Instrumentation Engineering

Newsletter 2019-20

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. Courses offered by Industry

Sr. No	Course Name	Industry conducting the course	Details
1.	Batch Process Control	Emerson Exports Engineering Centre, Pune	Third Year students Sem 1

2. Research Projects and Consultancy

Sr .No	Achievements	Number
1.	Ongoing Funded Research Projects	1
2.	Ongoing Consultancy Projects	3

3. One Day Workshop at Renishaw Pune on 27th Aug 2019 and 25th Nov 2019

Vishwakarma Institute of technology arranged aone-day workshop at Renishaw Metrology Systems Ltd on Industry 4.0 for selective third year students of instrumentation, mechanical, industrial and production domain on 27thAugust, 2019 and 25th Nov 2019

Renishaw is UK based, one of the world's leading engineering and scientifictechnology company with expertise in precision measurement and healthcare. It isalso a world leader in the field of additive manufacturing(metal 3D printing), where it is the only UK business that designs and makes industrial machine which prints parts from metal powder.

The introductory session briefed us about the company history, their products and their spread across the world. Also, the concept of Industry 4.0 was briefed from application point of view. The workshop was bifurcated into two slots covering different aspects (metrology and additive manufacturing)

1. Metrology:

In this slot, we were explained various precision measurement and process control machines manufactured by Renishaw such as:

- CMM probes, software
- Machine tools probes and software
- Machine calibration
- Equator gauging system
- Fixtures

- Styli for probes

Brief working of CMM(Co-ordinatemeasuring machine, contact type), CNC (Computerized numeric control) machines, which included VMC, HMC and lathe machine, Equator used for dimensional measurement on shop floor. Short discussion on vision based metrological systems. After the theory session we were taken to workspace where various machines as mentioned above were in action. A visit to CMM machine was made which was kept in precisely controlled environment of about 20oC.

2. Additive manufacturing:

Introduction about the concept and detailed explanation of the process along with videos was delivered. Also, benefits and infinite applications were discussed including health care, full range industrial applications, customized bike. After the theory session we were taken to workspace where various additive manufacturing machines were in action. Process was shown and explained to us. Various prebuild models were shown.

The visit concluded with the students being able to better understand Metrological systems, collaborative working of various machines and additive manufacturing

T.Y. B. Tech Students along with faculty at Renishaw, Pune. Date: 27th Aug 2019

The second Batch of students was accompanied by Faculty Prof. Jitendra Gaikwad along with 5 students on 25th Nov 2019.

4. Visit of Experts from Mitsubishi Electric in the Department on 11th Sept 2019

Felicitation of guest by Dean Industry Relations and Head of Department with Faculty in Charge

5. Inauguration of Delta V Software platform set up by Emerson Export Engineering Center worth Rs. 1000000/- in the department on 18th Sept 2019.

6. ISA intro meet and engineer's day celebration

On 18th September 2019, the department of Instrumentation and control engineering conducted an intro meet of the ISA VIT Pune chapter. It was followed by celebration of Engineer's day in Sharad arena. ISA VIT Pune chapter is a students' section which runs under the International society of automation. It is a technical society for engineers , technicians and students who study or work in the field of industrial automation.

Engineer's day is celebrated every year to commemorate the birthday of one of the greatest engineers in India, Sir Mokshagundam Visvesvaraya. To grace this occasion, we invited Mr. Abhay Bansod and Mr. Vinod Joshi as our chief guests. Mr. Bansod is the Director of Emerson Automation Solution, EEEC Pune. He shared his own career path with us to explain the need of exploring till one finds his true interest. He mentioned one of his friend's life changing experience , about how an average student who faced enormous obstacles in his life, went on to become a very successful person in his career. Patience, determination and learning from your failures can take you to great places. He encouraged us to learn more and develop at least one hobby.

He certainly left all of us inspired at the end of his speech. With his simple words, he taught us to never stop trying and learn from your failures as it is just a first attempt in learning.

Our next chief guest, Mr. Joshi is an active member of the International Society of Automation. He briefed the audience about the benefits of being an ISA member.

ISA also conducted an elocution competition for the students of our department. The students had to choose any of the topics given to them and express their views. The winners were felicitated by our honorable chief guests. Participation certificates were given to all the participants.

With great enthusiasm and participation from the students and members of ISA, this event turned out to be a huge success. At the end of the day we felt great sense of pride that we were pursuing engineering. It definitely inspired us to take steps and work for the betterment of our society.

As Elon Musk once said,

Engineering is the closest thing to magic that the world has.

This day made us confident that with our efforts, we can make magic happen!

"I organise the efforts and skills of my fellow workers employing the capital of the thrifty and the products of many industries, and together we work toward our goal undaunted by hazards and obstacles.

And when we have completed our task all can see that the dreams and plans have materialised for the comfort and welfare of all.

I am an Engineer, I serve mankind, by making dreams come true."

Glimpses of the Engineers Day and ISA Intromeet




Faculty Achievement

1. Prof. Jayant Kulkarni won the Well Appraised Teacher Award for Academic Year 2018-19 on Foundation Day celebrated in the institute on 5th Sept 2019 for Consultancy projects.

2. Prof. Rajendra Patel won the Well Appraised Teacher Award for Academic Year 2018-19 on Foundation Day celebrated in the institute on 5th Sept 2019 for Consultancy projects.

Expert Lecture's conducted in the Department

1. Mr. Mandar Karandikar, alumina from 1996 batch working as joint Project General Manager, project operation at Technip FMC conducted expert lecture on 30th Aug 2019 for Third Year on topic Project Management and Carrier Guidance.

2. Mr. Abhijit Murgunde, alumina from 2013 batch working at Emerson Innovations conducted expert lecture on 9th Aug 2019 for Second Year on topic Opportunities for Instrumentation Engineer.

3. Lecture on Intellectual Property Rights (IPR) on 21st Nov 2019

The department had organized a lecture on Intellectual Property Rights (IPR) on 21st Nov 2019 from 3.00 to 5.00 pm in Sharad Arena for Second, Third, Final and First Year M .Tech students of Instrumentation Engineering department. The lecture was also open to other department students.

The speaker was Ms. Kalyani Ahir, Operations Head, IPR at Pixelstat eSolutions Development Pvt Ltd. What are Patents, Trademarks and Copyrights? topics were covered in the lecture.

Speaker Ms. Kalyani Ahir

Faculty and students attending the IPR lecture

4. Motivational lecture for Third Year students on 15th Nov 2019 organized in department

A motivational lecture for Third Year students on 15th Nov 2019 organized in department. The speaker was Mr. Raghavan Koli.

Student Visits

1. Automation Expo visit on 28th Sept 2019 by 31 students from Second Year along with Prof. Kapil Mundada

2. Visit of Third Year students to Forbes Marshall, Pune on 28th Nov 2019