

Date: January 16, 2020

A Report on National Workshop on “Recent Advances in Industrial Control” (03 - 05th of January 2020)

- Chief Patron** : Shri Amrishbhai R. Patel (Chancellor, SVKM’s NMIMS and President, SVKM)
Shri Bhupeshbhai R. Patel (Joint President, SVKM)
- Patron** : Dr. Jayant Gandhi (Mentor – MPSTME Mumbai)
Shri Rajgopal Bhandari (Mentor- MPTP, Shirpur)
Dr. Rajan Saxena (Vice Chancellor, SVKM’s NMIMS)
Dr. Sharad Mhaiskar (Pro- Vice Chancellor, SVKM’s NMIMS)
Dr. R. S. Gaud (Director, SVKM’s NMIMS, MPTP Shirpur Campus)
Dr. Vaishali Kulkarni (Associate Dean – B. Tech Program. , MPSTME Mumbai)
Dr. Anuja Agarwal (Associate Dean – MBA Tech Program. , MPSTME Mumbai)
Dr. Nikhlesh K. Sharma (Director - Engg. Programs, SVKM’s NMIMS, Shirpur)
Mr. Rahul Dande (Chief Accountant & Administrator, SVKM’s NMIMS, Shirpur)
- Workshop Chair** : Dr. B. K. Mohanty (Professor & Associate Dean (R), HOD - EXTC/ MXTC,
MPSTME Shirpur)
- Coordinators** : Mr. Suresh Kurumbanshi (Assistant Professor, EXTC Dept., MPSTME Shirpur)
Dr. Pravin Wararkar (Assistant Professor, EXTC Dept., MPSTME Shirpur)
- Organized by** : Department of Electronics & Telecommunication Engineering, SVKM’s NMIMS,
MPSTME, Shirpur, and
Bosch Centre for Excellence in Automation, SVKM’s NMIMS, MPSTME, Shirpur
- Duration** : January 03 – 05, 2020
- Venue** : Bosch Centre for Excellence in Automation, SVKM’s NMIMS, MPSTME, Shirpur
- Resource Persons (Expert Talk)** : Mr. Chetan Rajdev (Head - Industrial Sales - South Region, Hydac India,
Bengaluru)
Mr. Sandip Chaudhari (Vice Pres. - R&D, Engine Busi., Greaves Cotton Ltd., Pune)
Dr. Sachin B. Umbarkar (Lead, EATON Research Lab, EATON India Inno. Centre)
Prof. Shashikant Patil (Associate Professor, EXTC Dept., MPSTME Shirpur)
Mr. Suresh Kurumbanshi (Assistant Professor, EXTC Dept., MPSTME Shirpur)
- Resource Persons (Hands-on-Practice)** : Mr. Chetan Rajdev (Head - Industrial Sales - South Region, Hydac India,
Bengaluru)
Mr. Sandip Chaudhari (Vice Pres. - R&D, Engine Busi., Greaves Cotton Ltd., Pune)
Dr. Sachin B. Umbarkar (Lead, EATON Research Lab, EATON India Inno. Centre)
Mr. Suresh Kurumbanshi (Assistant Professor, EXTC Dept., MPSTME Shirpur)
Mr. Sunil Chaudhari (Assistant Professor, EXTC Dept., MPSTME Shirpur)
Mr. Parag Thote (Assistant Professor, MXTC Dept., MPSTME Shirpur)
Mr. Sunil Patil (Bosch Lab Support Staff, EXTC Dept., MPSTME Shirpur)

Resource Persons : Mr. Chetan Rajdev (Head - Industrial Sales - South Region, Hydac India, Bengaluru)
(Round Table Discussion) Mr. Sandip Chaudhari (Vice Pres. - R&D, Engine Busi., Greaves Cotton Ltd., Pune)
Dr. U. Ragavendran (Associate Professor, EXTC Dept., MPSTME Shirpur)
Mr. Atul Patil (Associate Professor, EXTC Dept., MPSTME Shirpur)

About the Workshop:

Automation Technology plays an important role in various application areas such as robotics, smart irrigation, product manufacturing processes, cyber physical systems, Internet-of-Things, health care, autonomous vehicles and many more. Automation requires flexible design, which is efficient and support frequent code deployment, rapid machine set up and provides precision control. The objective of this workshop was to provide theoretical background, hands on training to enhance skill on various automation techniques and current challenges in Industrial Control.

Highlights of Sessions Delivered during Workshop:

Day 1 (January 03, 2020):

- Inauguration Ceremony (10:00 – 10:45 am)
 - On the very first day at 10:15 AM, the workshop was inaugurated with “Saraswati Vandana” & NMIMS anthem in the gracious presence of the chief guest of this event, Mr. Chetan Rajdev (Head, Industrial Sales - Southern Region, Hydac India, and Bengaluru) in Seminar Hall C Wing 2nd Floor.
 - The cordial presence of Dr. N. S. Choubey (Head, IT Dept., MPSTME, Shirpur), Dr. Radhakrishna Rambola (Head, CE Dept., MPSTME, Shirpur), Dr. K. K. Gupta (Professor, Mechanical Dept., MPSTME, Shirpur), EXTC Faculty members and last but not the least, our energetic participants of the workshop also graced the event.
 - The Workshop Chair & Associate Dean (Research), Dr. B. K. Mohanty welcomed all dignitaries, participants, audience. During his address to the audience, he briefed about the purpose of the workshop and appealed participants to make the use of state of the art facilities available on campus during hands on training sessions at its fullest.
 - Mr. Suresh Kurumbanshi (The Workshop Coordinator) familiarized audience about the workshop schedule and sessions.
 - Mr. Chetan Rajdev started his address by introducing audience with the “VUCA world” concept. He pointed the fast technological development happening in various industrial sectors worldwide. He also appreciated participants for taking efforts to attend this workshop and learn current technical trends though they belong to diverse background.
 - Dr. Pravin Warakar (The Workshop Coordinator) was anchoring the event.



Image 1: Inauguration Ceremony of Workshop

Invited Talk on “Hydraulics and Industry Applications” by Mr. Chetan Rajdev, Hydac India, Ltd, Bengaluru. (11:00 AM – 12:30 PM)

- After a photo shoot session and short break, the participants were directed towards the Bosch Centre for Excellence in Automation to attend the invited talk on “Hydraulics and Industry Applications” by Mr. Chetan Rajdev.
- Mr. Chetan Rajdev introduced audience about the various industrial applications developed with the help of current technologies in “Automation and Control Systems”, How the giant groups like ‘Hydac’, ‘L & T’, ‘Bosch’ etc. are contributing majorly to make the existing automated applications as smart applications in all the fields including Kitchen, Automotive, Cities, and Factories & HealthCare’s.
- He also made audience aware about the opportunities available for engineers and technical experts to play their important role in this era of technology evolution.
- He enlightened audience on Challenges, Chances, Concerns, and Benefits of the “Industry 4.0 Connected Industry”. He had organized his talk with many quizzes to keep audience interest alive and a demonstration on “Augmented Reality”.



Image 2: Mr. Chetan Rajdev delivering a Session during Workshop



Image 3: Mr. Chetan Rajdev delivering a Session during Workshop

- Expert Talk on “Essence of Hydraulics in Industrial Control” by Prof. Shashikant Patil (02:00 – 03:00 PM)
 - Prof. Shashikant Patil briefed on background of hydraulic controls and its applications.
 - He mentioned the future needs to make hydraulic applications smart and intelligent.
 - Few activities given by Prof. Shashikant Patil to the participants helped them in understanding the advantages and limitations of hydraulic systems.
 - He mentioned various analogies to make the understanding of the technical aspects involved in the formulation and designing of hydraulic systems simpler.
 - He explained participants various types of gauges, and meters as well as with their functioning.
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Image 4: Prof Shashikant Patil delivering a Session during Workshop

Hands on Practical Session (03:00 – 05:15 PM)

- Experts and coordinators gave participants a tour to inform them about the facilities and units (including Hydraulic valves, Electro-hydraulic valves, Relays, Hydraulic set up, Automation Studio) which are available in Bosch Centre for Excellence in Automation.
- Mr. Chetan Rajdev, Suresh Kurumbanshi, Mr. Sunil Patil has guided participants to practice exercises. Mr. Chetan had briefed about application areas of various valves, spool configuration, pumps, and accumulators especially in aircraft application. Mr. Parag Thote had delivered session on Automation Studio where most of the participants were having hands on.

Round Table Discussion (05:15 – 06:00 PM)

- Resource Persons and Experts solved many queries of the participants during round table discussion. Dr. B. K. Mohanty mentioned about R & D aspect, Prof. Shashikant Patil mentioned about the capabilities of lab facilities, Mr. Chetan Rajdev informed about the possible scope in consultancy by faculties during discussion.



Image 5: Panel discussion during Workshop

Day 2 (January 04, 2020):

Invited Talk on “Technology Driving Factor for Sustenance or Growth of Industry” by Mr. Sandip Chaudhari (10:15 AM – 12:30 PM)

- Mr. Sandip Chaudhari introduced audience about the important role played by mechatronics in modern industrial world. He also shed light on the qualities to be possessed by Today's engineers.
- To addresses the upcoming technical challenges, engineers need to have multidisciplinary knowledge in computer programming, Electronics, Mechanical, Chemistry & Material.
- Mr. Sandip Chaudhari also seek the attention of audience towards BS6 automobile engines performance and its benefits to the society, as it is going to strike the Indian automobile market by April 2020.
- He discussed the advantages of electronically controlled vehicles and need for advanced engines.
- Recent advances in automotive legislation demanding adaption of controllers or sensors was also one of the attracting points of discussion.

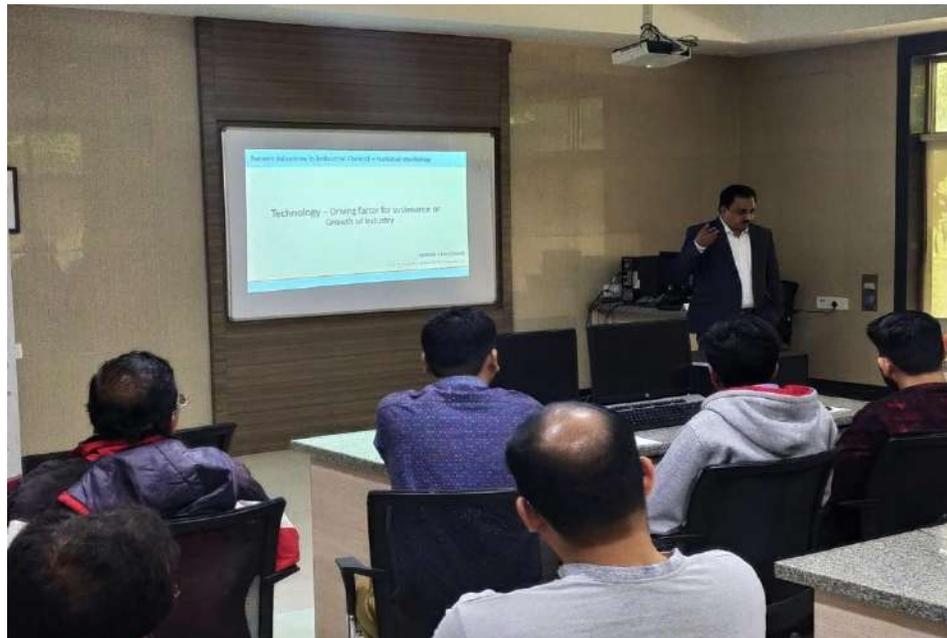


Image 6: Mr. Sandip Chaudhari delivering a Session during Workshop

- **Expert Talk on “Electro-Pneumatics & Its Applications” by Prof. Suresh Kurumbanshi (02:00 – 03:00 PM)**

- Prof. Suresh Kurumbanshi started his talk by mentioning the limitations of various control systems and the efficient solutions offered by pneumatic systems to address those limitations.
- He explained about pneumatic actuators, latching concept, Quick exhaust valve, and duel pressure valve. He also discussed electropneumatic system & its designing, importance of flow rate measurement, valves.
- He also discussed on the designing aspects of pneumatic systems.
- The example of designing pressing application using 5/2 way valve explained by him could help participants to understand the concepts discussed by him.



Image 7: Mr. Suresh Kurumbanshi delivering a Session during Workshop

Hands on Practical Session (03:00 – 05:15 PM)

- Participants got hands on practical experience on Pneumatic valves, Electro-pneumatic valves, Relays , Basic Pneumatic set up & Designing of Sequence 3D Printer. Resource Person, Mr. Suresh Kurumbanshi & Mr. Sunil Patil guided them to design electropneumatic control. Mr. Parag Thote & Mr.Sunil Patil demonstrated 3 D Printing facility in parallel during hands on practice.



Image 8 : lab Session during Workshop

Round Table Discussion (05:15 – 06:00 PM)

- Mr. Sandip Chaudhari started the discussion by sharing his experience in automotive industry.
- Thorough discussion happened on future of gasoline and diesel engines.
- Attendees also discussed challenges behind automotive industries and future of electronic vehicles in India.
- Participants raised questions on career opportunities in Greaves Cotton Industry and the skillset to be possessed by Today's engineers to survive in Industry.
- Resource Persons and Experts attended queries raised by participants.



Image 9 : Panel discussion during Workshop

Day 3 (January 05, 2020):

- Expert Talk on “PLC, Ladder Programming, Designing Sequences in Industrial Control” by Prof. Suresh Kurumbanshi (09:00 – 10:00 AM)
 - Prof. Suresh Kurumbanshi initially emphasized on the benefits of PLC, various industry application of PLC.
 - Looking at the participant's interest, Mr. Suresh Kurumbanshi discussed about PLC interfacing.
 - He has also thrown light on the functioning of Relays & how it is replaced in PLC.
 - After PLC's I/O module, Addressing Scheme, ladder diagrams for Timer, Counters, Sequential Turing of motors and its logic developments were the key points of discussion.
- Hands on Practical Session (10:00 – 10:45 AM)

- Participants got hands on practical experience on Ladder Programming, Hands on PLC, Hydraulics & Electro pneumatics, demonstration on Mechatronics set up. Resource Persons and Experts guided them to perform activities.
- Invited Talk on “Pneumatic Control & Automation” by Dr. Sachin B. Umbarkar (11:00 AM – 01:15 PM)
 - The prime focus of talk by Dr. Sachin was on turning knowledge into cost driven or revenue model.
 - He enlightened audience on the fact that the powerful thinking and simulation of mathematical models are the key elements governing the efficient deployment of technology.
 - He emphasized that the society deserve to have good products and it is the responsibility of manufacturing industry to supply the same.
 - He also made participants aware about the current project of EATON India i.e. “Diversified Power Management”.
- Valedictory Session (02:15 – 03:00 PM)
 - The valedictory session was witnessed by the cordial presence of following dignitaries;
 - Dr. Sachin B. Umbarkar (The Chief Guest of the event)
 - Dr. Nikhlesh Kumar Sharma (Director - Engg. Programs, SVKM's NMIMS, Shirpur)
 - Dr. B. K. Mohanty (Associate Dean (Research), MPSTME, Shirpur & Workshop Chair)
 - Participants shared their feedback with the dignitaries and audience. They appreciated the organization and conduction of the workshop as well as thanked management for such courteous hospitality. They thanked Resource Persons, as well as Experts for imparting their knowledge on current technologies and trends as well as guiding participants and attending all their queries during hands on practical sessions. The round table discussion gave them a chance to have one to one discussion with experts. One of the participants also suggested that the duration of this workshop could be extended for few more days, so that the participants would have gained more from hands on practical sessions. Organizing committee noted his suggestions positively.
 - Dignitaries distributed the workshop participation certificates.
 - In concluding remarks, Prof. Suresh Kurumbanshi summarized the workshop conduction and thanked SVKM management, higher authorities, accounts department, faculty members, support staff for helping directly or indirectly in organizing and conducting this workshop successfully.
 - He also thanked our Resource Persons as well as Experts for giving their valuable time and delivering such knowledgeable sessions.
 - Lastly, everyone appreciated the active and energetic involvement of participants in all the sessions.
 - Dr. B. K. Mohanty mentioned that, “the participant’s feedback has boosted our energy for conducting few more workshops in continuation to this”.



Image 10: Valedictory Session of Workshop



Image 11: Valedictory Session of Workshop

- Hands on Practical Session (03:15 – 05:00 PM)
 - Participants continued the second half of their hands on practical session on Ladder Programming, Hands on PLC, Interfacing of PLC. Mr. Sunil Chaudhari had demonstrated Timer & Counter programming using PLC.



Image 12 : Mr. Sunil Chaudhari delivering a Session during Workshop



Image 13 : Dignitaries, Organizing Committee, Participants during Inauguration Ceremony of Workshop

List of Participants

Sr. No	Participant name
01	Mr Amit Sawunny, IT Faculty, St. Jones Convent, Khandwa
02	Mr. Rajendra Baghel, IT Faculty, St. Jones Convent, Khandwa
03	Mr.Habib Ansari Sir, Dept. Of Electrical Engg. Institute of Technology, Dhule.
04	Mr. Anil Patil, RC Patel Polytechnic, Shirpur
05	Dr. P. K. Gupta, MPSTME, Shirpur
06	Mr Anup Karande, MPSTME, Shirpur
07	Dr. Tirunagaru Krishna Chaitanya, SAST Shirpur
08	Dr. Krishna Kumar G, SAST Shirpur
09	Dr. Rajendragouda Patil, SAST Shirpur
10	Dr. Vijay kumar Didal, SAST,Shirpur
11	Dr. C. Sudharshana , SAST Shirpur
12	Dr. Munendra Jain, NMIMS Indore
13	Dr. Vikas Khare, NMIMS Indore
14	Prof Sanjib Roy,MPSTME, Shirpur
15	Prof Samir Mitra, MPSTME, Shirpur
16	Mrs. Rasveen Kaur, Mumbai
17	Mr. Vinit Patel, RCPIT, Shirpur
18	Mr. Amit Mahire, RCPIT, Shirpur
19	Mr. Raosaheb Chavan, ME Student, SVIT, Nasik
20	Mr. Nitin Jadhav, ME Student, SVIT, Nasik
21	Krushna Ghodekar,R.H.Sapat COE, M.E. Student, Nashik
22	Mr. Ankit Sankpad, Prolific Systems, Pune
23	Mr Prasad Joshi, Prolific Systems, Pune.
24	Mr.Vipul Sanjay Mahajan, Govt. Poly, Murtizapur.
25	Mr. Vineet Mandge, ME Student, COE, Shahada
26	Mr. Manoj Chaudhari, ME Student,Godavari COE,Jalgaon

Report Submitted by,

**The Organizing Committee,
National Workshop on “Recent Advances in Industrial Control”
SVKM’s NMIMS, MPSTME, Shirpur.**