



Shri Guru Gobind Singhji Institute of Engineering and
Technology,
Vishnupuri, Nanded – 431606 (M.S.)



Department of Electronics and Telecommunication Engineering

TWO DAYS WORKSHOP

On

“ADVANCE MECHATRONICS TRAINING”

ORGANISED BY

**DEPARTMENT OF ELECTRONICS AND
TELECOMMUNICATION ENGINEERING**

SPONSORED BY

CENTER OF EXCELLENCE(COE)

On

11TH AND 12TH MARCH, 2017





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ABOUT THE WORKSHOP

- This workshop was conducted by n-Gen group, pune under the Department of Electronics and Telecommunication Engineering and sponsored by Center of Excellence (CoE) Signal and Image Processing.
- The main agenda of the workshop was to make students familiar with advance mechatronics field and industrial automation.
- This workshop was Co-ordinated by Asst. Prof. C. C. Dakave (ExTC Department).
- This workshop was open for all the students from Electronics and Telecommunication Engineering as well as for Departments.



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VENUE OF THE WORKSHOP

- Location: -Seminar Hall, A-4 Complex.
- Tenure of The Workshop:- Date:11th and 12th March,2017
Time: 10:00am to 6:00pm





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ABOUT n-GEN GROUP, PUNE



- n-Gen group is a one stop solution provider of comprehensive engineering solutions. since our inception in january 2007, we serviced the automobile, machine tool, cnc, packaging, medical, material handling, fluid power and other industries with n-gen applications, components, system installation and after sales service.
- **n-Gen automation** -is an ISO 9001:2008 certified group company. it serves as a specialty distributor of SKF for their mechatronics products. Also it is sole distributor for NASS magnet Germany, covering India and SAARC countries.
- **n-Gen controls system** - is a leading system integrator for parker Hannifin electro-mechanical product range.
- **n-Gen training** - provides latest vocational training in mechatronics to corporates and technical graduates.



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OPENING CEREMONY

This Workshop opening ceremony started On 11th March 2017 On 10:00am. Following Chief Guest and Guests Were Present For Opening Ceremony.

- Balkrishna Deshpande (n-Gen Group, Pune)
- Dr. L. M. Waghmare (Director,SGGSIE&T)
- Dr.M.B.Kokare (Co-Ordinator, CoE)
- Dr. S. S. Gajare (Co-Coordinator, CoE)
- Dr. Lenina Birgale (Dean, SA)
- Dr. R. R. Manthalkar





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BRIEF SCHEDULE OF WORKSHOP

Agenda For Two Days Workshop for Electronics & Tele communication Dept. at SGGs Institute, Nanded premises			
DAY	SN	Sessions -Topic Description (Theoretical) Duration: 10.00am To 1.00pm	Practical's/demonstrations on Kit Duration: 1.30pm To 5.30pm
11/03/2017 <u>1st day</u>	1	Pretest/ n-Gen Introduction	
	2	Introduction to Mechatronics <ul style="list-style-type: none"> What are Mechatronics and its importance in the automation Industry, along with Advances of Electrical, Electronic, Mechanical and Controls System? 	
	3	Basic PLC & Its programming <ul style="list-style-type: none"> Introduction, Major components of PLC & its Block Diagram, Execution cycle, PLC selection Online ladder programming on software & basic rules & procedures of safety Relay logic creation and modification latching logic explanation Analog Input and Output & High speed Input and Output explanation 	i))PLC inputs, outputs, ladder programming, wiring, Communication Configuration, Downloading & Uploading of program. ii) Communication types in PLC. ii) Programming functions like timers, counters, mathematical function, logical.
12/03/2017 <u>2nd day</u>	5	PLC /SCADA/HMI <ul style="list-style-type: none"> CNC machine application with PLC. DCS and SCADA features and its applications. Communication types and PLC interfacing with HMI, drives and third party devices. Execution cycle, PLC selection and troubleshooting procedures. Programming flowchart, objectives and a detailed program explanation of an application on software. 	i) Some tasks on analog and high speed IO logics. ii) Alarm and recipe creation on kits. iii) Troubleshooting Tasks.
	6	PLC system & PLC controlled Electro Pneumatics <ul style="list-style-type: none"> Basics of PLC ,its hardware & software, processor, I/O modules, communication, programming device, PLC programming through ladder diagram, symbols, and simple PLC programming for various electro – pneumatics and electro hydraulics circuits Wiring of Electrical connection of PLC ,electro pneumatic circuits, piping & commissioning PLC programming with timer & counter for electro pneumatics circuits for two cylinder sequencing Systematic trouble shooting of plc controlled electro pneumatics & electro hydraulics system 	i)AB PLC with pneumatic cylinder and DC valve board ii)Delta PLC based Electro Pneumatic Kit
	7	Post test & Certification	



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SESSIONS OF THE WORKSHOP

SESSION 1: (1st DAY 11th Mar 2017, From 10:00am to 1:00pm)

SUB-SESSION 1:

This session was an introductory as well as interactive session between engineers of n-Gen group and students.

Deshpande sir told students about the mechatronics field in industries.



SUB-SESSION 2:

This was also introductory session carried by Sunil Lohar sir.

Sir told students about the various elements of the Mechatronics.

He also introduced various softwares to the students that are widely used in the industries.



SESSION 2 (1st DAY 11th Mar 2017, From 1:30pm to 5:30pm)

SUB-SESSION 1:

This was a practical session for the introduction of mechatronics components. Students operated various mechatronics kits for PLC's and electropneumatics.



SUB-SESSION 2:

This session was carried by the Sunil sir in the EDC lab. He showed various parts of the PLC controller to the students and explained the functions of the every part. Sir told students about the HMI and SCADA systems. Students performed the basic programs and mechanisms on the PLC.



SUB-SESSION 3:

This session was carried by Deshpande sir in the electronics lab. Sir introduced various mechanisms in hydraulics and electropneumatics in this session.





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SESSION 1 (2nd Day 12th Mar 2017, From 10:00am to 1:00pm)

SUB-SESSION 1:

This was first session of the next day. It was theoretical session for making students familiar with basic PLC programming, SCADA and HMI.



SUB:SESSION 2:

This session was taken by Sunil Lohar sir.

He taught students about the serial communication using PLC controller.

He explained various communication modes in the PLC's.



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SESSION 2 (2nd Day 12th Mar 2017, From 1:30pm to 5:30pm)

SUB-SESSION 1:



It was again practical session for teaching students PLC system and PLC controlled electropneumatics.

Students learned serial communication techniques by using PLC's.

Sunil sir introduced all the students to the concepts and mechanisms of the hydraulics. Students performed the relay logic programs on the PLC trainer using ladder programming.

SUB-SESSION 2:

This session was taken by Deshpande sir.

Sir explained PLC programming to control hydraulic machines.



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Students performed various mechanisms to understand hydraulics concepts.

SUB-SESSION 3:

This session was interactive session between the students and teachers.

Students asked various questions to the teachers.

This was the last practical session of the workshop.





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CLOSING CEREMONY

It was the last session of the workshop.

Students solved posttest after the workshop.

Certificates were distributed by the n-gen group to the students.

Prof. C. C. Dakave sir said thanks to all the members of the n-gen group.

All the students shared their experience of the workshop with the group members.

There was a photo-session by the group members with the students.

