



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)



SCHOOL OF ELECTRONICS ENGINEERING

TECH-TRONICS TRIBUNE

E-NEWSLETTER

Volume 5 Issue 4

OCT - DEC 2024

CONTENTS

1

ABOUT

Vision
Mission

2

DEAN'S MESSAGE

3

HIGHLIGHTS

4

SPONSORED PROJECTS

5

PATENTS

6

PUBLICATIONS

7

AWARDS & CERTIFICATIONS

8

EVENTS ORGANIZED

9

GUEST LECTURES

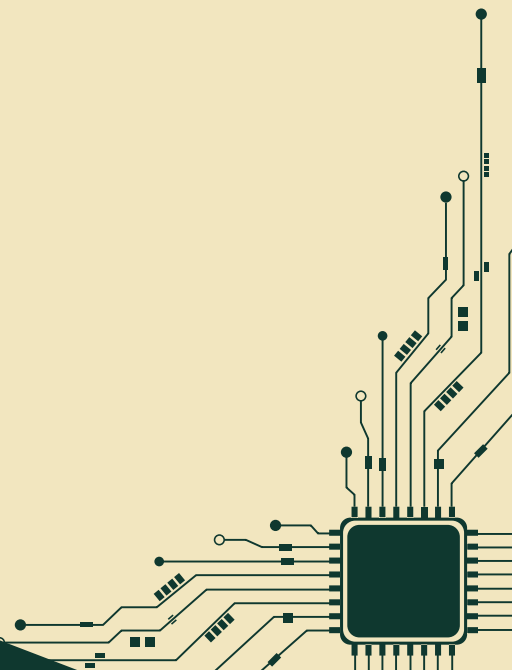
10

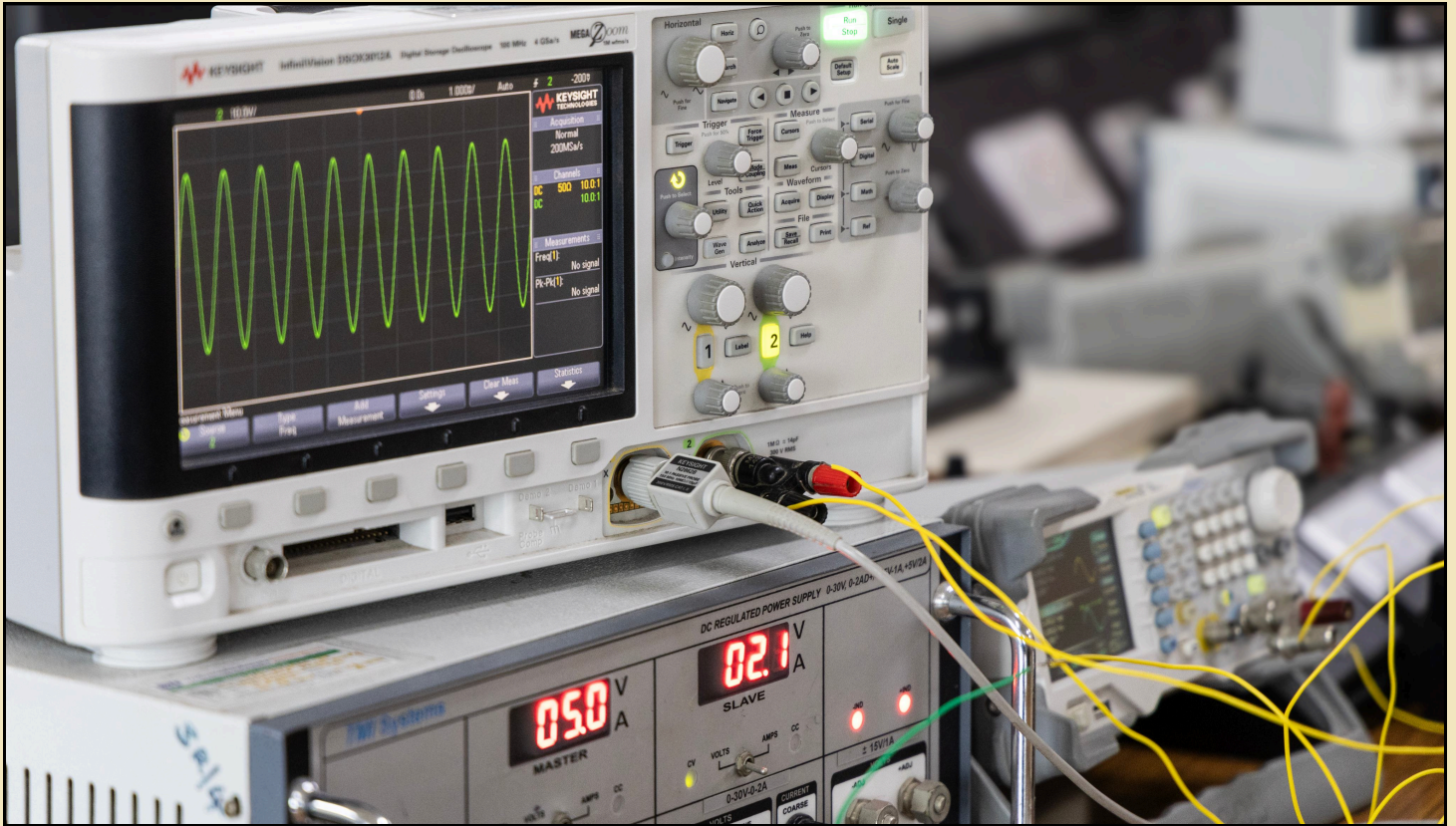
PhD COMPLETED

11

TEAM

Advisory Team
Editorial Team



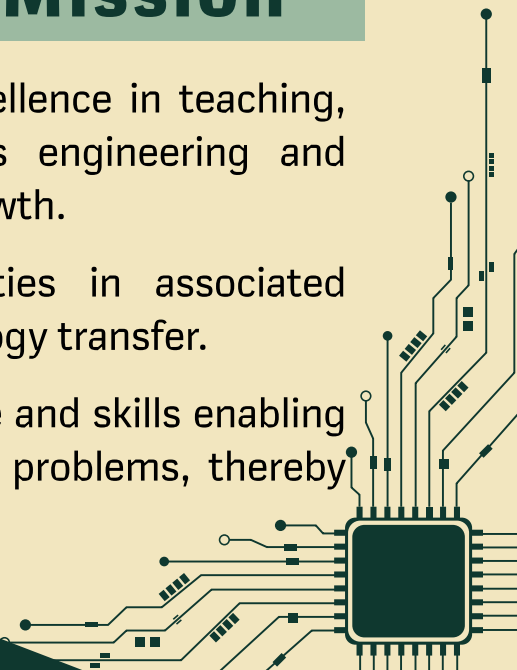


Vision

To be a leader in imparting in-depth and futuristic knowledge of electronics engineering and allied domains that cater to the needs of industry, research, and society.

Mission

- To create and maintain an environment of excellence in teaching, learning, and applied research in electronics engineering and associated disciplines to pioneer sustainable growth.
- To collaborate with industries and universities in associated disciplines to pioneer in innovations and technology transfer.
- To equip students with the necessary knowledge and skills enabling them to be lifelong learners in solving real-life problems, thereby improving the quality of human life and values.



Dear VITians,

I trust this message finds you in good health and high spirits. Today, I am delighted to bring you important updates and announcements concerning our esteemed institution's School of Electronics Engineering.

In light of the ever-evolving landscape of electronics engineering, we have embarked on a thorough review of our curriculum. Our goal is to ensure that our programs remain at the forefront of technological advancements, equipping our students with the skills and knowledge essential for success in the industry. Anticipate exciting changes in our course offerings, upgraded laboratory facilities, and enriched project-based learning opportunities.

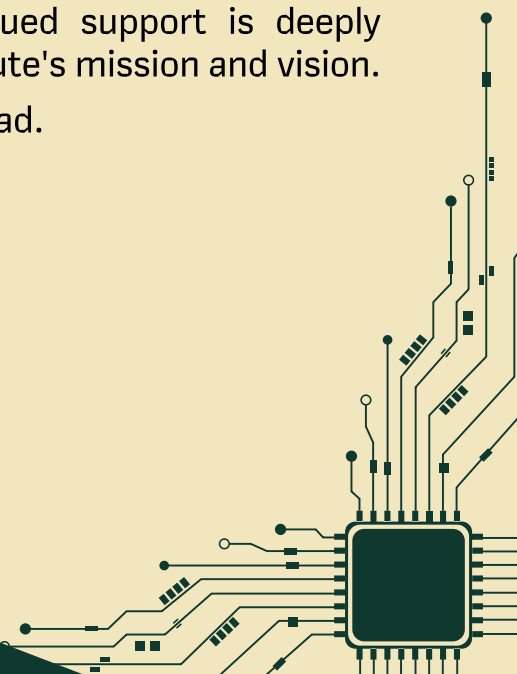
In our commitment to fostering innovation and facilitating groundbreaking research, we have actively pursued collaborations with industry partners and secured additional funding for research projects. These efforts will provide our faculty and students with expanded opportunities to delve into cutting-edge technologies, engage in multidisciplinary research endeavors, and contribute to addressing real-world challenges.

To bridge the gap between academia and industry, we are proactively establishing partnerships and collaborations with leading technology companies. These collaborations will enable our students to gain practical insights through internships, industrial training programs, and guest lectures from industry experts. We firmly believe that these interactions will enhance your professional growth and help you establish valuable industry connections.

I am thrilled to present the 5th Volume, 4th Issue of our ENewsletter, "Tech-Tronics Tribune," by the School of Electronics Engineering (SENSE) for the fourth quarter of 2024. This edition showcases the well-deserved honors and recognitions bestowed upon both faculty and students within the SENSE family for the period of October to December 2024. I extend my heartfelt gratitude to all members of the SENSE family for their unwavering support and contributions that have made this newsletter possible. Your continued support is deeply appreciated, and we eagerly anticipate realizing the institute's mission and vision. Thank you, and we look forward to an exciting journey ahead.



Dr. Sivanantham S
Professor & Dean
School of Electronics Engineering
Vellore Institute of Technology, Vellore
dean.sense@vit.ac.in

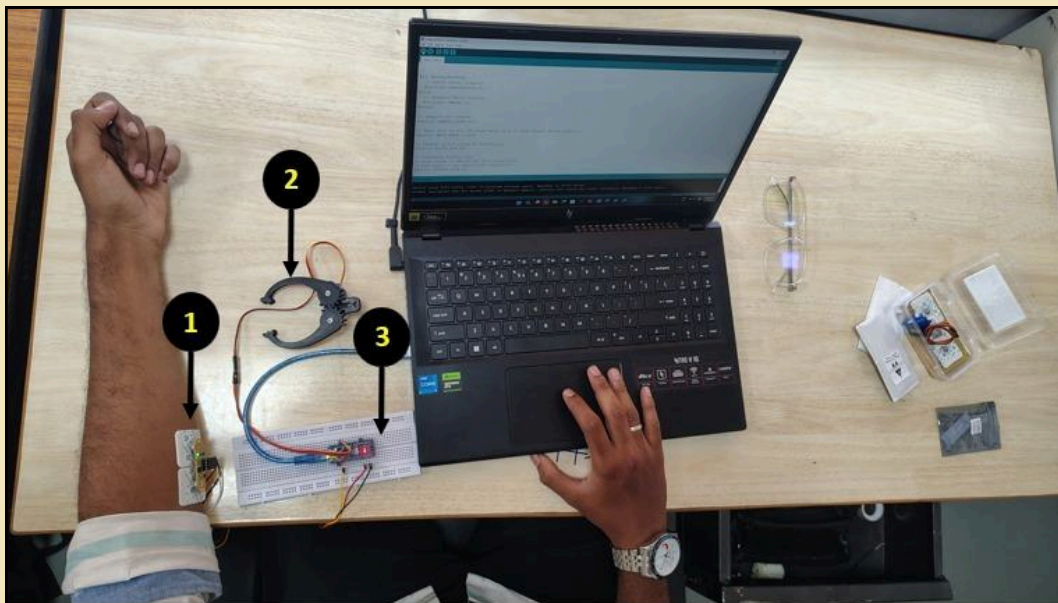




Design and Development of Exoskeleton for Rehabilitation of Leprosy Affected Individuals with Motor Paralysis of Hand

Faculty: Prof. Vidhya S (PI)
Prof. Kishor Lakshmi Narayanan (CoPI)

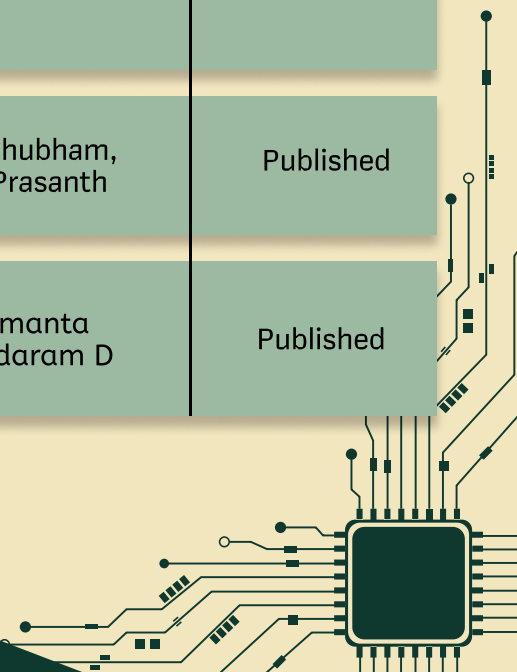
Funding Agency: ICMR
Sanctioned Amount: INR 23337285
Sanctioned Date: 13-12-2024



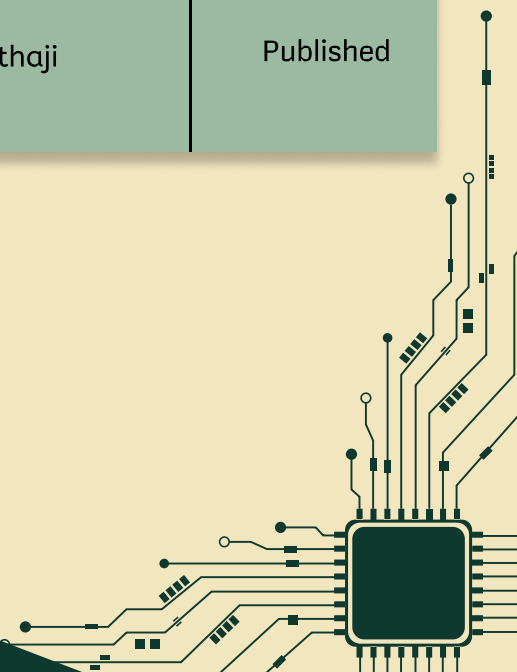
DESIGN & DEVELOPMENT OF PROTOTYPE EXOSKELETON

1. EMG sensor
2. 3D printed grasping model
3. Controller

<i>Patent Title</i>	<i>Inventors</i>	<i>Status</i>
Sustainable Automated Capsule Sorter With Shelving And Binning	Sujatha R, Ashwin Anil Kulkarni, Shreyas Sujay Nirgude, Sai Abiram Rongal	Granted
Ergonomic Id Card Holder	Gerardine Immaculate Mary, Venugopal P, Suraj Prakash Sahoo	Granted
Water Cleaning Robot	Shanidul Hoque, Hemanta Kumar Sahu, Saumya Tomar, Mohak Vaish	Granted
A Dual Band Multi-Layered Implantable Antenna For Medical Devices	Madurakavi Karthikeyan, Rajesh N, S. Kumaravel	Published
Small Scaled Metamaterial Based Low Pass Filter	Dilip Kumar Choudhary, Naveen Mishra	Published
Compact Filtering Antenna For Modern Communication System	Dilip Kumar Choudhary	Published
Improved Metal-Oxide-Semiconductor (Mos) Transistor With Reduced Equivalent Oxide Thickness (Eot) And Minimized Leakage Current	Rajan Kumar Pandey	Published
Sensor Device For Detecting A Targeted Molecule	Rajan Kumar Pandey, Shubham, Kannam Sai Lakshmi Prasanth	Published
Programmable System On Chip (Psoc)-Integrated Device For Determining Heme Groups In Sample	Thurai Pandian M, Hemanta Kumar Sahu, Somasundaram D	Published

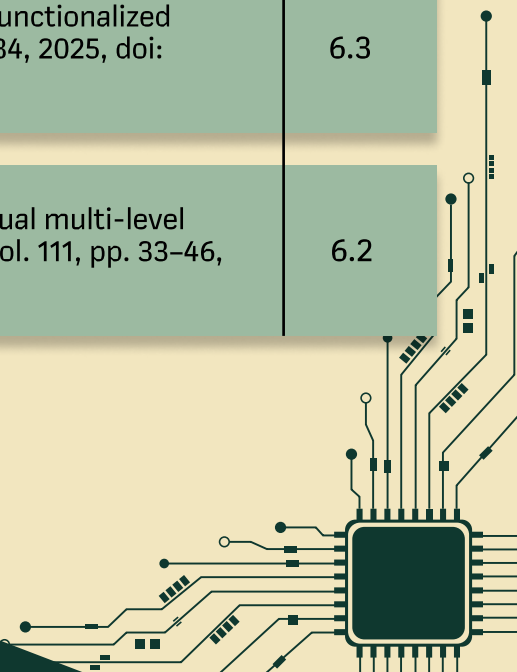


<i>Patent Title</i>	<i>Inventors</i>	<i>Status</i>
A Method For Modeling And Optimizing Stoichiometry-Dependent Resistivity Of Composite Metals Used In Semiconductor Devices	Rajan Kumar Pandey	Published
System And Method For Pre-Emptively Determining Diabetic Foot Ulcer Using A Hybrid Deep Learning Model	Hemalatha K, Joshva Devadas T, Naveenkumar J, Rajameenakshi J, Sivakumar R	Published
System And Method For Enhancing Network Coverage And Throughput In Unmanned Aerial Vehicles-Based Disaster Management	Sudhanshu Arya, Saranya K.C, Yogesh Kumar Choukiker, Abhijit Bhowmick	Published
Triboelectric Nanogenerator (Teng) Device For Harvesting Energy From Recycled Chewing Gum Waste	Arunkumar Chandrasekhar, Rajasekar P, Karthick N, Sayyid Abdul Basith V, Nimmi Sharma	Published
Triboelectric Nanogenerator (Teng) Device For Logic Gate Simulation And Power Plant Control	Arunkumar Chandrasekhar, Nitha P K	Published
High Voltage Regulated [350V And 0.92A] DC-DC Boost Converter For Renewable Energy Applications	Kathirvelan J, Nethaji	Published

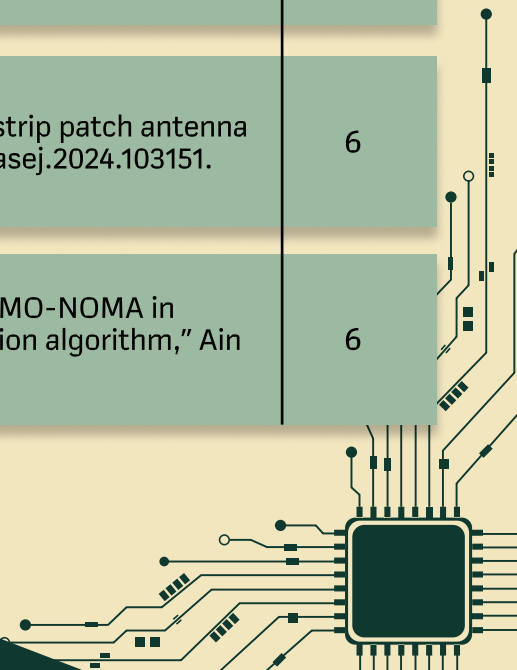


High Impact Factor Publications

Details	IF
D. Kannadassan, K. Sivasankaran, S. Kumaravel, C.-H. Cheng, M. S. Baghini, and P. S. Mallick, "High-k Metal-Insulator-Metal Capacitors for RF and Mixed-Signal VLSI Circuits: Challenges and Opportunities," Proc. IEEE, 2024, doi: 10.1109/JPROC.2024.3506996.	23.2
C. Madhu and M. S. Sudhakar, "EmoDialect: Leveraging Fuzzy Matching and Dialect-Emotion Mapping for Sentiment Analysis," IEEE Trans. Affect. Comput., 2024, doi: 10.1109/TAFFC.2024.3514862.	9.6
N. Chinnappan and S. Punniyakoti, "Emerging advances of 2D molybdenum disulfide (MoS ₂) and their composites towards high-performance supercapacitors: A comprehensive review," J. Energy Storage, vol. 102, 2024, doi: 10.1016/j.est.2024.114040.	8.9
M. M. Noel, S. Bharadwaj, V. Muthiah-Nakarajan, P. Dutta, and B. A. Geraldine, "Biologically inspired oscillating activation functions can bridge the performance gap between biological and artificial neurons," Expert Syst. Appl., vol. 266, 2025, doi: 10.1016/j.eswa.2024.126036.	7.5
I. E. Ezhilarasi and J. C. Clement, "Robust cooperative spectrum sensing in cognitive radio blockchain network using SHA-3 algorithm," Blockchain: Res. Appl., vol. 5, no. 4, 2024, doi: 10.1016/j.bcra.2024.100224.	6.9
B. Lesiak-Orłowska et al., "Surface chemical and electronic properties of functionalized Fe ₃ O ₄ nanoparticles influencing their cytotoxicity," Appl. Surf. Sci., vol. 684, 2025, doi: 10.1016/j.apsusc.2024.161873.	6.3
S. Kumar, R. Chinthaginjala, S. Ahmad, and T. Kim, "Energy-efficient unequal multi-level clustering for underwater wireless sensor networks," Alexandria Eng. J., vol. 111, pp. 33–46, 2025, doi: 10.1016/j.aej.2024.10.026.	6.2

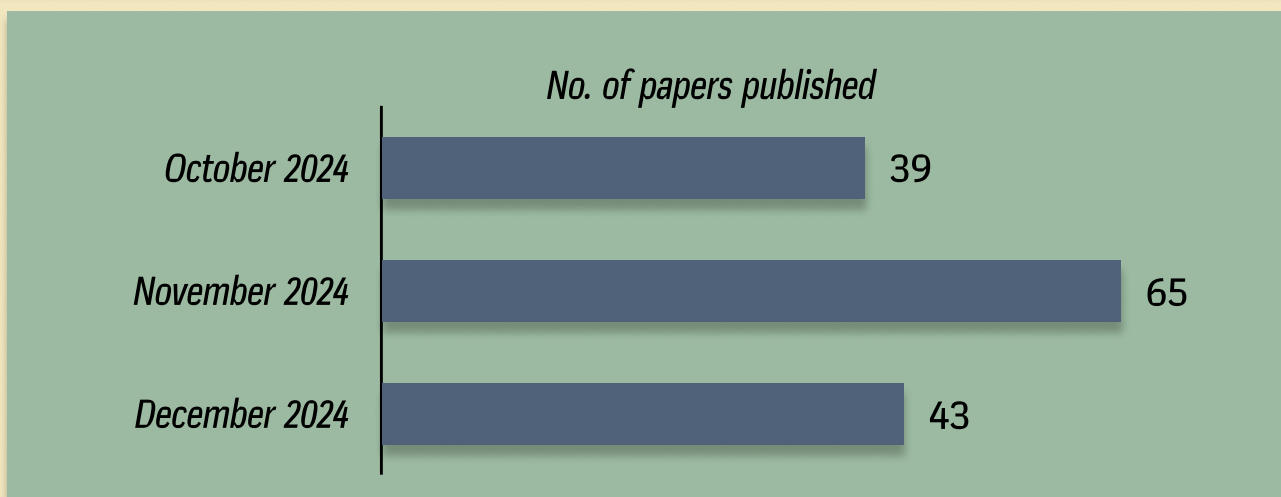


Details	IF
N. R. Sivaraaj and K. K. Abdul Majeed, "Exploring a comprehensive review of non-linear and composite phase frequency detectors within PLL frameworks," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.102909.	6
A. H. Rubavathy and S. Sundar, "Optimizing relay node selection in cooperative wireless body area networks with modified POA," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103215.	6
K. Vinothkumar and T. Velmurugan, "Maximizing energy efficiency and system throughput using a self-adaptive penalty function with a whale optimization algorithm in social-aware device-to-device communications," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103272.	6
C. J. M. Andrews, A. S. K. Narayanan, and A. Marazhchal Sunil, "Compact Metamaterial based Antenna for 5G Applications," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103269.	6
U. S. Devi and R. K. Mugelan, "EVM-Aware relay path decision with hierarchical modulation for reliable data transmission in cooperative relay networks," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103468.	6
A. P, V. P., S. S. Kumar, and K. J. Naidu, "Adaptive multilevel attention deeplabv3+ with heuristic based framework for semantic segmentation of aerial images using improved golden jackal optimization algorithm," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103164.	6
T. Kim et al., "Evaluation of a double-lens dielectric radome using a microstrip patch antenna for electromagnetic applications," Ain Shams Eng. J., 2024, doi: 10.1016/j.asej.2024.103151.	6
J. MidhulaSri and C. V. Ravikumar, "Offloading computational tasks for MIMO-NOMA in mobile edge computing utilizing a hybrid Pufferfish and Osprey optimization algorithm," Ain Shams Eng. J., 2024, doi: 10.1016/j.asej.2024.103136.	6



<i>Paper Title</i>	<i>IF</i>
S. Vidhya and M. Karthikeyan, "Ultra-wide band and high efficient Polarization converting metasurface employing Bell-shaped unit cell for RCS reduction," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103342.	6
P. V. and C. V. Ravikumar, "Improved migration algorithms for uplink transmission secrecy sum rate maximization in MIMO-NOMA," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103275.	6
S. Punitha and K. S. P., "A novel integration of Web 3.0 with hybrid chaotic-hippo-optimized Blockchain framework for healthcare 4.0," Results Eng., vol. 24, 2024, doi: 10.1016/j.rineng.2024.103528.	6
K. Vinoth and P. Sasikumar, "VINO_EffFedAV: VINO with efficient federated learning through selective client updates for real-time autonomous vehicle object detection," Results Eng., vol. 25, 2025, doi: 10.1016/j.rineng.2024.103700.	6
N. R. Sivaraaj and K. K. Abdul Majeed, "Ultra-low power Ka-band phase noise optimized LCVCO with enhanced FOM of -197.300 dBc/Hz," Results Eng., vol. 25, 2025, doi: 10.1016/j.rineng.2024.103718.	6

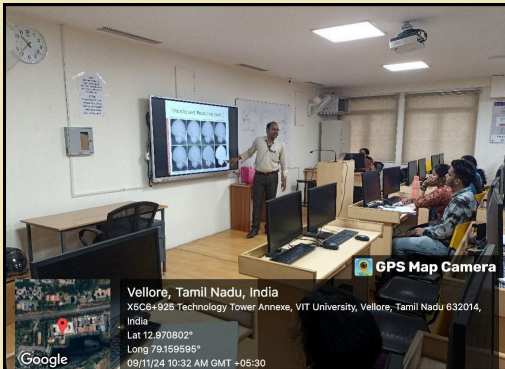
Overall Summary



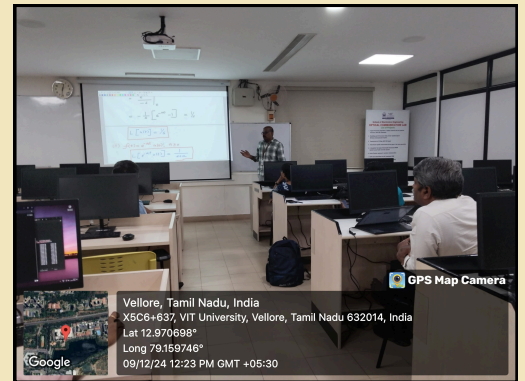


Dr. Arunkumar Chandrasekhar received the certification of **Elsevier Best Paper Award** from **Elsevier - CUSAT, Kerala** on 13-12-2024.

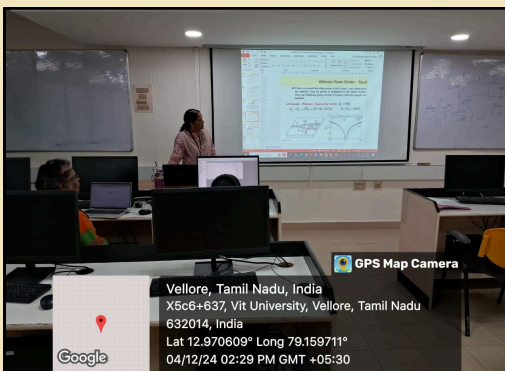
- FDP on **Circuit Theory** was organized by Dr. Vinoth Babu K and Dr. Sathya P from 09-12-2024 to 10-12-2024.



- Workshop on **System Design for Image Processing: Hands-on Xilinx Vivado & Google Colab** was organized by Dr. Sri Adibhatla Sridevi and Dr. Rajesh Kumar M from 09-11-2024 to 10-11-2024.



- FDP on **Microprocessor and Microcontrollers** was organized by Dr. Sundar S and Dr. Padmini T N from 02-12-2024 to 06-12-2024.



- FDP on **Antenna and Microwave Engineering** was organized by Dr. Poonkuzhali R from 03-12-2024 to 06-12-2024.

- Training Program on **ASIC Design using Cadence EDA Tools** was organized by Dr. Prayline Rajabai C and Dr. Antony Xavier Glittas Xavier Chelliah from 09-11-2024 to 10-11-2024.



08

EVENTS ORGANIZED

- **Working Model/Prototypes Projects Display** (TR4 Level) through Expo titled Robotics Project Expo 2024 was organized by Dr. Shanidul Hoque, Dr. Mohiul Islam, and Dr. Kalyanbrata Ghosh on 18-12-2024



- FDP on **Future-Ready Antenna Design: Cutting-Edge Solutions for 5G mm-Wave and Beyond** was organized by Dr. Madurakavi Karthikeyan and Dr. Rajesh N from 14-10-2024 to 18-10-2024.
- Hands-on Training on **Circuit Simulation and PCB Prototyping to Product Integration using Autodesk Eagle** was organized by Dr. Kathirvelan J and Dr. Rohit Mathur from 14-10-2024 to 18-10-2024.
- **Electronic Project Expo 2024** was organized by Dr. Sathya P on 20-11-2024.
- Workshop on **Python for Machine Learning and Data Science** was organized by Dr. Vinoth Babu K, Dr. Poongundran Selvaprabhu, and Dr. Rajeshkumar V from 09-11-2024 to 10-11-2024.
- National Workshop on **Innovative Applications of Industry 5.0** was organized by Dr. Konguvel Elango and Dr. Vidhya S on 04-10-2024.
- FDP on **Wireless and Mobile Communication** was organized by Dr. Budhaditya Bhattacharyya from 04-12-2024 to 05-12-2024
- National Workshop on **Sustainable IoT use-cases with 5G & AWS Cloud** was organized by Dr. Konguvel Elango and Dr. Sujatha R on 01-10-2024.

The School of Electronics Engineering hosted a series of guest lectures featuring experts from academia and industry worldwide. These sessions explored cutting-edge advancements in communication systems, micro and nanoelectronics, sensors, biomedical technology, and embedded systems. Discussions focused on emerging technologies, industry trends, and research breakthroughs, providing students with valuable insights into real-world applications.

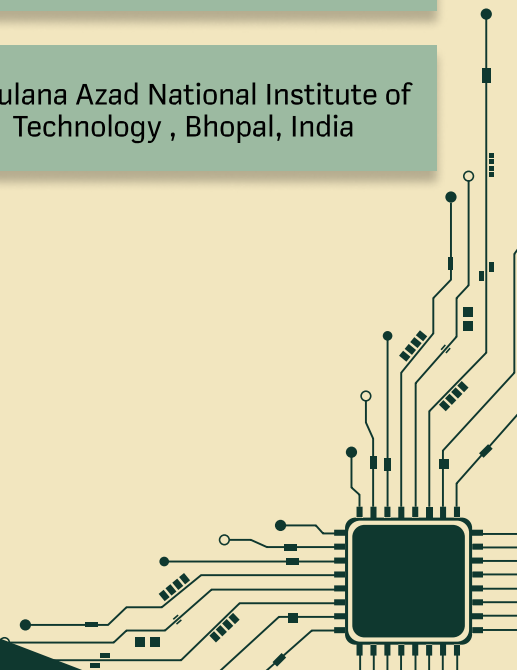
With a strong emphasis on AI, automation, cybersecurity, and hardware advancements, the lectures bridged the gap between theoretical knowledge and practical implementation. Attendees gained a deeper understanding of evolving engineering landscapes, fostering innovation and interdisciplinary learning.

These sessions served as a platform for students to engage with global experts, enhancing their technical expertise and preparing them for future challenges in the field.

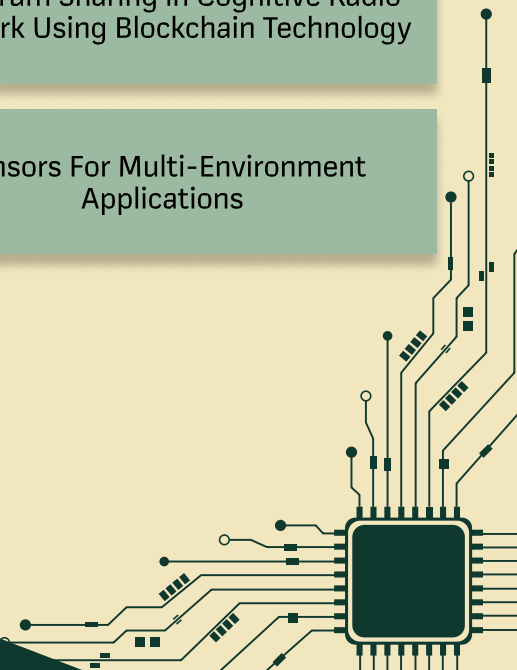
In this fourth quarter of the year 2024, we have **organized 54 guest lectures** over various departments.

Guest Lectures Delivered

Novel applications of Emerging memory device and circuits	Dr. Vishal Gupta	Indian Institute of Technology Patna, Patna, India
Implementation of optimization algorithms to enhance the efficiency and regulation of SEPIC converter based solar powered EV charging stations	Dr. Kathirvelan J	Khalifa University, Abu Dhabi UAE, United Arab Emirates
Communication and Control Systems	Dr. Vinoth Babu K	Maulana Azad National Institute of Technology , Bhopal, India



<i>Name</i>	<i>Guide name</i>	<i>Title</i>
M A MATHEEN	Dr. S. Sundar	Design of a QoS Constrained Routing Framework for Wireless Multimedia Sensor Networks
BABA FAKRUDDIN ALI B H	Dr. Prakash R	Compressed Domain Image Analytics Using Deep Learning Techniques
DADASIKANDAR KANEKAL	Dr. Sumit Kumar Jindal	Enhancing the Performance of MEMS Piezoresistive Pressure Sensors for Multi-Environment Applications
MARICHAMY DIVYA	Dr. Kumaravel S	Low-Power, Fast Locking, Low-Spur Phase Frequency Detector Circuit Techniques for the Energy-Efficient Charge Pump Phase Locked-Loop Used in Communication System
SRISHTI SINGH CHAUHAN	Dr. Bhaskar Mohan Murari Dr. Vidhya S	Design and Development of an Optical Sensor for the Detection of Bilirubin: A Jaundice Marker
D BALAKUMAR	Dr. Nandakumar S	Spectrum Sharing in Cognitive Radio Network Using Blockchain Technology
MADHAN V	Dr. Sudhakar M S	Sensors For Multi-Environment Applications



ADVISORY TEAM



Dr. SIVANANTHAM S
Professor & Dean
SENSE, VIT Vellore



Dr. Jasmin Pemeena Priyadarisini M
Professor & Associate Dean
SENSE, VIT Vellore



Dr. NOOR MOHAMMED V
Professor & HoD
Dept. of Communication
Engineering, SENSE



Dr. VIDHYA S
Professor & HoD
Dept. of Sensors & Biomedical
Technology, SENSE



Dr. JAGANNADHA NAIDU K
Associate Professor & HoD
Dept. of Micro & Nano
Electronics, SENSE



Dr. KARTHIKEYAN B
Associate Professor & HoD
Dept. of Embedded
Technology, SENSE

FACULTY MENTORS



DR. PRAYLINE RAJABAI C
Assistant Professor Sr Gr 2
Dept. of Micro & Nano
Electronics, SENSE



DR. NISHA J S
Assistant Professor Sr Gr 1
Dept. of Sensors & Biomedical
Technology, SENSE



DR. SUDHANSHU ARYA
Assistant Professor Sr Gr 1
Dept. of Communication
Engineering, SENSE



MRS. BIJAYLAXMI DAS
Assistant Professor Sr Gr 1
Dept. of Embedded
Technology, SENSE

EDITORIAL TEAM



KAVI ROHITH M
22BEC0147



BALAJI S
22BEC0145



PALLAWI KUMARI
23BML0021



SARAVANA VIKAS D
23BVD0053

DESIGN TEAM



HRDYA VR
24BVD0076



AADHARSHINI S
24BEC0200



NICOLE T
24BEC0387



AXA ANNA KURIAN
24BML0079

