

Report on Workshop

ISTE WORKSHOP ON INDUSTRIAL AUTOMATION USING PLC

Held on: 28th July, 2016

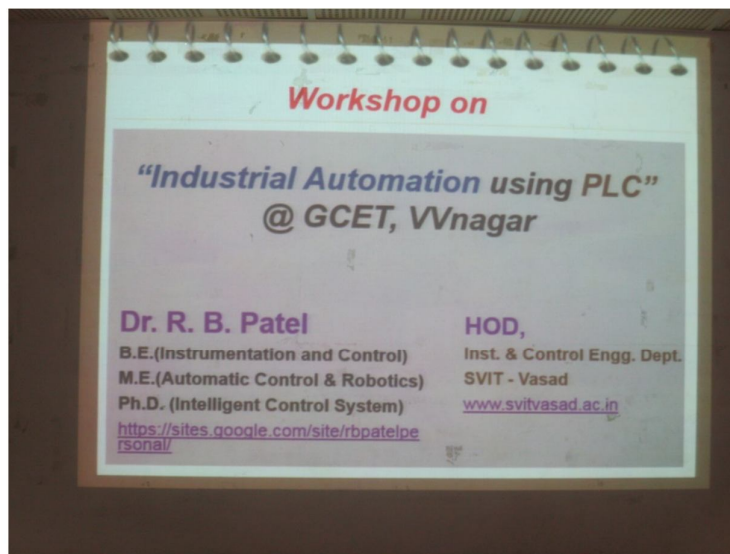
Venue: G H Patel College of Engineering & Technology

Vallabh Vidyanagar, Anand (Gujarat)

(Seminar Hall & Electrical Laboratories C303 and C307)

Timings: 9:30 AM To 5:30 PM

Organized for: 3rd year EE Students



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As in the world of emerging technologies, where a number of ways are being adopted to reduce human efforts, be it the manufacturing processes or medical science, automation has become an important tool for all disciplines. Further, it becomes more significant for electrical engineers to be aware of the same and learn those aspects as well.

Keeping the same thing as a vision, a workshop was organized by the Iste Student Chapter, GCET, under the guidance of:

Dr. Chetan V. Sheth (Associate prof., EE Dept. GCET)

(Coordinator)

Dr. Vijay H. Makwana (Prof., EE Dept. GCET)

(Co-coordinator)

The workshop conducted dealt with introduction to automation and lead to industrial examples of automation that use PLC.



Dr. C. V. Sheth
(Giving inaugural speech)

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EXPERT INTRODUCTION



The expert who visited the college was **Dr. RAKESH B. PATEL**, who is presently the Head of Instrumentation and Control department in the college Sardar Vallabhbhai Institute of Technology, Vasad (Gujarat).

He completed his Bachelors of Engineering in Instrumentation and control discipline from a Government Engineering College affiliated with Gujarat University in 2000, Masters in Automatic Control and Robotics and Ph.D. in Intelligent Control System in M. S. University, Vadodara in 2009 and 2014 respectively.

Dr. Patel has published many research papers in national and international conferences and journals. His research area of interest is Optimal and Robust control, Multi-agent System, Neural Network, Genetic algorithm and Fuzzy Logic Control. He has

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travelled to China for presenting a research paper in an international conference at Xiamen, China under AICTE travel grant. He has completed many research projects under various government research grants. He did well at the expert talks in various instrumentation and control companies and other institutes also.

Apart from this, he has also three years of industrial experience as an instrumentation engineer at Nirma Ltd. and Gujarat Ambuja Exports Ltd.



(Dr. C.V.S. felicitating Dr. R.B. Patel)

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Session 1 (Theory) (Seminar Hall)

The first session was held in Smt. Kamlaben S. Patel Seminar hall, GCET and it was entirely theory based. The expert gave introduction of Programmable Logic Control (PLC). It explained what exactly it is, who invented it and other history, different modules of the PLC controllers, classifications of PLC, various programming techniques and logics used.



Among the various logics, design of Ladder logic was given focus and simple problems of motor ON/OFF and that of Industrial Stamper Machine were solved using it.

This was done using a projection of the power point presentation, prepared by the expert, on the screen of seminar hall and at times some concepts were taught using the board which made the presentation quite interesting.

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The first session also covered introduction to the techniques of automation and names of large scaled PLCs used in the industries; light was also thrown on all the modules of PLC (namely power, discrete input/output, Analog input/output, CPU, etc.)



It ended with the question-answer session where the audience cleared their doubts.



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Session 2

(Hands-on Practice)

(Laboratories C303 & C307)

Unlike the first session, after the break, the second session made the students learn more about the subject as it was a hands-on session on PLC simulator (PSIM).



On the simulator, students simulated all that was taught during the theory session: Logic gates simulation using PLC (Ladder logic), the Motor ON/OFF simulation, and Automated Liquid mixer.



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Finally counters and timers were introduced leading to solution of Traffic Signal problems and other timer problems. Though it was a simple simulation session, it gave students confidence of practicing real-time problems.



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Conclusion

The workshop proved to be fruitful enough for the 3rd year Electrical students who got to know about the new techniques that are actually practiced in industries. It covered the following objectives:

- Introduction to automation
- PLC : uses and its potential
- Knowledge of real-time PLCs used in industries
- Basic problems using a PLC simulator

Also the trainer/expert seemed to be a knowledgeable one, along with whom more time is to be spent so as to learn the subject in detail.

Hence the ISTE Chapter of GCET looks forward for similar support of the college, faculty members and students for organizing few more workshops on the same.



(Dr. V. H. Makwana commemorating Dr. R. B. Patel)