



Second Edition

INNOVETA

"Sensing the Smartness & Amplifying the Intelligence"



VES Institute of Technology Newsletter: Department of Instrumentation

Editorial

We, the Instrumentation Department, wish to gradually rise to greater heights of successes, milestones being set high by our own previous achievements. To do that we are continuously striving towards bettering ourselves in all respects - personally and professionally. We present second issue of "INNOVETA" our newsletter with testimonies of our steps towards progress in 2016.

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Message from Dy. HOD



With great pleasure and pride, I would like to bring on record that the Instrumentation Department of VESIT has been Accredited for a period of THREE years from 2016-19. This feat of performing exemplarily in the accreditation process was made possible only because of the great team work and cooperation shown by the teaching and non-teaching faculty of Instrumentation Department under the able guidance of our Principal Dr. Mrs. J.M. Nair and our Head of Department Dr. P. P. Vaidya. A special mention also goes to our Undergraduate students, Research fellows and Alumni who were an integral part in the success of the accreditation process.

Another feather in our cap is a Collaborative research work with IITB in field of characterization of partial discharge in high voltage equipment, which has led to the development of comprehensive system for which provisional specifications for patent has been filed. Also, research in the field of Fiber Optic instrumentation has been undertaken for various industrial applications.

With the same zeal and team work, we hope to achieve many more such accomplishments, in the years to come.

Vision of the Department

To contribute at National as well as International level for excellence in technical education and research in the field of instrumentation and control by creating proactive, noble personalities and integrated individuals who will use the knowledge and be fully dedicated to the progress of society.

Mission of the Department

- To provide superior education to students to develop critical, analytical and imaginative thinking to enter the workplace with confidence.
- To create an environment for promoting new ideas and research to generate innovators and future leaders.
- To promote academic growth by offering state of art education at undergraduate, post graduate and doctoral level and to pursue lifelong learning so as to lead towards the betterment of society.

Program Specific Outcomes

- PSO1.** Apply the concepts of measurement using various sensors/transducers along with associated signal processing for controlling machines or processes using automation tools like PLC, DCS with proper planning and documentation.
- PSO2.** Apply the concept of automatic control including measurement, feedback and feedforward regulation for the operation of continuous and discrete system using mathematics as basis of modelling and design.
- PSO3.** Apply the concept of physics, chemistry and electricity / electronics to measurement, control and communication for design and implementation of various instruments and systems utilizing analog and/or digital circuits and control devices.

No of Faculties: 19

Research Publications: 40+

Department Domains

- ◆ Stochastics
- ◆ Process Automation
- ◆ Advanced Control Systems
- ◆ Biomedical Applications
- ◆ Nuclear Instrumentation
- ◆ Embedded Systems
- ◆ Advanced Electronics

Department Activities

- ◆ NI - LabVIEW Academy
- ◆ VESIT - AIA CDC



About VESIT-AIA CDC

VESIT has been chosen by Automation Industry Association (AIA) to conduct 'A course on Integrated Automation'. VESIT is the only technical institution in Mumbai which is authorized by AIA to be a 'Competency Development Centre' for conducting this add-on course as part of its Campus Connect Initiative.

Program Outcomes

- ♦ **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
- ♦ **Problem analysis:** Identify, formulate, review research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- ♦ **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 culture, societal and environmental considerations.
- ♦ **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.
- ♦ **Modern tool usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- ♦ **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.
- ♦ **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.
- ♦ **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Research Projects

Our Department has collaborated with industries like L&T & institutes like BARC in taking their R & D projects at institutional level. Some of the ongoing projects are:

- ♦ Fibre Optics in industrial Applications
- ♦ High Speed Data Acquisition systems
- ♦ Picosecond programmable delay generator
- ♦ Evaluation of Nuclear data for ^{241}Am and ^{54}Fe .
- ♦ Random time interval generation.

Key Achievements:

- ♦ Mr. M. D. Patil successfully completed Ph. D (IITB), thesis titled “Reduced order sliding mode control for Non-minimum phase systems: A special co-ordinate basis approach”.
- ♦ Provisional Specifications titled “Universal Hardware Partial Discharge Simulator” filed jointly by IIT Bombay and VESIT.

- ♦ **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- ♦ **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.
- ♦ **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.
- ♦ **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.

Placements: Our Recruiters



Placement Statistics

- ♦ No. of Students placed: 20+
- ♦ Eligible: 63

Internships

20 students attended Internship programs in various industries

- ♦ RCF
- ♦ BARC
- ♦ Air India
- ♦ Tata Power Co. Ltd., etc.

Knowledge Enhancement

- ♦ L&T Technical Lecture Series
- ♦ Finishing school on Industrial Engineering, Sensors & Transducers and Microcontrollers.

Industrial Visit

- ♦ R.K. Control Instruments PVT. LTD, Thane

Quality Improvement Program: Ph.D.

- ♦ Mrs. Nilima Warke
- ♦ Mrs. Kadambari Sharma
- ♦ Mrs. Sangeeta P. Ram
- ♦ Mrs. Kanchan Chavan

Staff Forum

Apart from the syllabus, our teachers constantly thrive to upgrade their knowledge in their chosen field of interest by not only attending workshops and courses on new upcoming areas, software's & its applications but also encourage students to follow suit by setting their own example. Some of the courses attended and conducted by our faculty members are:

Courses Attended:

1. Four Day Symposium on De-HPC at IITB from June 1, 2016 to June 4, 2016 - Mr. Gopalkrishnan N and Mr. Kadar Shaikh
2. Quality Improvement Program (QIP) at IIT Bombay on "Monte Carlo Simulation of Complex Biological Systems" from June 13, 2016 to June 17, 2016 - Mrs. Sangeetha Prasanna Ram
3. Winter School at IIT Bombay from Oct 26, 2016 to Oct 30, 2016. - Mr. M. D. Patil
4. QIP at IIT Bombay on "Modern Biophysical Techniques" from December 15, 2016 to December 19, 2016. - Mrs Sangeetha Prasanna Ram

Courses Conducted:

- Mr. Kadar Shaikh, Mrs. Kadambari Sharma and Mrs. Kanchan Chavan were resource persons in "Basic Automation Course" conducted at VESIT-AIA CDC in July 2016.
- Mr. Kadar Shaikh, Mrs. Nilima Warke and Mrs. Kanchan Chavan conducted a training programme on "LabVIEW Core 1 course" under VESIT-NI LabVIEW Academy Jan-2016.

Publications:

Dr. Mrs. Jayalekshmi Nair and Mrs. Sangeetha Prasanna Ram, published a research paper on "A Preliminary Examination of the Application of Unscented Transformation Technique to Error Propagation in Nonlinear Cases of Nuclear Data Science", in Journal of Nuclear Science and Engineering, Volume 183, page no. 356-370, July 2016.

Collaboration:

- ♦ Agreement for collaboration signed between IIT Bombay and VESIT for research work on "Investigation and Characterization of Partial Discharge phenomena in high voltage equipment".

Minor Research Grants

1. **Determination of Ultracapacitor parameters** – Mrs. Jayassre Ramakrishnan
Mr.N Gopalakrishnan
Grant : Rs. 25000
2. **Object classification using computer vision** – Mrs. Madhumati Khupse
Grant : Rs. 12000
3. **High resolution TAC for Time & Phase Shift Measurement** - Mrs. Namrata V. Bonde
Grant : Rs. 25000

Student Section:

Various lectures are held not only to enhance the technical knowledge of the students but also to prepare the young engineer to face the expectations of the industry.

Expert lecture

B.E. students of Instrumentation department (D18) had an Expert lecture on “Functional Safety” by Mr. Shivendra Kapoor, Manager, CMSRS- Mumbai, on 15th October, 2016.

Shresthta Award

On 15th October 2016, Mayur Kalwani of INST D18 was awarded the Shresthta Award for conquering adversities while excelling in various domains and continued to maintain academic grades.



Extra Co-Curricular Activities:

Students of Instrumentation department were involved in various co-curricular activities. They are also members of technical society “The International Society of Automation (ISA). Some of the events conducted are:

- PCB Workshop
- PLC Workshop
- Fun Event
- Analog Electronics workshop etc.



ISA PLC Workshop

Summer vacation Projects:

More than 10 projects were implemented by students of 2nd year during their summer vacations under the guidance of expert faculty.

- ♦ *Pick and place robot*
- ♦ *Assistive Technology*
- ♦ *Tank level control interfacing*
- ♦ *Wireless musical instruments*
- ♦ *Fractional order integrator with tunable order*
- ♦ *Home automation*
- ♦ *Farm automation*
- ♦ *Quadcopter*
- ♦ *Sorting Machine*
- ♦ *Obstacle detecting robot*

Alumni Speaks

“VESIT is one of the known names for Instrumentation engg in Mumbai. Every year, the institute produces some brilliant engineers who move up the ladder to become excellent professionals. This is possible because of the facilities provided by VESIT. Full time dedicated and well qualified faculty members helped the students grasp the nitty gritty of the subject. Moreover, the state of the art process lab provided the students with a glimpse of process plants. This further enhanced their instrumentation knowledge which they could apply in their professional life.

Furthermore, it's affiliation with the ISA and the activities that the student charter conducts for its members helps the students become industry ready”.

Ms. Pratiksha Bhanti

Batch-2009 pass out

“Vigilant Education System with Innovative Teaching is what VESIT stands for. Every VESITian can vouch for it. The discipline and the values imbibed in us during those carefree days at VESIT are the ones that stay with us throughout our lives.

Mr. Dhiraj Patil

Senior Customer Success Engr.

Altizon Systems Pvt. Ltd.

Batch-2009 pass out

“My first job after BE was as a management trainee. My college days were spent in being a part of organizing team of Praxis, Ustav and Sphurti. This experience helped me to settle down into my job better. I didn't have to do much with the technical aspect of instrumentation. But knowing

and having seen the field instruments in our lab in VESIT did have an advantage. From a recruiter's perspective, VESIT students have more access to field instrumentation than interns from any other college. I can say definitely VESITians are a class apart. Thank you VESIT for grooming many of us with its excellent facilities and proficient teachers.

Prashant Mahajan

Deputy Manager

SI Group India Pvt Ltd

Batch-2009 pass out

Editors

- Lekshmi A.
- Swapnil Chilap

