

VIT[®]

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)
Vellore - 632014, Tamilnadu, India

SCHOOL OF ELECTRONICS ENGINEERING

Information Conspectus



About SENSE

Welcome to the School of Electronics Engineering (SENSE) at VIT, Vellore where we are dedicated to providing state-of-the-art education in Electronics and Communication Engineering, along with its allied fields. Established with a vision to excel in academic excellence and foster innovation, our programs were designed to meet the highest standards in the industry. Our program is recognized globally, with QS Subject Rankings in the range of 201-250 for Electrical and Electronics Engineering. We take pride in our strong-track record of campus placement. Eligible students are not only placed on campus but also find opportunities in core companies every year. This success is a testament to the quality of education and practical exposure that our students receive. SENSE boasts cutting-edge laboratories equipped with excellent infrastructure in various domains including Electronics, Communication, VLSI Design, Embedded Systems, Biomedical Instrumentation, Sensors and Nanotechnology. Our commitment to global collaboration is evident in the presence of adjunct professors from top 500 (QS Rankings) universities, bringing a wealth of international expertise, enriching the academic experience for our students. Our lab utilizes the latest simulation tools to provide students with hands-on experience and practical insights. Encouraging a global perspective, we motivate students to undertake their final-year projects abroad. Additionally, we have established meaningful Memoranda of Understanding (MoUs) with several foreign universities, research organizations, and industries to facilitate student and faculty exchanges. To promote R&D, we set up advanced laboratories sponsored by industry partners. Faculty members are actively involved in R&D activities, undertaking projects funded by esteemed government organizations such as DST, DRDO, ISRO and BRNS. In our pursuit of innovation, we actively collaborate with industry partners to secure additional funding for research projects. These collaborations open up opportunities for faculty and students to delve into cutting-edge technologies, engage in multidisciplinary research initiatives and contribute solutions to real-world challenges.

Vision

To be a leader in impacting in-depth and futuristic knowledge of electronics engineering that would cater to the need of industry, research and society.

Mission

- To create and maintain an environment of excellence in teaching, learning and applied research in the fields of electronics and communication engineering and allied disciplines which pioneer sustainable growth.
- To instill in graduates the necessary professionalism, ethics, knowledge and skills which would enable them to be lifelong learners who are able to solve current and future problems and improve the quality of human life.

Administration



Dr. S. Sivanantham
Professor & Dean
SENSE



Dr. Jasmin Pemeena Priyadarisini M
Professor & Associate Dean
SENSE



Dr. Noor Mohammed V
Professor & Head
Communication Engineering



Dr. S. Vidhya
Associate Professor & Head
Sensor & Biomedical Technology



Dr. Jagannadha Naidu K
Assistant Professor & Head
Micro & Nano Electronics



Dr. B. Karthikeyan
Associate Professor & Head
Embedded Technology

Programmes Offered

UG Programmes

1. B. Tech. - Electronics and Communication Engineering
2. B. Tech. - Electronics and Communication Engineering (Biomedical Engineering)
3. B. Tech. - Electronics Engineering (VLSI Design and Technology)

PG Programmes

1. M. Tech. - Automotive Electronics
2. M. Tech. - Biomedical Engineering
3. M. Tech. - Electronics and Communication Engineering (Intelligent Communication Systems)
(Dual Degree with Darmstadt University of Applied Sciences, Germany)
4. M. Tech. - Embedded Systems
5. M. Tech. - Internet of Things and Sensor Systems
(Dual Degree with Hochschule Karlsruhe University of Applied Sciences, Germany)
6. M. Tech. - VLSI Design
(Dual Degree with Darmstadt University of Applied Sciences, Germany)

Research Programmes

1. Ph. D. - Full Time
2. Direct Ph. D. - Full Time

Communication Engineering

- AI/ML/DL driven wireless communication
- Beyond – 5G (B5G) networks
- AIoT & Sensor networks
- Green Communication for Cognitive Radio Networks
- Digital Signal & Image Processing
- Free Space Optics Technologies
- Smart Antenna for Future Generation Wireless Systems

Sensors & Biomedical Technology

- Sensors & Health care
- Medical Physics & Informatics
- Bio-Imaging Techniques & Processing
- Sol-gel Biosensors
- Rehabilitation Engineering
- Sensors & Biomedical Instrumentation
- Biosensors & Biomaterials
- Biomedical Image & Signal Processing

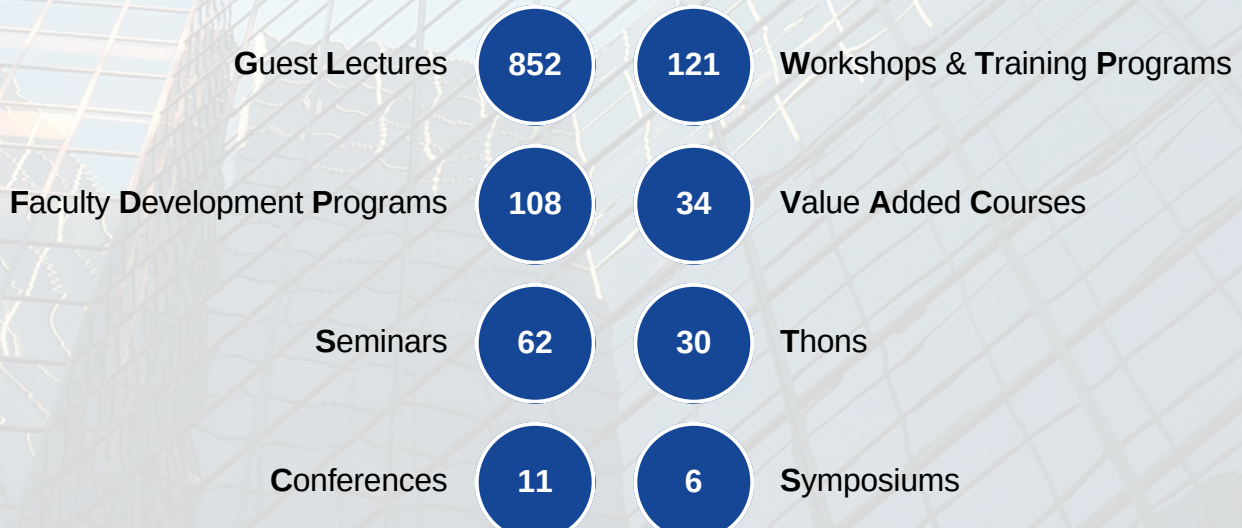
Micro & Nano Electronics

- RISC5-based Architecture Design
- Device Modeling
- Nanomaterial Characterization
- Neuromorphic Computing
- Reconfigurable Architecture Design
- Hardware for AI & ML
- LNA & PLL Design

Embedded Technology

- Generative Adversarial Networks (GANs)
- Computer Vision & Deep Learning
- Heterogeneous & Parallel Computing
- Industrial IoT & Wireless Sensor Networks
- FPGA based System Design
- ECU development for Automotive Electronics
- Edge & Cloud Computing
- IoT Data Security

Events Organized*



*Last Five Years

Major Research Facilities



Ellipsometer

Real & imaginary part of Refractive Index
Oscillator model & Parameter Studies



Light Runner Kit

WDM, Erbium Doped Fiber Amplifier Experiments,
Attenuation Dispersion, Laser & Photo Diode
Characteristics, Optical TD Reflectometer,
Power & Rise Time Budget, BER & Eye Pattern



Magnetron Sputtering

Coating Materials - Metals, Semiconductors
Dimension - 10mm x 10mm



EMI/EMC Near Field Measurement Setup

Measurements: Occupied Bandwidth, Channel
Power, ACPR, C/I, Spectral Emission Mask & PIM
Hunting



Ventilator

CMV with Airway Pressure, Expired Minute Volume,
Respiratory Frequency, FiO2 & Safety ABS



Wireless Test Chamber

EMC (6GHz), Radiation Emission (CISPR 22),
Antenna (18GHz), Radiation Pattern & S Parameter,
RF & Microwave (20GHz) Test



Digital & Analog Sensor Simulation

JCI Metasys for HWS, CHWS with
HW Modules - FAC IOM & PC



Software Defined Radio

All Base Band Processing,
Real Time Transmission & Reception

Industry Supported/Funded Laboratories

Laboratory Name	Major Facilities
Advanced Digital Signal Processing Laboratory	TMS320C6748 DSP Development Kit
Advanced Microcontroller and RTOS Laboratory	KEIL-MDK-PRO MDK ARM, XILINX VIVADO, EDGE ZYNQ Z7010 SoC FPGA Kit, AppCoE, 8051, AVR, Beagle Boards
Analog System Design Laboratory	Multisim, Orcad PCB Design
Anatomy and Physiology Laboratory	ECG Machine (MACI-EKG Generic ATO)
ASIC Design Laboratory	Cadence University Research Bundle, ORIGINLAB Professional
Biochemistry Laboratory	Flame Photometer, Microscopes
Biomedical Instrumentation Laboratory	Datascope 8C Bio-Signal Data Acquisition System, Haemodialysis Machine, Ventilator, Heart Lung Machine
Biosignal Processing Laboratory	MATLAB, MultiSim, Keil & ARM IDE
Circuit Simulation and PCB Fabrication Laboratory	Low Temperature Furnace, Wearable Devices System Development, PCB Milling Machine, Viscometer, Flat Knitting
Chip Design Laboratory	OpenROAD, Microwatt, AI Opensource, Stratix-7 Development Boards
Communication Laboratory	NetSim, NIUSRP-2901, Light Runner WDM, Wireless digital radio Trainer Kit, OFS & WDM
Data Acquisition Laboratory	NI ELVIS II, NI ELVIS II+, Multisim & LabVIEW for Circuits, NI My DAQ Student Kit
Digital Electronics Laboratory	Altera DE2 Boards, Intel FPGA Development Boards
Digital Signal Processing Laboratory	Arbitrary Waveform Generator, DSP Starter Kit, Bloom with DSP
FPGA Laboratory	Altera DE2, DE3, DE10, Intel Cyclone 10, Xilinx Kintex 7, Intel Quartus Prime
IC Design Laboratory	Synopsys & Siemens EDA Tools, 3D TCAD
Intelligent Industrial IoT and Computing Laboratory	LoRaWAN Gateway, Z Wave Module, Raspberry Pi & Arduino Boards
JCI Smart Building Technology Laboratory	JCI Metasys for HWS, CHWS with HW Modules - FAC IOM & PC
Medical Image Processing Laboratory	MATLAB
MEMS and Chemical Sensor Laboratory	Ellipsometer, Optical spectrum Analyzer, Sputtering unit, Thermal evaporation unit, Gas sensing chamber
MEMS Design Centre	Comsol Multiphysics, Intellisuite
Microprocessor and Microcontroller Laboratory	Keil IDE, 8051 & LPC2148 Development Boards
Microwave Laboratory	EMI/EMC Measurement Setup, Wave Guide Technology, CST Software, Vector Network Analyzer
Networking Laboratory	Qualnet Developer, NetSim
Open Source Programming and Big Data Analytics Laboratory	Go Pro CHDHX RW Hero Camera, ZOTAC Geforce GTX 6GB GDDR6 Graphic card, Thermal Imager
Optical Communication Laboratory	Light Runner WDM, OPTSim, Fiber Optic Trainer Kit
Physical Sensor Laboratory	Ultrasonic, Weather, Fiber Optic, Sensing & Calibration Setup
Wearable Technology & IoT enabled Virtual Laboratory	SDR Bundle, Data Glove, USRP Test Kit, Wi-Fi Launch Pad
Wireless Test Chamber	ETS Anechoic Chamber (7.68x3.18x3.1 m), ETS- 3115E, 3142E, Keysight N5173B EXG, N9010B EXA, 9374A

Sponsored Projects*

Total Number of Projects: 87 | Total Revenue Generated: INR 10 Crores

PI / Co-PI	Project Title	Funding Agency	Amount in Lakhs (INR)
Dr. S. Karthikeyan Dr. P. Sasikumar Dr. V. Samuel Rajkumar	IoT Forensics for Detecting and Tracking Construction Material	BAAC	28.37
Dr. A. Senthilkumar Dr. J. Kathirvelan	Concerted Approach to Diagnose and Manage Anemia through Development of Cost-Effective Point of Care Devices	DST	27.28
Dr. Antony Xavier Glittas	FFT based Spectrum Analyzer	ISRO	30.53
Dr. Kishor Lakshmi Narayanan	Hand Sensorimotor and Carpal Tunnel Syndrome	DST	14.24
Dr. Ashutosh Mahajan Dr. Rajan Kumar Pandey	Multiscale Modelling Framework for Developing an in-house FEM-based Simulation Tool for Emerging Sub-5-nm Technology Dode Devices	DST	49.83
Dr. T. R. Suresh Kumar Dr. Zachariah C. Alex	Design and Development of Frequency Selective Surface-based Wearable Electromagnetic Shield	DST	36.44
Dr. K. Sivasankaran	Study of Self Heating Effect on sub 7nm stacked Nanosheet Field Effect Transistor	DSTIUZ	17.89
Dr. M. Uma Shankar Dr. G. Velvizhi Dr. R. Sujatha R	IoT-LoRA enabled detection and prediction of pollutants in an open dumping yard and modelling the fate and transport of the pollutant	DST	34.79
Dr. M. S. Sudhakar	Automatic detection of solar features such as sunspots, filaments and extraction of their attributes	ISRO	24.22
Dr. A. Nirmala Grace Dr. Raja Sellappan Dr. George Jacob Dr. R. Vimala	Development and Fabrication of 2D materials as alternative counter electrodes for Flexible dye sensitized solar cells (DSSCs) and alternative hole transport materials (HTMs) for noble metal free Flexible Perovskite Solar cells (FPSCs)	DST	44.93
Dr. A. Sandeep Suresh Rao Dr. A. Nirmala Grace	Design, Development and Characterization of Nanocellulose / PVA Nanocomposite Facilitated Transport Membranes for Efficient CO ₂ Separation from Biogas	DST	12.47
Dr. C. Yogesh Kumar	Design and development of multi-functional reconfigurable antenna for navigation receiver system	DST	20.95
Dr. Zachariah C Alex	Metal Oxide Semiconductors For Non-Invasive Diagnosis Of Breast Cancer	MHRD	13.99
Dr. Samir Ranjan Meher Dr. Zachariah C Alex	Copper oxide based cost-effective photovoltaics by magnetron sputtering	DST	26.91
Dr. Devendranath Ramkumar Dr. T. C. Kanish Dr. K. Govardhan Dr. Raja Annamalai	Enhancing research based learning and teaching on advanced materials and manufacturing technologies for aerospace sectors in India and UK	RYEUK	46.33
Dr. Vijay Kumar	Himalayan Fellowship	NMHS	36.41
Dr. Penchalaiah Palla Dr. Vijay Kumar	Designing GNM HBN Quantum Dot Based Hybrid Photodetectors	DRDO	12.74
Dr. V. Thankaiselvan Dr. S. Sivanantham	Design and development of multipurpose reversible data hiding in wavelet domain for defence applications	DRDO	18.72
Dr. Elizabeth Rufus Dr. Zachariah C. Alex	Development of a wearable electronics device used for elderly health care monitoring by employing multi sensor data fusion algorithm	DST	23.00

*Last Five Years

Major Consultancy & Testing Projects*

Total Number of Projects: 15 | Total Revenue Generated: INR 47.65 Lakhs

PI / Co-PI	Project Title	Funding Agency	Amount in Lakhs (INR)
Dr. J. Valarmathi	Human Vital Monitoring using MilliMeter Wave Radar	Capgemini, India	2.50
Dr. J. Kathirvelan	Technical Consultant for PD & E and COE	SKF Ltd, India	1.18
Dr. Rohit Mathur	Conceptual Design of Fog Penetration Radar	Edgeforce Solutions, India	3.75
Dr. R. Sujatha	Design and Development of Kavach IoT Wristband for Work Safety Management	Daimler Vehicles, India	1.95
Dr. Zachariah C. Alex Dr. R. Prakash Dr. S. Abraham Sampson	Development of Food Spoilage Detector	Euro Exim Bank, India	6.70
Dr. J. Kathirvelan	Technical Investigation for TWCOE	SKF India Ltd, India	3.54
Dr. Zachariah C. Alex	Development of Cuff less BP Monitoring Device	Aries Biomed Technology Private Ltd, India	1.00

*Last Five Years

Patents

Granted: 9 | Published: 34 | Filed: 18

Inventor Name	Invention Title (Granted)
Dr. P. Gopinath, Dr. Veerapu Goutham, Dr. J. S. Nisha	Coconut Tree Climber-Sprayer
Dr. Shah Arpan Hasmukh Mayuri, Dr. Kalyanbrata Ghosh, Dr. Sagar Pareshkumar Ramanbhai	Antenna For RFID Applications
Dr. Shah Arpan Hasmukh Mayuri, Dr. Kalyanbrata Ghosh, Dr. Sagar Pareshkumar Ramanbhai	RF Resonator Filter
Dr. Sagar Pareshkumar Ramanbhai, Dr. Shah Arpan Hasmukh Mayuri	Microwave Antenna Sensor
Dr. R. Ramakrishnan, Dr. Saransh Chhawchharia, Anirudh Parmar, Akshay Bhaskar	Seat Position Adjusting Mechanism For Lifting & Shifting A Seat Of A Wheelchair
Dr. Alex Noel Joseph Raj, G. V. M. Vijayalakshmi, Dr. Rahul Kalyana Sundaram, Dr. B. Karthikeyan	Automated Gender Separation System for Separating a Gender Of Cocoons
Dr. R. Syam Sai, Dr. A. Nirmala Grace	Process of Preparing 2-Dimensional (2D) Molybdenum Carbide (MO2C)
Dr. A. Rammohan, Dr. K. Ganesan, Sree Harsha, Navaneeth Ankam	Detection of Improper Use Of Clutch
Dr. A. Rammohan, Dr. K. Ganesan, Sree Harsha, Navaneeth Ankam	Dynamic Brake Force Display (Rear)

Faculty & Student Startups

Startup/Venture Title	Startup/Venture Type	Founder
Punar Innovating Rehab Solution	Product	Prof. Sharmila N.
Javisa Innovation Private Limited	Product	Prof. Vidhya S.
Ambher Technologies Private Limited	Product	Mr. Koushik Urs K
Nereus Technologies Private Limited	Product	Ms. Sriya Peri, Ms. Parineeta Mahajan

Research Profile*

Citations **13445** **281** Maximum Citation

Journal Publications **3004** **46** h - index

Citation Index **7.29** **27.8** Maximum Impact Factor

National Academic **888** **337** International Academic

National Industry **138** **46** International Industry

*Scopus

Collaborative Activities

Elevating from our proven history of successful collaborations, we extend a heartfelt invitation to potential partners, fostering a shared journey towards sustained excellence in the below activities:

- Adjunct Faculty
- Capstone Projects
- Consultancy & Testing Activities
- Corporate Trainings
- Curriculum Development
- Design of Experiments
- Dual Degree Programs
- Establishment of Laboratories
- Faculty & Student Exchange
- Funded Projects
- International Funding
- Internships
- Joint Fellowships
- Joint Research
- Joint Patents
- Joint Events (Thons & Conferences)
- Memorandum of Understanding (MoU)
- Mentorships to UG/PG Students
- Professor in Practice
- Publications
- Value-Added Courses

Our Recruiters

Fueling success for the third consecutive year, our School of Electronics Engineering proudly maintains a stellar **95%** placement rate, propelling students into thriving careers at the forefront of technological innovation.



Contact Us

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