Comparison of PLC with conventional control systems



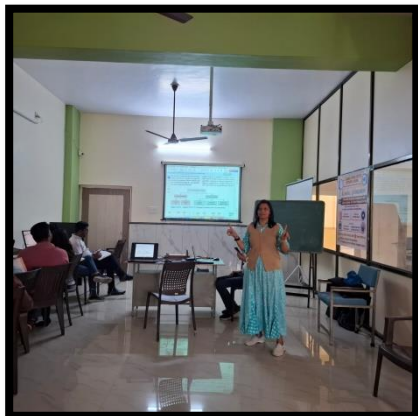
## Module 2: PLC Hardware Components (4 Hours)

- PLC CPU architecture
- Input and Output modules
- Power supply modules
- Field input and output connections
- Source and Sink concepts in PLC



## Module 3: Allen Bradley PLC System (5 Hours)

- Introduction to Allen Bradley PLC
- PLC addressing concepts
- PLC scan cycle execution
- Introduction to RS Logix software
- Programming languages used in PLC



## Module 4: PLC Programming using RS Logix (6 Hours)

- Ladder Logic programming
- Creating and editing PLC programs
- Arithmetic and logical instructions
- Timer and counter programming
- Forcing inputs and outputs
- Uploading, downloading, and monitoring programs



### Module 5: Siemens S7 PLC System (5 Hours)

- Overview of Siemens S7 PLC
- Types of CPUs and I/O cards
- Siemens PLC addressing concepts
- Introduction to Siemens PLC programming software
- Basic Siemens PLC program development

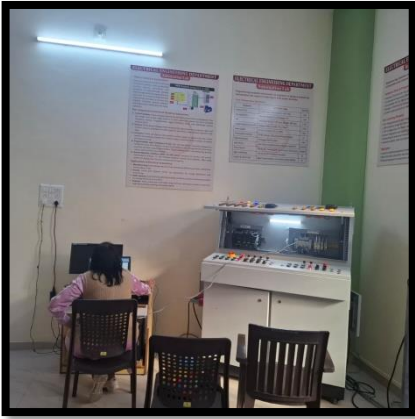


### Module 6: Analog Signals and Industrial Applications (4 Hours)

- Analog signal concepts
- Reading analog signals (0–10V, 4–20mA)
- Writing analog signals in PLC
- Analog signals from POT and VFD
- Practical implementation of analog I/O

### Module 7: Practical Industrial Applications (2 Hours)

- DOL starter control
- Star-Delta starter
- Forward and reverse motor control
- Water level controller
- Bottle filling system
- Temperature ON/OFF control



**Total Training Duration: 30 Hours**

## **6. Guest Session (24-12-2025)**

On **24th December 2025**, a special guest session was organized with distinguished members from **The Institution of Engineers (India), South Gujarat Local Centre, Surat**:

1. **Mr. K. D. Panchal**  
Chairman, IEI South Gujarat Local Centre, Surat
2. **Mr. Himanshu Bhatt**  
Secretary, IEI South Gujarat Local Centre, Surat



The guests addressed the participants on:

- Importance of **industrial automation in modern industries**
- Role of **professional bodies like IEI**
- Importance of **skill development and lifelong learning**
- Career guidance for engineering students

The session was highly motivating and informative for both students and faculty members.



## 7. Participation Details

A total of **20 participants** attended the training workshop, including:

- **15 Students**
- **5 Faculty Members**



All participants actively participated in theory sessions as well as hands-on practical activities.

## 8. Certificate Distribution

On the **final day of the training program**, certificates were distributed to all participating students and faculty members in recognition of their successful completion of the **30-hour training workshop**.





## 9. Outcome of the Training Program

- Participants gained **hands-on experience** in PLC programming
- Improved understanding of **industrial automation systems**
- Enhanced practical skills relevant to **smart manufacturing**
- Increased awareness about **industry expectations and standards**

## 10. Conclusion

The **Training Workshop on “Next-Gen Industrial Automation and Control System for Smart Manufacturing”** was successfully completed and achieved its objectives. The program proved to be highly beneficial for students and faculty members by strengthening their practical knowledge and preparing them for industrial challenges.

The Electrical Engineering Department expresses sincere gratitude to the expert faculty members from **SVMIT Bharuch, IEI South Gujarat Local Centre**, and all contributors for making the training program a grand success.

Prepared by:  
Mr. M.A. Sheikh (Training & Placement Officer)  
A.Y. Dadabhai Technical Institute, Kosamba