# CHHOTUBHAI GOPALBHAI PATEL INSTITUTE OF TECHNOLOGY

## Department of Electrical Engineering

### A REPORT

### ON

### Three Days Workshop based on

### "Introduction and Programming of PLC"

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| **Title of the Workshop** | Introduction and Programming of PLC |
| **Organizing Department** | **Department of Electrical Engineering** |
| **Chief Patron** | Dr. D. R. Shah, Provost, UTU. |
| **Patron** | Dr. N. C. Shah, Director, CGPIT. |
| **Convener** | Prof. Rakesh S. Gajre (Head of EC/Electrical Dept.) |
| **Organizing Secretary** | Prof. Karmani Rajput<br>Prof. Jignesha Ahir<br>Prof. Hinal Surati |
| **Target Audience** | Faculty members and industrial person, Research scholars and Engineering students. |
| **Total Number of Participants** | 60 |
| **Date of Programme** | 3rd – 5th August, 2017 |
| **Invited Speakers** | Mr. Mihir Raval (Proprietor, NiTech Automation, Surat)<br>Dr. Hiren Patel (Assistant Professor, SVNIT, Surat) |

## Schedule of Workshop

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|---|---|---|---|---|---|---|
| **"Introduction and Programming of PLC"** <br> **3ʳᵈ – 5ᵗʰ August 2017** <br> *Detail Schedule of the Workshop.* | | | | | | |
| Date <br> Day | 8:30 to 9:30 | 9:30 to 11:00 | 11:00 to 11:15 | 11:15 to 12:45 | 12:45 to 1:30 | 1:30 to 3:30 |
| 3/8/2017 <br> Thursday | **Registration Breakfast** | **Inaugral Function** | Tea Break | Need of Industrial Automation | Lunch Break | Introduction to PLC |
| 4/8/2017 <br> Friday | Breakfast | PLC Programming | | PLC Programming | | Lab Sessions |
| 5/8/2017 <br> Saturday | | High End Instructions with PLC | | Introduction to SCADA | | Lab Sessions |

## Details of the Workshop:

## Preamble:

Department of Electrical Engineering, CGPIT has organized three day workshop on "**Introduction & Programming of PLC**" sponsored by Uka Tarsadia University. Total 60 participants participated in this Workshop.

The inauguration ceremony of Workshop was started by UTU song followed by lamp lighting and prayer to seek the blessings of almighty. As per tradition of CGPIT, all the dignitaries were given a warm welcome and were felicitated to express respect and gratitude towards them for devoting their valuable time and gracing the workshop. The dignitaries that graced the inauguration ceremony of workshop were Dr. N. C. Shah (Director, CGPIT), Dr. Chinmay Desai (Head of Mech/Auto Department, CGPIT), Mr. Mihir Raval (Proprietor, NiTech Automation, Surat) and head of all the departments of CGPIT. The dignitaries and expert were felicitated by the coordinators of the workshop.

Prof. Karmani Rajput gave a brief introduction about the workshop. She introduced the experts and expressed her views about the importance of workshop. The H.O.D of electrical department, Prof. Rakesh Gajre gave the welcome speech and gave an overview of the Automation used in industries. Mr. Mihir Raval gave brief introduction regarding importance

of automation in industries. He emphasis to create the interest of students in automation area, So that they can enhance their practical knowledge to fulfil the requirement of industries.

The Honourable Director of CGPIT, Dr. N.C. Shah gave the welcome speech. He motivated the students and faculties for participating in technical events like short term training program, workshop, expert talk, etc. He also congratulated and appreciated the efforts made by the Electrical department for organizing such workshop. He shared his knowledge about the necessity of automation in industries in present scenario and its importance in their career. Prof. Karmani Rajput gave the vote of thanks.

## Session Detail:

All the sessions were very interactive and laid a very good impact on the audience.

**Session-1:** Need of Industrial Automation

**Session-2:** Introduction to PLC

**Session-3:** PLC Programming

**Session-4:** High End Instructions with PLC

**Session-5:** Introduction to SCADA

**Session-6:** Lab Session

- **Need of Industrial Automation**

Mr. Mihir Raval has given introduction regarding the need of automation in industries. The benefits of industrial automation are safety, precision, remote monitoring , improvements and increased productivity and cost reduction, which were explained in detail during the session. He also said that automation in the industrial workplace provides the advantages of improving the productivity   and quality while it reduces worker fatigue and effort or labour intensive operation, increase efficiency and better collection of data.

- **Introduction to PLC**

In this session, Mr. Mihir Raval discussed the basic principles of PLC operation. The most basic function of a Programmable logic controller is to receive inputs from status components, which can be from sensors or switches. Some of the basic components of a PLC are input modules, a central processing unit, output modules, and a programming device.

- **PLC programming**

In this session Mr. Hiren Patel gave introduction of PLC programming. PLCs can be programmed using standards-based programming languages. The most commonly used programming language is Ladder diagram also known as ladder logic, which was taught by Hiren Sir. Basic examples of creating ladder circuits were also discussed in the session.

- **High End instruction with PLC**

In this session Mr. Mihir Raval has discussed regarding how the analog sensor output which is taken as PLC input can be compared with a reference value. He has also taught the STEP 7-Micro/WIN32 software, which is PLC programming software of Siemens.

- **Introduction to SCADA**

In this session Mr. Mihir Raval gave introduction to SCADA. Supervisory control and data acquisition (SCADA) is a control system architecture that uses computers, networked data communications and graphical user interfaces for high-level process supervisory management, but uses other peripheral devices such as programmable logic controllers and discrete PID controllers to interface to the process plant or machinery. He has also discussed steps for configuring SCADA.

- **Lab Session**

In lab session, basic logical operators (AND, OR, NOT, XOR) were implemented in Zelio software. Students were taught to create logic for cutting machine, DOL starter. A practical example of starting three Induction motor with timer programmed to operate after a specified time delay of 5 second was also implemented. Logic was created for the forward and reverse rotation of Induction motor. Mr. Mihir Raval, Dr. Hiren Patel, Mrs. Karmani Rajput and Ms. Unnati Mali have conducted all lab sessions. The lab session was very interactive.

## Glimpse of the Workshop:



**Inauguration Ceremony**



**Dignitaries on the dais**

**Welcoming Dignitaries**



**Speech by Dignitaries**

**Vote of thanks**



**Technical Sessions**

**Thanking to Experts**


**Workshop Coordinators with Dignitaries**

**Lab Session**
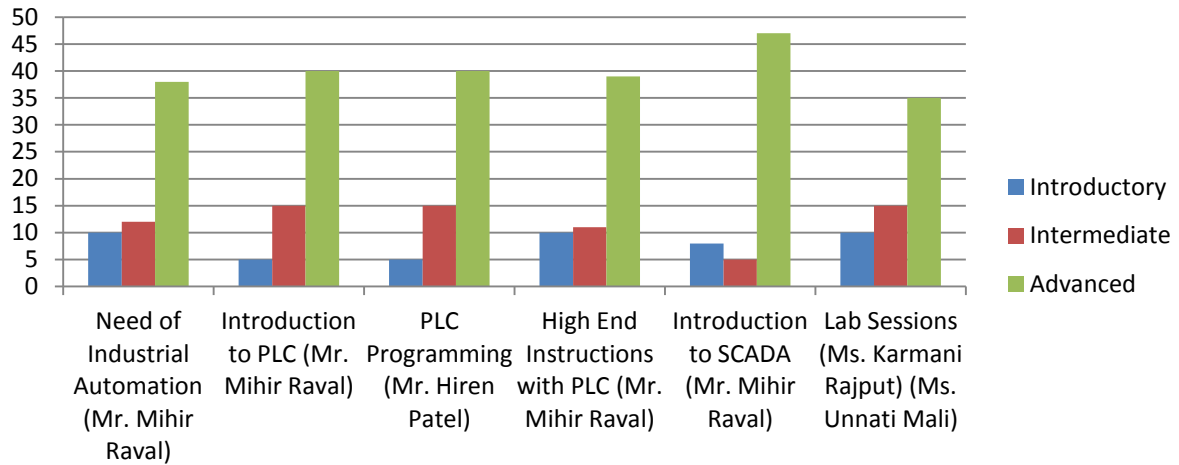


**Group Photo of Workshop**

# Committee members of the Workshop:

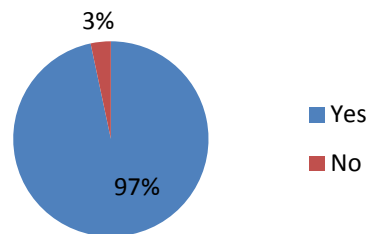| Sr. no | Committee | Members | Duties to be performed |
|---|---|---|---|
| 1 | Registration Attendance sheet Making Kit distribution | Jignesha Ahir Nidhi Shah Bhargav Patel | • Registration and attendance sheet making<br>• Verify the name during registration and sign the participants<br>• Arrange the kit and distribute among participants during registration<br><br>• Take a attendance of participants for all technical session |
| 2 | Food Committee | Ranjit Rajak Ankur Rana Arjun Jariwala Lokesh Shah | Pre-arrangement and run time arrangement of all kind of refreshment |
| 3 | Stage Decoration and Hospitality | Hinal Surati Yashvi Parmar | • Rangoli making, Flower bouquets arrangement, Lamp lighting arrangement<br>• Dias arrangement like water bottle, detail schedule<br>• White board and marker arrangement |
| 4 | Anchoring | Karmani Rajput | Prepare a flow of event including inauguration, technical session and Valedictory |
| 5 | Certificates writing and distribution | Priyanka Patel Nitiksha Pancholi | Prepare a certificates with name of participants and sign of HOD and director |
| 6 | Photography | Darshan Vora | • Arrangement of camera, cell/battery run time in event<br>• Collect the photos and send to report making committee |
| 7 | Feedback & Report Making | Unnati Mali Chand Thakor | • Prepare feedback form<br>• Collect feedback from participants<br>• Prepare a report of the event and submit to coordinator |
| 8 | Media Committee | Jay Patel Hiren Sidhpuria | • Event publicity on social media, website<br>• Making a press-note in Guajarati and English immediate after completion of event |

# Feedback Analysis:

Feedback was collected from the participants in last session of the Workshop. The overall feedback of the Workshop was very positive. Here are some of the feedbacks, which were given by participants.
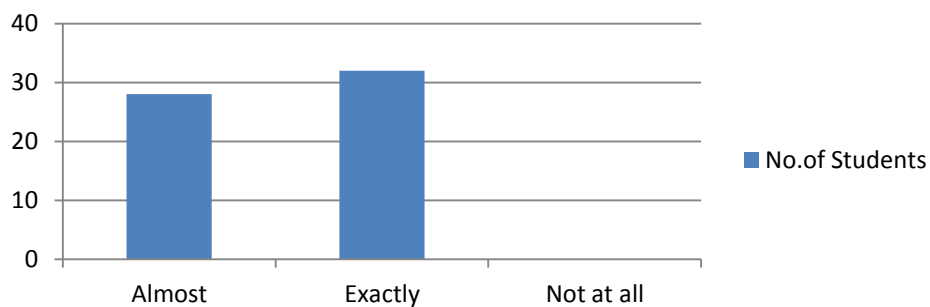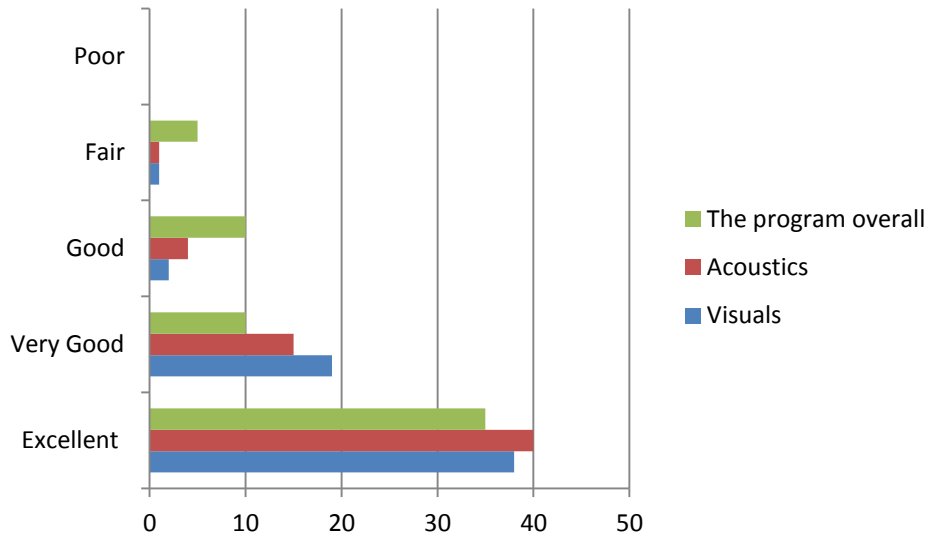
## 1) Opinion on topics covered during workshop



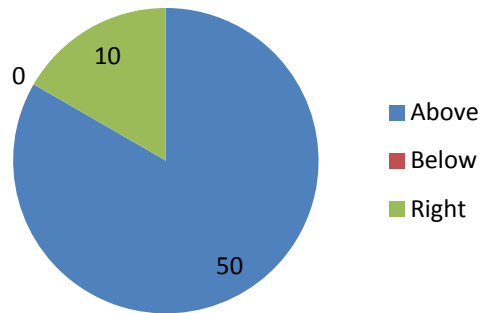## 2) Practical sessions conducted during workshop were well organized?



## 3) Were practical sessions relevant to other sessions of the workshop?

## 4) Rating of Programme:



## 5) Was the workshop above or below your current skill level?



## 6) Overall, how would you rate the food quality and the way it was served?