



VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

TECHINNOVATION

NEWS LETTER

OCT - DEC, 2025

DEPT. OF ECE

VOLUME NO.: 38

ECE Department

Electronics and Communication engineering is a discipline which uses the scientific knowledge of the behaviour and effects of electrons to develop components, devices, systems, or equipment that uses electricity as part of its driving force. This engineering field encompasses many subfields like signal processing, semiconductor chip design, telecommunication, data communication networks, satellite and radar link setup, embedded systems, robotics and many more.

Electronics and Communication engineering department transforms our day-to-day lives through a multitude of innovative technologies and products. The ECE department is intended to expose students to the unlimited opportunities for innovation in this exciting field, and to the methodologies and tools used by ECE engineers for the exploration and design of new technologies and products.

The applications of Electronics & Communication engineering is an endless list with a lot of scope in each and every subfield. It is a versatile branch that opens path for core electronics & communication jobs. Besides the numerous jobs in core field, the IT sector also welcomes an ECE engineer with open arms.

As compared to other branches, there are more interdisciplinary specializations in higher studies for ECE students like Embedded Systems, VLSI, Wireless communication, Signal Processing. Therefore, ECE students have a wider choice.

Department of Electronics and Communication Engineering was started since the inception of Vignan's Institute of Management and Technology for Women during 2008 with an initial intake of 90. The strength was enhanced to 120 during 2010. The Department had added Post graduate programme in VLSI during the year 2011 and Embedded Systems during 2014 with an intake of 18 each.

The Department has state-of-art laboratories equipped with advanced and well-maintained equipment, continuously updated application software packages, more than adequate computing systems with 24x7, 40 MBPS internet facility. All faculties are having a minimum teaching experience of 4 years. Seminars, Guest Lectures, Workshops, and Technical Symposia are conducted in the department to keep faculty and students updated with the latest developments in various technologies.

The Department is accredited by the National Board of Accreditation (NBA) has been accredited by National Board of Accreditation (NBA) successively two times i.e. in 2019 and 2022, which is valid up to 2025.

ECE students of the institution are well placed in different companies with different packages.



Department Vision

To transform the students into technologically competent professionals, with abilities to address the societal challenges of the time through innovative technical practices in electronics & communication engineering.

Department Mission

- M1: To foster inquisitive-driven advanced knowledge building among students for reinforcing the domain knowledge, develop capabilities, skills and solve complex engineering problems.
- M2: To prepare industry-ready graduates for global Electronics as well as communication-based engineering companies by conducting training programs, workshops and industry visits.
- M3: To build entrepreneurship and leadership qualities, research aptitude among students for the contribution of economic and technological development in cutting edge technologies in the national and as well as in the global arena.

Program Educational Objectives:

- PEO1: To develop the student's ability on technical concepts to design, simulate, and synthesize various electronic and communication circuits & systems for their research advancements.
- PEO2: To impart analytical skills and to prepare the students to excel in applying state-of-the-art hardware and software tools to solve complex engineering problems for R&D, Industry, and societal requirements.
- PEO3: To prepare the students to work in teams, take independent decisions, and integrate engineering issues for a successful career in a multi-disciplinary environment.
- PEO4: To promote entrepreneurship among the students to become successful entrepreneurs with professional ethics.

Program Specific Outcomes:

- A graduate of the Electronics and Communication Engineering Program will be able to
- PSO1: **Professional Skills Ability:** Identify, design electronics & communication circuits and conduct experiments with electronics & communication systems, analyze and interpret data, formulate and solve electronics & communication engineering problems.
- PSO2: **Industrial Skills Ability:** Design digital and analog systems, algorithms, fire ware, modern engineering tools, software, etc. as per needs and specifications and work in laboratory and multidisciplinary tasks.
- PSO3: **Ethical and Social Responsibility:** Communicate effectively in both verbal and written form, will have knowledge of professional and ethical responsibilities and will show an understanding of the impact of engineering solutions on the society, and also will be aware of contemporary issues.

EDITORIAL BOARD

- Mr. T. PULLAIAH, HOD, ECE.
- Mrs. D. Shirisha, Assistant Professor, ECE.
- Dr. V. Suzan Shalini, Assistant Professor, BS&H.
- Bonala Sohini IV-I, ECE (Student)
- A.Vasanthi III-I, ECE (Student)
- A. Varshika II-I, ECE (Student)
- A. Akhila II-I, ECE (Student)



HOD'S MESSAGE

Dr. T. Pullaiah,
Associate Professor &
HEAD OF THE DEPARTEMENT,
DEPARTMENT OF ELECTRONICS
AND COMMUNICATION
ENGINEERING.

It gives me immense pleasure to present the Oct–Dec 2025 issue of our department newsletter, TECHINNOVATION. This newsletter reflects the dedication and achievements of our students and faculty, celebrating academic excellence, innovation, and creativity. I congratulate everyone involved in maintaining the high standards of the department and wish our students continued success in their professional journey.

FDP ATTENDED

SI No	Name of the faculty	Title	Event Type	Date of event	Mode of attending
1	Mrs.G.Susmitha	Introduction to Industry 4 0	National	JUNE-OCT 2025	ONLINE
2	Mr.G.Ganesh Reddy	Speech AI and Signal Processing: From Fundamentals TO Real Word Implementations	ATAL	13/09/2025	ONLINE

FACULTY PUBLICATIONS

SI No	Author	Title	Date of Published
1	Mr.P.HariKrishna	Advancement in VLSI and Signal Processing	25t November 2025
2	Mr.P.Hari Krishna	Design and validation of Symmetric Ternary Logic And Its Systematic Logic Composition Methodology	Nov-25
3	Mr.J.Sunil Kumar	Design and validation of approximate multiplier	Dec-25
4	Mr.J.Sunil Kumar	Design and validation of High gain LNA using GAN HEMT Technology	Dec-25

BOOKS & CHAPTERS PUBLISHED

S. No	Author	Title of book	Date of Published
1	Dr.G.Jhansi Reddy	"n Energy Efficient Compressor with lesser Delay and low Power DelayProduct"	25/11/2025
2	Mrs.M.Pravallika	Embeded Systems Versus Ai And MI	28/11/2025
3	Mr.J.Sunil Kumar	Low power area efficient reversible decoder architecture using transmission gate CMOS Topology	Oct-25
4	Mr.G.Ganesh Reddy	Automatic Waste Segregation using ESP32	Oct-25

EVENTS AT DEPARTMENT

Guest Lecture on “Modern Communication Technologies using for High Speed Trains and Indigenous KAVACH”

The Department of Electronics and Communication Engineering (ECE) at Vignan's Institute of Management and Technology for Women organized a Guest Lecture on “Modern Communication Technologies using for High Speed Trains and Indigenous KAVACH” on 11th October 2025 at B-Block Seminar Hall.

The session was delivered by M. Raj Kumar, IRSSE, who shared his professional expertise in railway signaling and communication systems. The lecture aimed to provide students with insights into advanced communication technologies used in high-speed rail systems and India's indigenous train protection system, KAVACH.



Objectives of the Guest Lecture

- To understand modern communication systems used in high-speed trains.
- To introduce signaling and safety technologies in railway networks.
- To explain the working principle of India's indigenous KAVACH system.
- To bridge the gap between academic concepts and real-time industrial applications.
- To motivate students towards careers in railway communication and signaling engineering.

Session Highlights

Modern Communication Technologies in High-Speed Trains

The speaker elaborated on:

- Evolution of railway communication systems
- Role of GSM-R and advanced wireless communication technologies
- Optical fiber communication in railway networks
- Real-time data transmission between trains and control stations
- Importance of reliable signaling for passenger safety

He explained how communication systems ensure synchronization between locomotives, stations, and centralized control systems.



Indigenous KAVACH System

A major focus of the lecture was on KAVACH, India's indigenously developed Automatic Train Protection (ATP) system. The speaker discussed:

- Objectives and need for KAVACH
- Collision avoidance mechanisms
- Automatic braking system

- Integration of RF communication and GPS technology
- Role of signaling engineers in implementation

Students gained clarity on how KAVACH enhances railway safety and supports the “Make in India” initiative.

Interactive Session

The lecture concluded with an interactive Q&A session where students actively participated and clarified their doubts regarding railway signaling, career opportunities in Indian Railways, and emerging trends in transportation communication systems.

Outcomes of the Event

- Enhanced understanding of modern railway communication systems.
- Awareness of indigenous technologies like KAVACH.
- Exposure to real-time industrial applications of ECE concepts.
- Motivation for competitive examinations and technical careers in railways.
- Strengthened industry-academia interaction.



MoU between VMTW and IRISSET

On 27 November 2025, Vignana Institute of Management and Technology for Women (VMTW), Ghatkesar, entered into a Memorandum of Understanding (MoU) with the Indian Railways Institute of Signal Engineering & Telecommunications (IRISSET), Secunderabad. This collaboration marks a significant step toward strengthening academic-industry partnerships in the fields of signal engineering, telecommunications, and railway technologies.

Objectives of the MoU

The primary objectives of this MoU include:

- **Skill Development:** Enhancing technical competencies of students in railway signaling and telecommunication systems.
- **Knowledge Sharing:** Facilitating workshops, seminars, and guest lectures by IRISSET experts.
- **Research Collaboration:** Promoting joint research projects in communication engineering, digital signaling, and cloud-based railway applications.
- **Internships & Training:** Providing hands-on training opportunities for VMTW students at IRISSET facilities.
- **Curriculum Enrichment:** Aligning academic programs with industry requirements to improve employability.



Scope of Collaboration

- Workshops & Seminars: Regular technical workshops on advanced railway communication systems.
- Faculty Development: Specialized training programs for VMTW faculty to stay updated with industry practices.
- Student Projects: Joint supervision of final-year projects related to railway signal engineering and IoT-based communication systems.
- Infrastructure Utilization: Access to IRISSET laboratories and simulation tools for practical learning.

4. Significance of the Partnership

This MoU is expected to:

- Bridge the gap between academic learning and industrial application.
- Empower women engineers with exposure to real-world railway technologies.
- Strengthen institutional collaboration for innovation in transportation and communication systems.

Contribute to the Digital India and Smart Railways initiatives by fostering research and innovation.

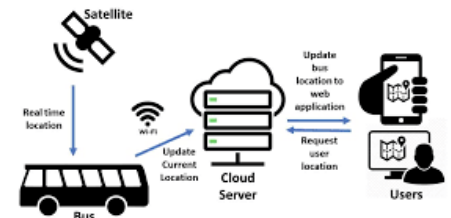


STUDENT PROJECTS

Smart Campus Bus Monitoring Application

Students: Godige Pranitha, Bangar Meghana, Adepu Sushritha, Singi Reddy, Deepika

Guide: Mr. P. Harikrishna

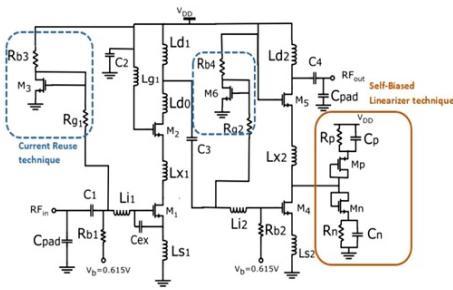


The Smart Campus Bus Monitoring Application was developed to improve transportation efficiency within the campus. The system uses GPS modules to track bus locations in real time. The collected data is transmitted through wireless communication technology to a centralized monitoring system. Students can view bus routes and estimated arrival times through a user-friendly interface. This reduces waiting time and enhances safety. The project integrates IoT concepts with mobile application development. It also demonstrates database management for storing route information. The team worked on system testing and validation to ensure accuracy. The solution is scalable and can be extended to city transportation systems. Under the guidance of Mr. P. Harikrishna, the team successfully implemented a practical smart mobility solution.

Design and Validation of Low-Noise, High-Gain LNA for 5G Applications

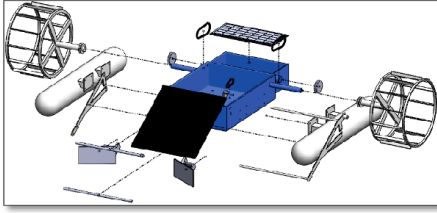
Students: Chilukuri Harika Reddy, Pendam Sri Vignha, Nimma Jaya Bhanu Sri Vigneshwari, Nara Sai Priya
Guide: Mr. J. Sunil Kumar

This project focuses on designing a Low Noise Amplifier (LNA) suitable for 5G mobile communication systems.



River Cleaning Robot

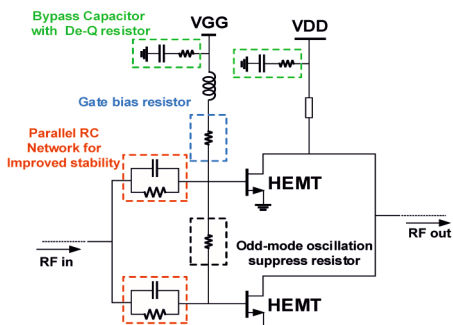
Students: Kukudala Nikhitha, Vadde Swathi Keerthana, Bugga Ananya
Guide: Dr. SK. Masthan Basha



The River Cleaning Robot is an environmentally focused project aimed at removing floating waste from water bodies. The system consists of a mechanical conveyor mechanism controlled by a microcontroller. Sensors help detect obstacles and ensure smooth navigation. The robot collects plastic waste and deposits it into a storage container. This project addresses environmental pollution issues. The design is cost-effective and energy efficient. The team implemented motor control circuits for movement. Testing was conducted in controlled environments. The project promotes sustainable engineering practices. Under the guidance of Dr. SK. Masthan Basha, students successfully developed an eco-friendly technological solution.

High Gain GaN HEMT LNA using 150nm Technology

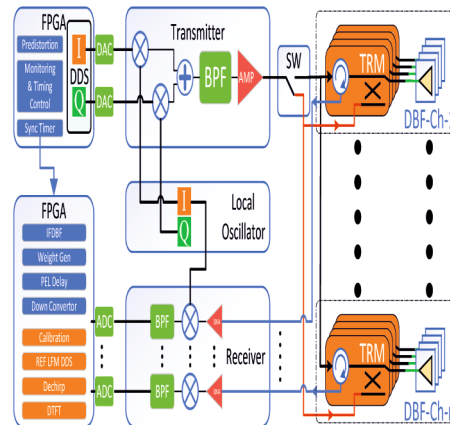
Students: Bonala Sohini, Mandha Harthi, Kadari Chandana
Guide: Mr. J. Sunil Kumar



This project involves designing a high-gain Low Noise Amplifier using GaN HEMT technology. The amplifier is intended for high-frequency RF applications. GaN technology offers improved thermal stability and efficiency. The team simulated the design using advanced tools. Performance metrics such as gain and noise figure were optimized. The design supports high-power communication systems. The project enhances understanding of semiconductor device technology. Practical implementation considerations were also studied. The team demonstrated strong analytical and simulation skills. The project reflects advancements in microwave circuit design.

DFT-Compatible Timing Error Detection Structure

Students: Rayala Sathwika, Kavalı Sowmya, Gummadeela Kaveri
Guide: Mr. E. Nagaraju

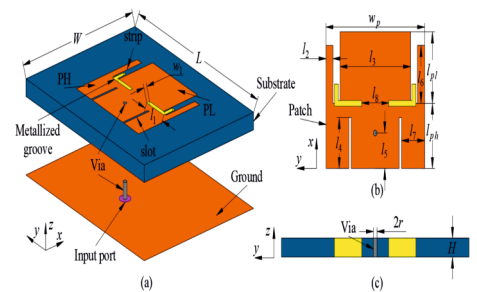


The project presents a timing error detection and correction mechanism compatible with Design-for-Testability (DFT). It improves reliability in digital circuits. The design minimizes area and test overhead. The team analyzed timing violations and developed correction strategies. Simulation tools were used to validate performance. The structure enhances fault detection capability. It supports high-speed digital system design. The project strengthens VLSI design knowledge. The solution ensures improved circuit stability. Under faculty guidance, the students gained expertise in digital architecture testing.

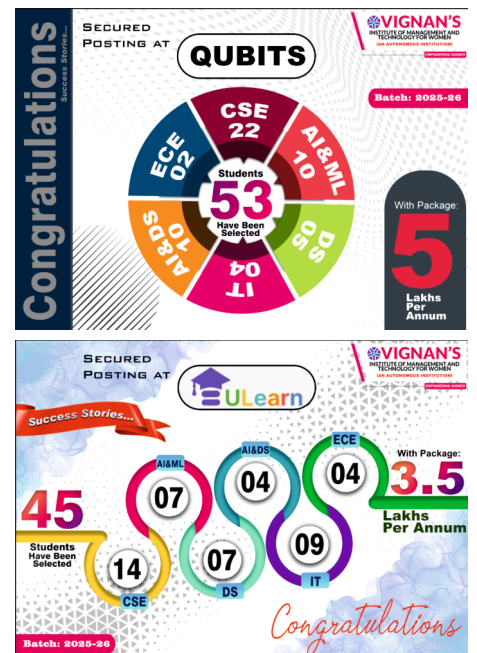
Microstrip Patch Antenna for WiFi Applications

Students: Rapelly Rishitha, Goddenla Vennela, Bhirudhoju Vasavi
Guide: Dr. Vijaykumar R. Urkude

This project focuses on designing a microstrip patch antenna for WiFi frequency applications. The antenna was modeled and simulated to operate efficiently at 2.4 GHz. Parameters such as return loss, VSWR, gain, and radiation pattern were analyzed. The team worked on impedance matching techniques to improve performance. The antenna structure was optimized for compact size and better efficiency. Simulation tools were used for validation and performance analysis. The project enhances understanding of RF communication systems. It demonstrates practical antenna design methodology. The work is applicable in wireless routers and IoT devices. Under the guidance of Dr. Vijaykumar R. Urkude, the students gained strong exposure to antenna engineering concepts.



CAMPUS PLACEMENTS



Placements

Success Stories...

VIGNAN'S
INSTITUTE OF MANAGEMENT AND
TECHNOLOGY FOR WOMEN
(AN AUTONOMOUS INSTITUTION)

Congratulations
SECURED POSTING AT
KEELINE
BETTER VALUE

22UP1A0451
T. SUCHITRA

With Package:
5 Lakhs Per Annum

BATCH: 2025-26

Congratulations SECURED POSTING AT **SUTHERLAND**

VIGNAN'S
INSTITUTE OF MANAGEMENT AND
TECHNOLOGY FOR WOMEN
(AN AUTONOMOUS INSTITUTION)

Batch: 2025-26

With Package:
2.7 Lakhs Per Annum

Success Stories...

Congratulations SECURED POSTING AT **CMRI TRUZEIR**
ISO 9001:2015

VIGNAN'S
INSTITUTE OF MANAGEMENT AND
TECHNOLOGY FOR WOMEN
(AN AUTONOMOUS INSTITUTION)

Batch: 2025-26

29 Students Have Been Selected

With Package:
4.5 Lakhs Per Annum

SECURED POSTING AT **GLOW LOGICS**

VIGNAN'S
INSTITUTE OF MANAGEMENT AND
TECHNOLOGY FOR WOMEN
(AN AUTONOMOUS INSTITUTION)

Batch: 2025-26

62 Students Have Been Selected

IT (10) AI&DS (8) ECE (7) CSE (18) DS (10) AI&ML (9)

With Package:
7 Lakhs Per Annum

Congratulations **Success Stories...**

Program Outcomes (Adapted from NBA)

Engineering Graduates will be able to:

P01 : Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

P02 : Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to Wk4)

P03 : Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

P04 : Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (Wk8)

P05 : Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and Wk6)

P06 : The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and Wk7)

P07 : Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (Wk9)

P08 : Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

P09 : Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.

P010 : Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

P011 : Life-Long Learning: Recognize the need for, and have the preparation and ability for
i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (Wk8)