

Message from Department



**Mrs. Kanchan
Chavan**
Associate Professor

Instrumentation engineering is the engineering specialization focused on the principle and operation of measuring instruments that are used in design and configuration of automated systems in areas such as electrical and pneumatic domains and the control of parameters being measured.

VESIT Instrumentation Department has established state of art laboratories in Process, Electronics, Embedded and Control System. Apart from these labs, academies like AIA, LabVIEW, Prayag Hands on Instrumentation have been developed to bridge the Industry Academic gap. Dr. J.M. Nair (Principal & Professor Inst Dept) and Dr. P. P. Vaidya (Head & Professor Inst Dept, R&D Cell In charge) have made protracted efforts to guide research scholars in various research areas which has culminated into patents, several research papers - presented in various conferences and published in reputed Journals, Awards in Avishkar Competitions and most important - Industry funded projects in R&D cell.

We look forward for Instrumentation department faculty members being recognized as Industry experts for their consultancy and contribution in various research projects.

Key Achievements

- ❖ Accreditation status granted by **National Board of Accreditation** till June 2022 for the Department of Instrumentation.
- ❖ Research Project titled **‘Development of Methodology for Indian Evaluated Nuclear Data Library for applications in S&T’** under **Dr. (Mrs.) Jayalakshmi M Nair, Principal, V.E.S Institute of Technology, Mumbai**, had received administrative approval and sanction of a total grant of Rs. 17,81,276 for 3 years beginning from financial year 2019-20, from **Department of Atomic Energy (DAE), Government of India**, based on recommendations of **Board of Research in Nuclear Science (BRNS)**.
- ❖ **ISA Scholarship Recipients 2019**
 - **Ashwin Pillay** has been awarded **‘2019 Educational Scholarship’** with sum of USD 2000. For his consistent academic performance and project **‘Drowsiness Detection based on Electro Oculography and Machine Learning’**.
 - **Mayuresh Shellar** has been awarded **‘2019 Best Student Leader Award’** by ISA, Maharashtra section for his exemplary performance as a dedicated council member at ISA-VESIT.



“Engineers turn dreams into reality.” - Hayao Miyazaki

Research Projects

- ❖ Optical Signal Processing System
- ❖ Electromyography based joint angle analysis for prediction using Kalman filter
- ❖ Programmable Time-to-Amplitude Converter
- ❖ Kernel Based Machine Learning for Nuclear Application
- ❖ Precision and Sliding Pulse Generator.
- ❖ Picosecond Programmable Delay Generator
- ❖ High Speed Data Acquisition Systems
- ❖ Low level Signal Processing
- ❖ Fibre Optics in Industrial Applications
- ❖ High Resolution Timing Spectroscopy
- ❖ Reconfigurable ADCs
- ❖ High Resolution Spectroscopy System
- ❖ Partial Discharge Analysis and Simulations

Department Activities

- ❖ AIA
- ❖ Training for L&T GET

Placement Statistics

No. of Students placed: 35+

- ❖ 8 Students planning for **higher studies in Indian and foreign universities** for various Field of Specialization

Innovation Achievements

❖ **Electro-oculography based Drowsiness Detection**

Drowsiness is a perilous problem experienced by every person which may lead to hazardous events if a person falls asleep while carrying out risky tasks. The main aim of this project is to develop a device to detect drowsiness with a complete on-board system, mounted on an ergonomic headband worn by the user while making it economically suitable for people to buy it. For the detection, EOG is used which is the measure of bio potential generated across the eyes during various movements. Being a bio-signal, there is a tenancy of it to vary across individuals. Hence, Machine Learning algorithms are being used to personalize the detection process for each individual.

❖ **Diabetic Retinopathy Classification and Severity Prediction in collaboration with Aditya Jyoth Foundation**

Diabetic Retinopathy is one of the leading causes of blindness in people having Diabetes. Three major features - Blood Vessels, Exudates, Microaneurisms - distinguish the normal eye from an eye affected with diabetic retinopathy. A Convolutional Neural Network has been implemented to classify the images based on these features. Furthermore, work on the prediction of the severity of Diabetic Retinopathy into four stages, depending upon the features shown by the eyes is also underway.

Our Recruiters



“As engineers, we were going to be in a position to change the world – not just study it.”
—Henry Petroski

Research Paper Published

❖ Mrs. Kanchan Chavan

- 5th International Conference for Convergence in Technology (I2CT), March 2019
- International Conference on New Frontiers in Nuclear Physics, Oct 2019.
- Published a paper in an International Journal of Engineering Research & Technology, November 2019.

❖ Mrs. Nilima Warke

- International Journal of Innovative Technology and Exploring Engineering (IJITEE), December 2019.
- International Journal of Engineering and Advanced Technology, October 2019.

❖ Mrs. Deepti Khimani has published a paper in Asian Journal of Control, 2019.

❖ Dr. M.D Patil has published a paper in European Journal of Control, Volume 45, Elsevier, 2019.

❖ Mrs. Amudha Senthilkumar has presented a paper in 5th International Conference for Convergence in Technology (I2CT), 2019.

Staff Achievement

❖ Avishkar Research Convention

- In Teacher's Category, **Mrs. Kadambari Sharma** secured **3rd Rank** in University (Inter-Zonal/Inter-District) round for her project - **Research grade computer controlled light source.**
- In Post PG's Category, **Lekshmi Ajesh** secured **Gold Medal** at **Inter Zonal Level (University level)** and represented **Mumbai University at State level Research Convention** held at Gondwana university, for her project - **A novel system for emulation of partial discharge to aid HV equipment breakdown diagnostics.**

❖ NPTEL Certifications

- Elite Certificate with Gold medal awarded for successfully completing 12-week NPTEL Course on
- **"Developing Soft Skills & Personality"** in Aug-Oct 2019 organized by IIT, Kanpur

Attendees:

Mrs. Jayassre Ramakrishnan (Topper)

- **"Introduction to Internet of Things"** during Jan – Apr 2019 organized by IIT Kharagpur.

Attendees:

Mrs. Amudha Senthilkumar (Topper)

Mrs. Madhumati Khuspe

- Elite Certificate awarded for successfully completing 8 weeks NPTEL Course on **"Introduction to Research"** during Aug - Oct 2019 organized by IIT Madras.

Attendees:

Mrs. Namrata Bonde

Mrs. Mugdha Joglekar



❖ Other Certifications

- ❖ Mrs. Nilima Warke attended a course on **"FSE 100-IEC 61511: Functional Safety Analysis, Design and Operation"** conducted by **Exida Consulting Pvt Ltd** from 21- 24th Jan, 2019.



- ❖ Mrs. Nilima Warke has acquired the Professional Certification of Exida as **"Certified Functional Safety Professional (CFSP)"**

"Design is not how it looks like and feels like. Design is how it works" – Steve Jobs

Minor Research Grants

1. Design and Construction of a Computer Controlled High Resolution Research Grade Validation System for Hardware Research –

Mrs. Nilima Warke

Grant: 20000

2. Time to Digital Converter for Nuclear Timing Spectroscopy System –

Mrs. Kanchan Chavan

Grant: 20000

Patents filed

- **Mrs. Deepti Khimani & Dr. M. D. Patil:** *‘Robust Fluid dispensing system’.*
- **Mrs. Kanchan Chavan, Dr. P.P Vaidya & Dr. J.M Nair:** *‘Integrated High-Resolution Timing Spectroscopy System with Wide Dynamic Range based on New Method of Tracking Ramp and ADCs’.*
- **Mrs. Nilima Warke, Dr. J.M. Nair, Dr. P. P. Vaidya:** *‘System for Common Mode Voltage Removal’.*

Workshops Attended by Faculty

The faculty of the Department take keen interest in upgrading their skills from time to time by attending various workshops.

1. Workshop on “**Moodle Learning Management System**” organized by **Teaching Learning Centre (ICT) IIT Bombay** in VESIT on 15th March,2019.

Attendees: Mrs. Nilima Warke

2. Course on “**Introduction to Machine Learning and Deep Learning – with applications to engineering systems**” conducted by **IIT Bombay** for 5 days from 13th May,2019 to 17th May,2019.

Attendees: Dr. Mrs. J.M. Nair, Mrs. Sangeetha Ram

3. Course on “**Deep Learning: From Basics to Practice**” conducted by **IIT Bombay** for 5 days from 18th June,2019 to 22nd June,2019.

Attendees: Dr. Mrs. J.M. Nair, Mrs. Sangeetha Ram

4. One-week AICTE-ISTE Approved STTP on “**Emerging Trends in Operations Research**” course at VCET during 24th June,2019 to 29th June,2019.

Attendees: Mrs. Nilima Warke

5. Faculty Development Programme on “**Signal Perspectives in Wireless Communication**” sponsored by AICTE organized by **EXTC Dept of Babasaheb Naik College of Engg, Pusad** from 19th Dec,2019 to 28th Dec,2019.

Attendees: Mr. Kader Shaikh

6. Course on “**Machine Learning & Deep Learning**” organized by **VESIT-EXCT DEPT in association with NSS IIT-Roorkee** from 30th Dec,2019 to 4th Jan,2020.

Attendees: Dr. M. D. Patil, Mrs. Sangeetha Ram, Mrs. Deepti Khimani

“The engineer has been, and is, a maker of history.” — James Kip Finch

Skill Enhancement Lectures

1. Overview of gas turbines.

Speaker: Mr. Gopal Bhagat,
RIL

2. Instrumentation & control of Gas turbines.

Speaker: Mr. Ajay Varghese, RIL

3. Fission & Fusion Process in Nuclear Power Plant.

Speaker: Dr.P.P. Vaidya

4. Motors & Drives

Speaker: Mr. Shankar Parkar

5. HART and Fieldbus protocols

Speaker: Mr. Sachin S. Nevse
Engineering Manager,
Honeywell, Pune

Industrial Visits

To gain clarity regarding the concepts in textbook and their practical applicability, it is essential to visit an industry. Such visits will also acquaint the students with the industrial environment.

- ❖ Visit for the students of final year Instrumentation at **RIL, Nagothane** on 25th Feb, 2019 for Power Plant Instrumentation Subject.
- ❖ Organized Industrial visit for the students of final year Instrumentation at **Dahanu Thermal Power Plant** on 13th April, 2019 for Power Plant Instrumentation subject.
- ❖ Organized Industrial visit for the students of final year at **Aker Solutions** on 29th March, 2019 for IPDE subject.



“We are continually faced by great opportunities brilliantly disguised as insoluble problems.” - Lee Iacocca

Alumni Interaction

To provide the guidance to students, various interactions with the Alumni was organized by Instrumentation department.

1. 5 Speakers from different pass-out batch interacted with the students on 2nd Feb, 2019.

Speakers:

- Mr. Pratik Sangan (Batch: 2015-16) from Richard Industries.
 - Mr. Shaikh Asad (Batch: 2017-18) from Jacob.
 - Mr. Piyush Deuskar (Batch:2010-11) from TCE.
 - Mr. Siddhesh Thakur (Batch: 2008-09) from Petrofac.
 - Mr. Sagar Jorapur (Batch: 2007-08) from Emerson.
2. Mr. Yash Bhanushali (Batch: 2018-19) from GEP on 24th Sep, 2019.
 3. Mr. Mihir Lele (Batch: 2018-19) from Emerson (EEEC), Pune on 10th Oct, 2019.

Alumni Speaks

The course work provides a disciplined approach that can be applied across a broad industry spectrum. VESIT Process laboratory was as per Industry standards which gave us first-hand experience and enough confidence to bridge the gap between student and professional life. All my batch mates are doing well in their respective jobs which reflect the quality of the students the institute has produced.

Mr. Vikram Gupta (B. E. 2007-08)



“The way to succeed is to double your failure rate.” —Thomas J. Watson

Alumni Speaks

I am a 2009 graduate, currently working with Kinectrics Nuclear, Canada. Thanks to VESIT, I got placed from campus and started off my career with a reputed company. VESIT has been greatly instrumental in sculpting students' careers that has acted as a catapult to make them reach great heights. The staff, curriculum, methodologies and infrastructure are trained and crafted keeping the industry practices and standards in mind, thus making the students job-ready. Overall, I believe, VESIT moulds a student for the corporate world not only with sound technical knowledge but also with soft skills, thanks to extracurricular activities throughout the year. With pride I say that I am a part of an alumni that serves multiple companies worldwide. The mark of VESIT is global as its stars shine with extra ordinary performance at work places. Proud to be a VESITian.

Mr. Hardik Adhyaru (B. E. 2008-09)

Being a 2007 pass out, things have changed drastically, from the old building to the new state of art lab setups to the new class structures. I have been in touch with the Instrumentation department since my graduation. I had the opportunity to be part of the various SEL initiatives. The enthusiasm shown by the faculty and students was definitely worth appreciating. I can't close without commenting on ISA. The growth shown by ISA is phenomenal. The activities undertaken have been more and more industry and student relevant. ISA paves the way for the students to get connected to the industry and be more industry ready.

Hardik Sanghavi (B.E 2006-07)

I was given an opportunity to visit our college and department after 17 years and I was just mesmerized by the new building, full floor allotted for instrumentation department and the facilities which are available in the college. I got the opportunity to see our instrumentation laboratory which was really well maintained and equipped with all latest instruments and control system. Such a detailed laboratory with all the control loops and instrumentation setup one can only be able to see in a refinery or petrochemical complex. However, the students can get a real time feel and it's easy to understand rather than to visualize. The course content included in the curriculum which I came to know through my interactions with teaching staff was also very much in line with the latest industry trends.

Mr. Chandramouli Iyer (B. E. 2002-03)

Editorial team

Aishwarya Salvi

Akash Koyalkar

Lekshmi Ajesh

*Thank
you*

