# Instrumentation Engineering

Newsletter 2024-2025

## Vision statement of Department

To be recognized as leading contributor in imparting technical education and research in Instrumentation & Control engineering for development of the society.

## Mission statement of Department

1.To deliver knowledge of Instrumentation and Control Engineering by strengthening involvement of Research institutions and industries in academics

2. To build conducive environment for advanced learning through participation of faculty and students in collaborative research, consultancy projects, student exchange programs and internships

3.To develop competent Engineers with entrepreneurial skills to address socio-economic needs.

## Program Educational Objectives (PEO)

The Graduates would demonstrate

1. Core competency in Instrumentation and Control Engineering to cater to the industry and research needs.
2. Multi-disciplinary skills, team spirit and leadership qualities with professional ethics, to excel in professional career and/or higher studies.
3. Preparedness to learn and apply contemporary technologies for addressing impending challenges for the benefit of organization/society.
4. Knowledge of recommended standards and practices to design and implement automation solutions.

## PEO – Mission Mapping

| | M1 | M2 | M3 |
|---|---|---|---|
| PEO1 | 3 | 2 | 2 |
| PEO2 | 2 | 3 | 2 |

| | | | |
|---|---|---|---|
| PEO3 | 2 | 3 | 3 |
| PEO4 | 2 | 3 | 3 |

## Program Specific Outcomes (PSOs)

Graduates shall have the ability to:

1.Evaluate the performance of suitable sensors / Process components/ Electronic / Electrical components for building complete automation system.

2. Analyze real-world engineering problems in the area of Instrumentation and Control.

3.Design or Develop measurement / electronic / embedded and control system with computational algorithms to provide practical solutions to multidisciplinary engineering problems.

## Program Outcomes

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research –based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

# Department Activities

**1. Industry Connect of the Department**

Following two courses are conducted by Emerson Engineering Export Centre from July 2025 to Dec 2025

1. Batch Process Control (BPC)

2. Industrial Project Engineering (IPE)

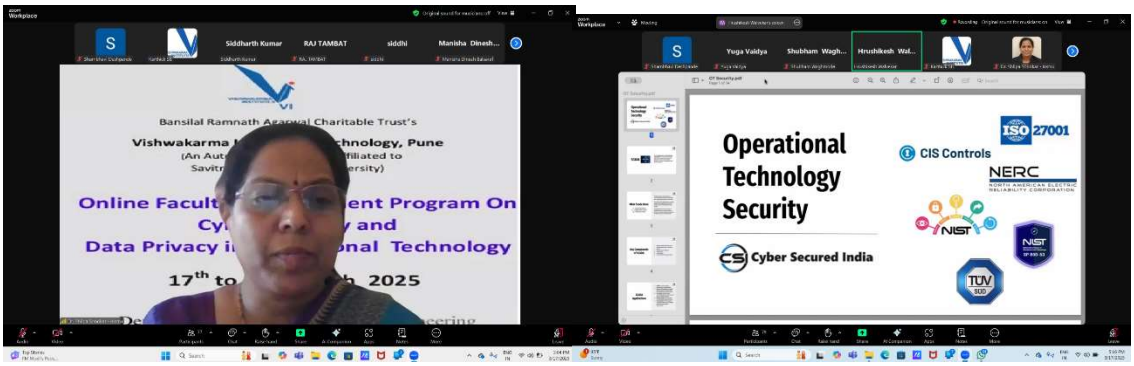



2. **Instrumentation Department FDP Online "Cyber security and data privacy in operational technology" held from 17th March to 21st March 2025**

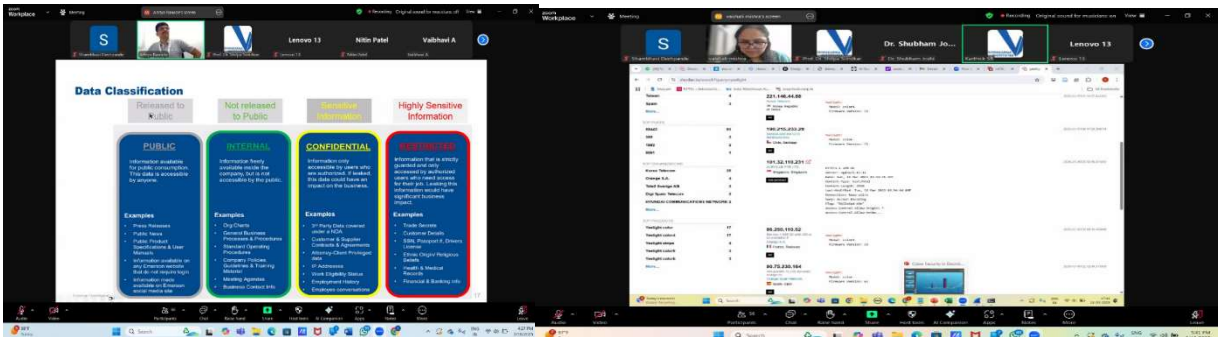
This FDP has been arranged to create awareness about cyber security importance in operational technology. Total 10 speakers from industries Cummins India, Emerson, Honeywell, Tetrapack etc had given expert talk to the audience. Total 400+ faculty and students' registration was there across India from different colleges and universities. Out of that 5 to 6 registrations were there from outside India. After 80% attendance and quiz , online certificate has been given to all participants.

Some glimpses of the FDP

Day1 :

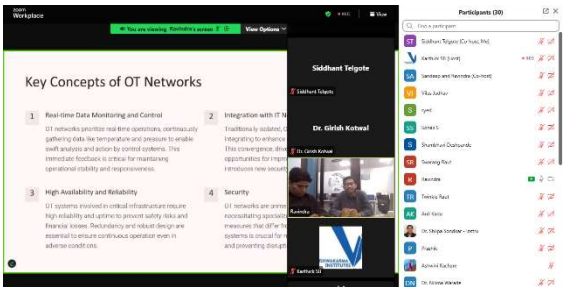



Day 2:

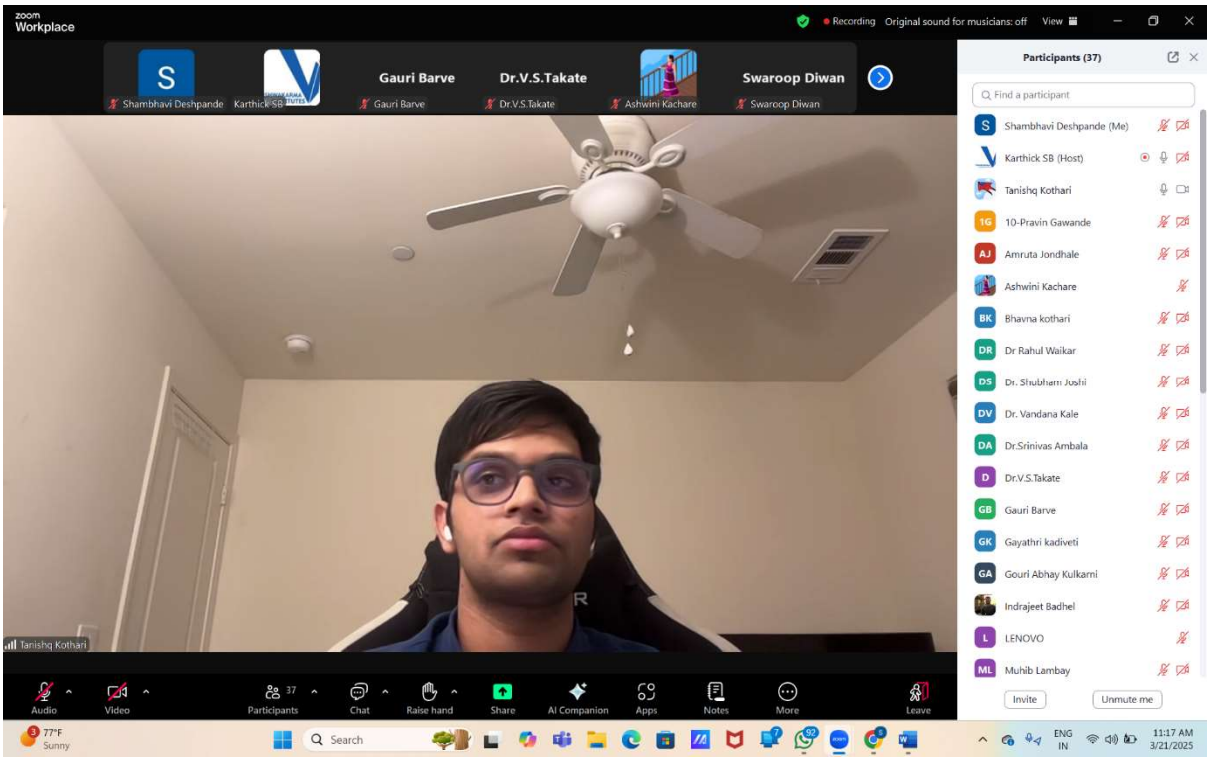



Day 3:


Day 4




Day 5:




## 3. Professional Body Activities

**Activities conducted under International Society of Automation (ISA) VIT Students Chapter**

A. Donation of E-vehicle by Logicon Techno solutions



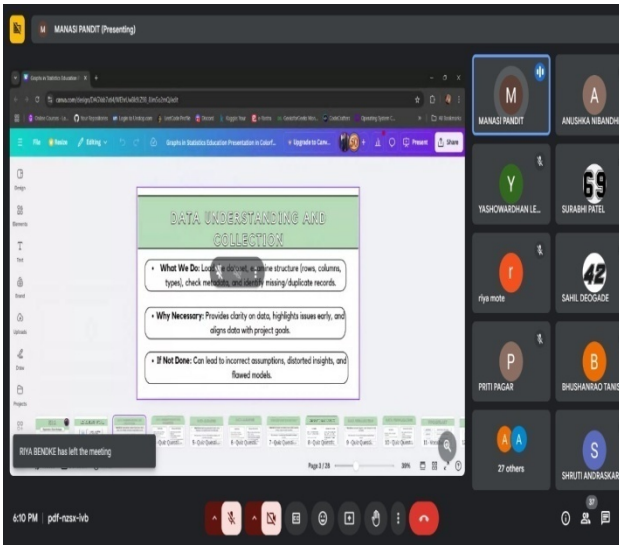
B. Ingenious 2024 Competition: Ingenious 2024, organized by ISA VIT Pune, was a groundbreaking initiative aimed at connecting young minds with industry for innovation. The competition provided a platform for students to collaborate with industry leaders, tackle real-world problems, and get rewarded for their brilliance.


Prize distribution by the delegates from DSS World Pvt. Ltd. Pune August 8, 2024

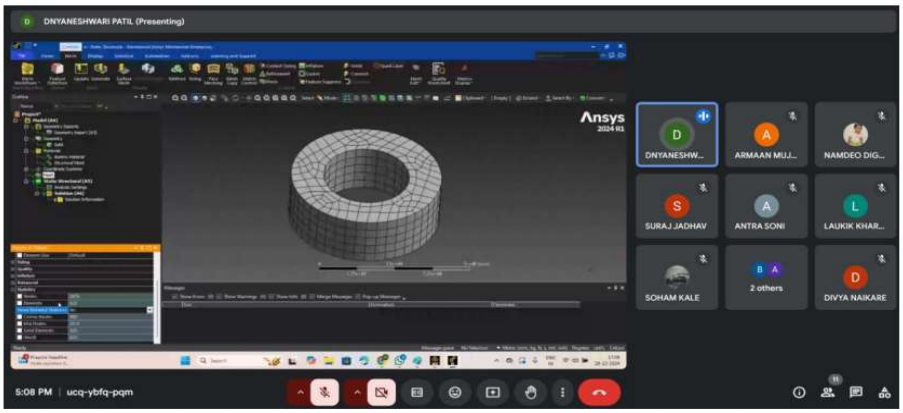
C. TechTalk by Mr. Rushikesh Nandedkar, Principal Threat Intelligence Analyst at GoDaddy on 8th Aug 2024



D. 3 Day's Online Machine Learning Workshop from December 6-8, 2024




E. Three Days online Workshop on Basics of Designing and Material Analysis December 26-28, 2024




F. Industry Visit under IEEE IMS Students Chapter on 25 March 2025 to Katraj Dairy Pune


### 3. Details of Students Six months Internships of Final Year students

| Name of Student | Industry Name |
|---|---|
| **Bhilare Abhishek Mahadev** | Ryka Engineering Solutions Pvt Ltd |
| **Bauskar Aneesh Rajesh** | Trichemie Plant Engineering Solutions |
| **Joshi Bhagyashri Vyankatesh** | Emerson Export Engineering Centre |
| **Bhalake Samarth Shivanand** | Cummins India Pvt Ltd |
| **Bhosale Shreyash Nitin** | Trichemie Plant Engineering Solutions |
| **Chandorkar Manas Arun** | Thermax babcock and Wilcox Energy Solutions |
| **Chavan Atharv Rahul** | UltraTech cements Pvt Ltd |
| **Chaware Sachin** | Techport Solutions Pvt Ltd |
| **Choudhari Vedant** | Wipro Pari Private Limited |
| **Gadappa Deep** | Techport Solutions Pvt Ltd |
| **Deshmukh Amogh** | Forbes Marshal Pvt Ltd |
| **Deshmukh Mahesh Madhavrao** | InnoGlobal Automation & Engineering Solutions |
| **Deshmukh Shravani** | Emerson Export Engineering Centre II |

| | |
|---|---|
| **Deshpande Amogh Nagesh** | Black & Veatch Pvt Ltd |
| **Deshpande Anway** | InnoGlobal Automation & Engineering Solutions |
| **Deshpande Dipti** | Emerson Export Engineering Centre II |
| **Dhumal Siddhi** | Emerson Export Engineering Centre |
| **Divte Aditya Keshav** | Ryka Engineering Solutions Pvt Ltd |
| **Gaikwad Ankita Ashok** | Emerson Export Engineering Centre II |
| **Gavhane Swapnil Kishanrao** | Spark Innovation Pvt Ltd |
| **Relekar Gayatri** | Eaton Pvt Ltd |
| **Ghait Rushikesh Madhukar** | Spark Innovation Pvt Ltd |
| **Jadhav Viraj Anil** | Petrofac Pvt Ltd Mumbai |
| **Jagadale Makarand** | Efilia Technologies |
| **Jaybhaye Shweta** | Emerson Export Engineering Centre II |
| **Joshi Aarya Hemant** | Emerson Export Engineering Centre II |
| **Joshi Anushka** | Emerson Export Engineering Centre II |
| **Kale Prashant** | Dssworld Pvt Ltd |
| **Kekan Vijay** | Autovue Pvt Ltd |
| **Khomane Kartik** | Altizon Pvt Ltd |
| **Kerkar Kimaya** | Forbes Marshal Pvt Ltd |
| **Kul Rajeshwari Bapusaheb** | Emerson Export Engineering Centre II |
| **Kulkarni Vaishnavi** | Emerson Export Engineering Centre II |
| **Lohar Durva** | Emerson Export Engineering Centre II |
| **Mukkawar Gauri Sandeep** | Technip Energies India Limited |
| **Nagre Hrucha Gajanan** | Emerson Export Engineering Centre II |
| **Najare Kaushik Rajendra** | Ryka Engineering Solutions Pvt Ltd |
| **Narwane Mrunal** | Yoptima Pvt Ltd |
| **Shevkari Niraj** | Techport Solutions Pvt Ltd |
| **Nyahalde poonam** | Emerson Export Engineering Centre II |
| **Pardhi Ritiksha** | Cummins India Pvt Ltd |
| **Patil Aaryen** | COEP Tech University Pune |
| **Patil Dinesh** | Thyssenkrupp Uhde India Private Ltd |
| **Patil Srushti Mahendra** | Emerson Export Engineering |
| **Pembarti Sejal** | Technip Energies India Limited |
| **Tushar Phulari** | Shreeji Markiting Coperation |
| **Purandare Parag Anand** | Black & Veatch Pvt Ltd |
| **Rajput Bhupendrasing Bhausaheb** | Metro Pvt Ltd |
| **Rajput Kundan Mahendra** | Altizon Pvt Ltd |
| **Manish Rakhewar** | Thyssenkrupp Uhde India Private Limited |
| **Dubey Saurabh Praveen** | Trichemie Plant Engineering Solutions |
| **Savji Pushkraj** | Pune Techtrol Pvt Ltd |

| | |
|---|---|
| **Shambharkar Sayali** | Emerson Export Engineering Centre II |
| **Shravyasri** | Upnyx Innovative Solutions |
| **Sandbhor Sourabh Sunil** | Teclog Automation Pvt Ltd |
| **Talnikar Vedhas** | Flyt Base Labs Pvt. Ltd. |
| **Tasmay Barve** | Melux Control Gears P.Ltd. |
| **Thipsay Yash** | Nethermind Pvt Ltd |
| **Thombare Prathamesh Rajkumar** | Pune Techtrol Pvt Ltd |
| **Upganlawar Ved** | Ribbstyle India Pvt. Ltd. |
| **Yevatekar Shaunak Makarand** | Metro Pvt Ltd |
| **Lambhate Santosh Balu** | Yamazaki Mazak Machine Tools Pvt Ltd |
| **Prathamesh Pawar** | PHN Technology |

## 4. Faculty Achievements

### Faculty Research for Academic Year 2024-25

| Sr. No | Publications | Total |
|---|---|---|
| 1 | SCI/WOS/Scopus Journal Publications | 7 |
| 2 | UGC Care and other peer reviewed journals | 32 |
| 3 | Conference and book chapter | 65 |
| **Patents** | | |
| 1 | Granted | 5 |
| 2 | Published | 24 |
| 3 | Filed | 19 |
| **Research Proposal/Industry Projects** | | |
| 1 | Number of Research Proposals submitted | 12 |
| 2 | Number of Industry projects completed in kind | 25 |
| 3 | Number of training and consultancy completed | 01 |

### List of SCI/Scopus/WOS publications published

| Sr. No | Title of Paper | Name of Journal | Name of Faculty | ISSN |
|---|---|---|---|---|
| 1. | Advancements in Bearing Defect Diagnosis: Deep Learning-based Signal Processing and Real-time | Journal of Failure Analysis and Prevention, Springer Nature | Dr. Shilpa Sondkar | 1864-1245 |

| | | | | |
|---|---|---|---|---|
| | Fault Detection | | | |
| 2. | Rolling-element bearing vibration datasets under varying loads and speeds: A study from Vishwakarma Institute of Technology | Data in Brief, Elsevier | Dr. Shilpa Sondkar and Prof. Jitendra Gaikwad | 2352-3409 |
| 3. | A Comprehensive Evaluation of Spectral Unmixing Methods in Hyperspectral Imaging | International Journal of Image, Graphics and Signal Processing(IJIGSP), MECS Press | Dr. Archana Chaudhari | 2074-9074 |
| 4. | CNN and GAN Based Stroke Detection Using CT Scan Images | International Journal of Image, Graphics and Signal Processing (IJIGSP) MECS Press | Dr. Archana Chaudhari | 2074-9074 |
| 5. | Energy-efficient Q-learning-based routing in wireless sensor networks | International Journal on Smart Sensing and Intelligent Systems, Sciendo Publications | Dr. Archana Chaudhari | 1178-5608 |
| 6. | Salient Region Guided Colour Image Restoration using Deep Learning with Adaptive Compressive Sensing | Panamerican Mathematical Journal | Prof. Pramod Kanjalkar | 10649735 |
| 7. | Comparative analysis of feature descriptors and classifiers for real-time object detection | International Journal of Reconfigurable and Embedded Systems (IJRES) | Prof. Vikas Nandeshwar | 2089-4864 |

**Following Patents granted to Department Faculty and Students**

1. Automatic System to Reduce Water Losses in Solar Water Heating Systems granted to Prof. Pramod Kanjalkar and following students Varad Uday Dange, Shruti Shailesh Rane, Aditi Sanjay Rawat, Prajyot Pramod Patil


2. An intelligent retro-fit add on device for two wheeler automobile to avoid forward collision granted to Prof. Pramod Kanjalkar and following students Kajal Salvi, Monali Harde and Akshada Favare


**5. Industry Visits of Third Year students at Kamco Industries on 28 March 2025**





**6. Visit to Forbes Marshall**

On 11th Oct 2024, a group of 30 students along with Dr. Manisha Mhetre from Vishwakarma Institute of Technology (VIT) visited Forbes Marshall, an industry leader specializing in steam engineering and control instrumentation, at their Pune facility. The visit aimed to provide practical insights into industrial operations and familiarize students with state-of-the-art technology in the field of mechanical and instrumentation engineering.

The students were introduced to the manufacturing processes of various instruments like Orifice Plate flow meter, Vortex flow meter and observed the various stages of this process like pressure and temperature calibration, scale setting, leakage detection etc.


7. Visit by Department Faculty to NSS camp Kondhanpur on 14th Dec 2024


8. School kit distribution at Konkan Kala Shikshan Vikas Sanstha along with Akshay Tritiya meal