



VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

TECHINNOVATION

NEWS LETTER

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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.
- Mrs. 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 DEPARTMENT,
DEPARTMENT OF ELECTRONICS
AND COMMUNICATION
ENGINEERING.

It gives me immense pleasure to present the Jul–Sep 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.

EVENTS AT DEPARTMENT

Industrial Visit to BSNL – RTTC

Introduction

The Department of Electronics and Communication Engineering (ECE) at Vignan's Institute of Management and Technology for Women organized an Industrial Visit to Bharat Sanchar Nigam Limited (BSNL) – RTTC, Hyderabad on 21st August 2025.

The primary objective of the visit was to provide students with practical exposure to modern telecommunication systems, networking infrastructure, and real-time communication technologies used in the telecom industry.

Objectives of the Industrial Visit

- To understand the working of telecom switching and transmission systems.
- To gain practical knowledge about optical fiber communication.
- To observe networking equipment such as routers, switches, and servers.
- To bridge the gap between theoretical concepts and industrial applications.
- To enhance technical awareness about telecom operations and infrastructure.

Visit Highlights

1. Networking and Switching Systems

During the visit, students were introduced to:

- Telecom switching systems
- Server rooms and network racks
- Optical Fiber Communication (OFC) systems
- Router and switch configurations
- Structured cabling systems

Industry experts explained the functioning of core telecom networks and data transmission mechanisms.



2. Demonstration of Communication Infrastructure

Students observed:

- Real-time monitoring systems
- Signal routing and bandwidth

management

- Network topology diagrams
- Power backup systems used in telecom operations

The demonstration helped students understand how large-scale communication networks are managed efficiently.



3. Technical Interaction Session

A detailed technical session was conducted by BSNL professionals explaining:

- Evolution of telecom technologies (2G to 5G)
- Role of BSNL in national communication infrastructure
- Fiber-to-the-Home (FTTH) services
- Career opportunities in the telecom sector

Students actively interacted with the experts and clarified their doubts regarding networking technologies and career prospects.

Outcomes of the Visit

- Enhanced understanding of telecom network infrastructure.
- Practical exposure to routers, switches, and optical fiber systems.
- Better clarity on real-time applications of communication engineering concepts.
- Awareness about career opportunities in the telecom sector.
- Strengthened industry-academia interaction.

Conclusion

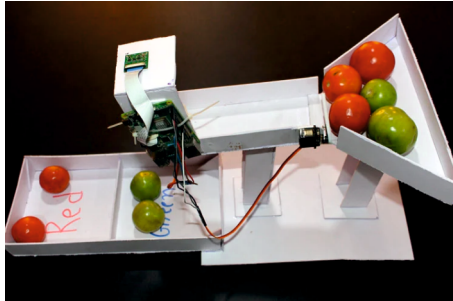
The Industrial Visit to Bharat Sanchar Nigam Limited – RTTC, Hyderabad was highly informative and beneficial for the students of the ECE Department at Vignan's Institute of Management and Technology for Women. The visit provided hands-on exposure to telecom infrastructure and enhanced students' practical knowledge in communication and networking systems. Such industry interactions play a crucial role in shaping students' technical skills and professional awareness.



STUDENT PROJECTS

Tomato Sorting Machine Using Embedded System Based on Colour

Students: Sudireddy Sai Teja, Borra Shree Lakshmi Naveena, Sai Snigdha, Bokka Nikhitha
Guide: Mr. P. Harikrishna



This project presents an automated tomato sorting machine using embedded system technology. The system identifies tomatoes based on colour using colour sensors. Based on ripeness levels, tomatoes are categorized into different grades. A microcontroller processes sensor data and controls conveyor movement. The project reduces manual labour and increases sorting accuracy. It is especially useful in agricultural industries and food processing units. The system ensures faster and more efficient grading. Students integrated hardware components like motors, sensors, and controllers. Testing confirmed accurate colour-based classification. Under the guidance of Mr. P. Harikrishna, the team developed a practical agricultural automation solution.

Real Time Attendance Monitoring System

Students: M. Raja Suhasini, A. Sindhu , Angothu Shailaja
Guide: Mr. Ganesh Reddy Gangam

This project focuses on developing a real-time attendance monitoring system for educational institutions. The system uses RFID or biometric technology for accurate attendance

recording. Data is automatically updated in a centralized database. It eliminates manual attendance errors and reduces paperwork. The system provides instant attendance reports for faculty. Alerts can be generated for absentee students. The project integrates embedded systems with database management. It ensures transparency and accuracy. The solution is scalable for schools and colleges. Under the mentorship of Mr. Ganesh Reddy Gangam, students implemented an efficient academic monitoring system.



Pedal Balancing Robot

Students: Ayidapu Samatha
Guide: Ms. G. Indira Priyadarshini

The Pedal Balancing Robot project focuses on self-balancing robotic technology. The robot maintains balance using gyroscope and accelerometer sensors. A microcontroller processes sensor data for stability control. Control algorithms ensure real-time correction. The project demonstrates principles of robotics and control systems. It highlights embedded system programming skills. The robot responds dynamically to external disturbances. The design integrates motor drivers and sensor modules. The project enhances understanding of automation and robotics. Under Ms. G. Indira Priyadarshini's mentorship, the student successfully developed a stable balancing prototype.

Workshop on –

“PCB DESIGN AND FABRICATION”,

on 29th & 30th August 2025 for students.

Speaker: : Mr. Arjun Modi, Senior Engineer, Armtronics Lab, Hyderabad. Telangana

A total of 61 members participated in the workshop. The coordinators for the workshop were Mrs. G. Indira Priyadarshini, Associate Professor and Mr. G. Ganesh Reddy.

Date & Time: The workshop was conducted on 29th & 30th August 2025 from 09:00 AM–3:30 PM

We would like to thank our honorable Chairman Sri Dr. L Rathaiah Garu, CEO Sri B. Shravan, Principal Dr. A. Apparao Naidu and Dr. T. Pullaiah, HOD of ECE for their support for successful completion of workshop.

All the participants felt very happy for attending the program and most of them given excellent feedback.

The Department of Electronics and Communication Engineering organized a two-day hands-on workshop on "PCB Design and Fabrication" in association with Armtronics Lab. The workshop aimed to provide II-year ECE students with in-depth practical knowledge of designing and fabricating Printed Circuit Boards (PCBs). The session was conducted by Mr. Arjun Modi, an expert in PCB design and fabrication from Armtronics Lab.

1. Objective of the Workshop

The primary objectives of the workshop were:

- To introduce students to PCB design principles and fabrication techniques.
- To provide hands-on experience in PCB layout design, etching, and soldering.
- To familiarize students with PCB

design software and manufacturing processes.

- To enhance students' practical skills and prepare them for industry requirements.

2. Overview of the Workshop

The workshop was structured into the following key sessions:

2.1 Introduction to PCB Design

Mr. Arjun Modi began with an introduction to PCB technology, explaining its significance in electronic circuit development. He provided an overview of different types of PCBs, their applications, and the design process.

2.2 PCB Design using Software Tools
Students were introduced to industry-standard PCB design software such as:

- Eagle
- KiCad

2.3 PCB Fabrication Process

The fabrication process covered:

- Printing and transferring PCB layouts
- Etching and drilling techniques
- Component placement and soldering
- Testing and debugging of PCB circuits

2.4 Practical Hands-on Session

Students worked on a mini-project, designing and fabricating a simple circuit board. The hands-on session allowed them to apply theoretical knowledge in real-time, learning essential troubleshooting techniques.

2.5 Industry Insights and Best Practices

Mr. Arjun Modi provided insights into industry trends, best practices in PCB design, and tips for improving reliability and performance in PCB fabrication.

3. Interaction and Q&A Session

The session concluded with an interactive Q&A session where students inquired about career opportunities, industry expectations, and advanced PCB technologies. The speaker addressed queries and provided guidance on project development and industry-oriented learning.

4. Conclusion

The workshop was highly engaging and provided students with practical exposure to PCB design and fabrication. The hands-on experience, coupled with expert guidance from Mr. Arjun Modi helped students enhance their technical skills and gain confidence in working with PCB technologies.



INDUSTRIAL VISIT TO IRISSET

The Department of Electronics and Communication Engineering (ECE), Vignan's Institute of Management and Technology for Women (VMTW), organized an Industrial Visit to IRISSET, Secunderabad, Telangana on 09-09-2025. The visit was arranged to provide students with practical exposure to real-time communication and railway signaling systems.

The students visited **Indian Railway Institute of Signal Engineering and Telecommunications**, Secunderabad. During the visit, railway officials and technical staff explained various signaling equipment, control panels, and safety mechanisms used in railway operations. The session began with an introduction to railway communication systems and the importance of signaling in ensuring safe and efficient train movements.

Students were shown different signaling panels, track circuit models, interlocking systems, and communication modules used in railway networks. The experts demonstrated how signals are transmitted and controlled to avoid collisions and manage high-speed train operations. The working principles of signal relays, control boards, and monitoring systems were clearly explained with practical demonstrations.

The students actively interacted with the officials and clarified their doubts regarding signal processing, track switching mechanisms, and modern railway safety technologies. The visit also provided insights into the practical implementation of concepts studied in subjects such as Digital Communication, Microprocessors, and Embedded Systems.

The industrial visit helped bridge the gap between theoretical knowledge and real-world applications. It enhanced students' understanding of railway communication infrastructure and modern signaling

techniques.

Overall, the visit was highly informative and beneficial. The Department of ECE expresses sincere gratitude to the railway authorities and staff for their valuable guidance and support in making the visit successful.



FDP ORGANIZED

Sl No	Name of the faculty	Title	Event Type	Date of event	Mode of attending
1	Ms.K.Padmaleela	AI Applications in VLSI Design	ATAL	14-07-25 to 19-07-25	ONLINE

FDP ATTENDED

Sl No	Name of the faculty	Title	Event Type	Date of event	Mode of attending
1	Mrs.D.Shirisha	Quantum Computing Enhanced Machine Learning: Unlocking the Power of Tomorrow' Technolog	National	08/09/2025 TO 13/09/2025	ONLINE
2	Mrs.G.Swathi	Emerging Trends in VLSI Design for Signal Processing and Communication Systems	National	25/08/25 TO 31/08/2025	ONLINE
3	Mrs.D.Shirisha	Semiconductor Innovation & Technology for Next-Gen Electronics	National	18/08/2025 TO 23/08/2025	ONLINE
4	Mr.E.Nagaraju	AI Applications in VLSI Design	National	14/07/2025 TO 18/07/2025	ONLINE
5.	Mrs.G.Swathi	AI Applications in VLSI Design	National	14/07/2025TO 18/07/2025	ONLINE
6	Mrs.D.Shirisha	AI Applications in VLSI Design	National	14/07/2025 TO 18/07/2025	ONLINE
7	Mr.P.Hari Krishna	AI Applications in VLSI Design	National	14/07/2025 TO 18/07/2025	ONLINE
8	Mr.Ganesh Reddy	AI Applications in VLSI Design	National	14/07/2025 TO 18/07/2025	ONLINE
9	Mr.E.Nagaraju	IOT Applications Powered by AI	National	07/07/2025 TO 12/07/2025	ONLINE

FACULTY PUBLICATIONS:

Sl No	Author	Title	Date of Published	Journal
1	Dr.T.Pulliah	Delta DHT -Zip : A delta Difference Hybrid Tree Coding Scheme for end to end packet Compression Framework in Network on Chips	Aug-25	ELSEVIER
2	Mr.G.Ganesh Reddy	SEM-DEX and XRD Based Microstructural and Chemical Analysis of Mussel Shell Powder Modified Concrete with Environmental Insights	08/07/2025	Scopus
3	Mr.G.Ganesh Reddy	UWB Bandpass Filter with Five Notch bands using H-Shaped Resonator Structure	05/09/2025	Scopus
4	Dr.G.Jhansi Reddy	CMOS Clock-Gated Synchronous Up/Down Counter with High-Speed Local Clock Generation and Compact Toggle Flip-Flop	04/08/2025	IJRSAT

BOOKS & CHAPTERS PUBLISHED

S. No	Author	Title of book	Date of Published
1	Mrs.D.Shirisha	Advances in Electronics and Communication Engineering	19/07/2025
2	Dr.G.Jhansi Reddy	Machine Learning and its Applications	24/07/2025

WORKSHOP'S ATTENDED

Sl No	Name of the faculty	Title	Date of event
1	Mr.E.Nagaraju	DFT for cutting edge application	29-02-2024 to 01-03-2024
2	Mr.E.Nagaraju	OptiSystem for Optical Communication & Amplifier Design Simulation Techniques	Aug-25
3	Mrs.G.Indira Priya darshini	The Final Leap: Executing Research and Writing Powerful Ph.D. Results and Discussion	Aug-25
4	Mrs.G.Indira Priya darshini	Polishing Your Ph.D.: Writing the Abstract, Highlighting Novelty, Referencing Accurately, and Concluding Effectively	Aug-25

SEMINARS ATTENDED

Sl No	Name of the faculty	Title	Event Type	Date of event	Mode of attending
1	Mr.E.Nagaraju	OptiSystem for Optical Communication & Amplifier Design Simulation Techniques	National	23-02-2024	ONLINE

CONFERENCES ATTENDED

Sl No	Name of the faculty	Title	Event Type	Date of event	Mode of attending
1	Mrs.G.Indira Priya darshini	BTER-2025	National	Aug-25	ONLINE

EVENTS -TECHNICAL (ATTENDED) (EX:WEBINARS,GUEST LECTURES)

Sl No	Name of the faculty	Title	Event Type	Date of event	Mode of attending
1	Mrs.G.Indira Priyadarshini	deepSAlght	National	28/05/2025	ONLINE

Program Outcomes (Adapted from NBA)

Engineering Graduates will be able to:

PO1 : 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.

PO2 : Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to Wk4)

PO3 : 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)

PO4 : 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)

PO5 : 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)

PO6 : 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)

PO7 : Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (Wk9)

PO8 : Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9 : 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.

PO10 : 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.

PO11 : 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)