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DON BOSCO INSTITUTE OF TECHNOLOGY, MUMBAI

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATIONS

In Collaboration with

SIEMENS LTD.

REPORT

Event Title : Industrial Training Program on Basic PLC and Sensors

Date : 5 to 9 September, 2019 (Duration: 34 Hours)

Time : 9 am to 5.30 p.m.

Venue : Siemens Ltd., Navi Mumbai & DBIT Mumbai.

Faculty Coordinator: Ms. Madhavi S. Pednekar & Ms. Poonam Chakraborty (IETE In-charge)

No. of Participant: 38 Students from all branches.

Learning Objectives:

- To enhance their knowledge in core fields and fill up the gaps between theoretical and practical knowledge by working on actual PLC programming.
- To study basics of sensors and PLC with hands on practice.
- To interface the various sensors to measure and control the physical parameters like temperature, level and pressure.

Learning Outcome:

- Students will be able to hands on practices on PLC on basic PLC programming.

- Students will be able to design mini projects based on sensors interfacing with mechanical and electronic devices or hardware to read the parameters.
- Students can think of to make his career as an entrepreneur in this domain.

Target Audience: All branches (2nd year onwards)

External Company Certification: SITRAIN INDIA, SIEMENS LTD., Airoli factory, Navi Mumbai.

Resource Person: *Ms. Madhavi S. Pednekar & Ms. Poonam Chakraborty, EXTC Dept., DBIT*

Ms. Bhagyashree Zaware & Mr. Vikram Pawar, SITRAIN INDIA, SIEMENS LTD

The first day started with assembly at the visitor's entry point at SIEMENS by 9:00 am. Everyone was given an ID card. The training started with **Ms. Bhagyashree Zaware** from Siemens Ltd., giving an introduction about PLC. An overview of the TIA software was also given. An explanation of the various types of PLC controllers offered by SIEMENS was also given which included the S7 300, 400, 1200, 1500 etc. The technical details of these controllers including the CPU types, modules supported, hot redundancy support, Memory card supported. The details about how to increase memory support of the PLC using a SIEMETICS Memory Card. The concept of hot redundancy was explained about how 2 PLC are used where 1 of them is a backup PLC which takes over if the first one fails. She also explained the various other automation tools used in industry which included SCADA and HMI. The concept of how a PLC can be controlled from a remote location while the IO ports are at the site was explained. The day ended with a basic introduction into the TIA portal software.

The second day was an in-depth into the TIA portal. **Ms. Bhagyashree Zaware** has taught PLC programming to the students and they have been asked to perform on a S7 1200 DC/DC/DC 1214C PLC machine. It represents the input, switching and output respectively. The in-depth tutorial showed how to add devices, how to connect the PLC to the PC through Profibus port. The next part was how to add tags which are basically how to define variable names, as well as how to export the as excel sheets. The next part was explaining the two types of check conditions i.e. check for 1, and check for 0, and how to use these check conditions for performing various automation work. A problem statement was given on controlling 3 fans based on their status conditions were given for everyone to solve. **Prof. Madhavi S. Pednekar, EXTC Dept., DBIT** has explained the concept of relay logic, sequential circuits, flip flop and Timers as a pre-requisite to understand the Ladder diagram logic.

The third day session started with **Mr. Vikram Pawar**, Siemens Ltd., on Analog & Digital Switches. Sir has explained various types of push button switches and why they are used extensively in the industry with different switches for turning ON and OFF. SR block was thought on how to use them followed by teaching timers about how there are different types of timers and how to use them. At the end 3 problem statements were given to everyone to solve. **Prof. Madhavi S. Pednekar**, has revised the architecture of basic PLC unit, ladder diagram logic and operation of Timer ON/OFF delay, Analog Input and Output Modules with interfacing.

The last day of session began with **Prof. Poonam Chakraborty** , EXTC Dept., DBIT on Sensors – Overview, various types of Sensors, difference between sensor and transducers, how to select sensors, classification of Sensor, Sensor used in industry, advanced sensors, sensors used in IoT. She has also covered AC and DC Motors, Servomotor principle and applications. In the post lunch session, **Prof. Madhavi S. Pednekar** has shown few videos on PLC applications based on Control & Automation like Bottle filling Plant, PLC controlled automatic processes. She has also discussed few ideas on implementation of this gained knowledge on PLC to take up their final year project, internships to be done.

Finally this training program is concluded with a valedictory function in the presence of **Dr. Prasanna Nambiar**, DBIT Principal and **Dr. Ashwini Kottrasheti**, Head of EXTC department with certificate distribution to all the participants.

Prof. Madhavi S. Pednekar has given a vote of thanks to the Management, Principal, Head of Department, fellow colleagues, Mr. Madhukar Dube, Mr. Nilanchal Nandi - Organizers at Siemens LTD. and IETE DBIT ISF student's chapter for their motivation and support to make this training successful.

Event Photographs





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