VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

TECHINNOVATION

NEWS LETTER

JUL - SEP, 2023 | DEPT. OF ECE | VOLUME NO.: 29

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

HOD'S MESSAGE

Mr. P.Harikrishna,
Associate Professor &
HEAD OF THE DEPARTEMENT,
DEPARTMENT OF ELECTRONICS
AND COMMUNICATION
ENGINEERING.

It gives me immense pleasure to present the Jul–Sep 2023 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.

FACULTY PUBLICATIONS

Sl No	Author	Title	Date ofPublished	ISSN No	Journal
1	Dr.SK.Masthan Basha	Ultra- Low-Power VLSI Architecture for Electric Vehicle Battery Management Systems (BMS) in Renewable Micro grids	06/07/2023		UGC

BOOKS &CHAPTERS PUBLISHED

S.No	Author	Title of book	Date of Published	ISSN
1	Dr.T.Pullaiah	Intellegent Car parking application using android studio and machine learning	Jun-23	Patent

WORKSHOP'S ATTENDED

Sl No	Name of the faculty	Title	Event Type	Date of event	Mode of attending
1	Mrs.G.Indira priya darshini	VLSI to System Design: Silicon to End Application Approach	National	31st July to 4th August 2023	ONLINE

Student article on MongoDB Gets Smarter with AI

By, B. Meghana II year, ECE

MongoDB Gets Smarter with AI

MongoDB, the popular database platform, has integrated Artificial Intelligence (AI) to make app development faster and more efficient. With new Voyage AI models and the Model Context Protocol (MCP) Server, developers can now chat with their data, get smarter insights, and build advanced applications easily.

This update simplifies AI development by combining data management and AI tools in one place—making MongoDB not just a database, but a complete AI-powered platform for the future.

EVENTS AT DEPARTMENT

Suposhan outreach program in Ramakirhsna Matta

ECE students of 3rd year participated in elocution by SUPOSHAN which was conducted in the campus

Rakhi for Soldiers – A Gesture of Gratitude

As part of a patriotic initiative, the students of the Department of Computer Science and Engineering celebrated Raksha Bandhan by making handmade rakhis for Indian soldiers. The activity was organized to honor the bravery and selfless service of the nation's protectors.

Students enthusiastically crafted beautiful rakhis and wrote heartfelt messages expressing their respect and gratitude. The gesture symbolized love, unity, and appreciation for the armed forces who safeguard the nation, even while being away from their families during festivals.

ENGINEER'S DAY

Engineer's Day on 15th September 2023 at Vignan's Institute of Management and Technology for Women. The event was organized to commemorate the birth anniversary of Sir M. Visvesvaraya, one of India's greatest engineers and Bharat Ratna awardee. The celebration aimed to inspire students to uphold the values of innovation, dedication, and technical excellence.

Inauguration Ceremony

The program began with a traditional lamp lighting ceremony, symbolizing knowledge and enlightenment. The dignitaries and faculty members offered floral tributes to the portrait of Sir M. Visvesvaraya as a mark of respect and gratitude for his contributions to engineering and nation-building.

Faculty members and organizing committee representatives actively participated in the ceremonial proceedings, emphasizing the importance of engineering in societal development.

Significance of the Day

Engineer's Day is celebrated across India to recognize the contributions of engineers in shaping modern infrastructure, technology, and innovation. The event highlighted:

The role of engineers in national development

Emerging technological advancements

The responsibility of young engineers toward sustainable growth

Ethical and professional values in engineering practice

The celebration motivated students to pursue excellence in their academic and professional careers.

STUDENT PROJECTS

Automatic Pet Food Dispenser

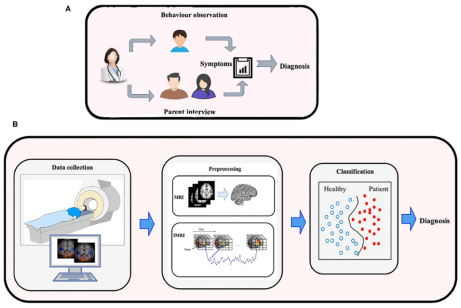
Students: Bandari Vardhana, C. Gayathri, B. Dinitha Sri

Guide: Mr. M. Karthikpal

The automatic pet food dispenser ensures timely feeding of pets through programmable scheduling. The system integrates microcontrollers and sensors to regulate food dispensing efficiently. This project demonstrates practical embedded system design with real-life applications in home automation.

Machine Learning Model for Autism Prediction in Toddlers

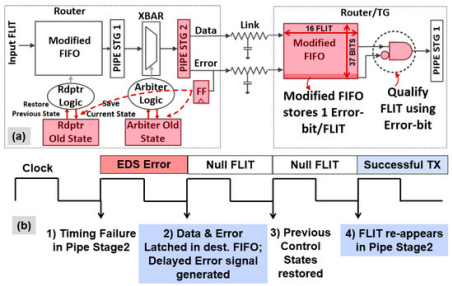
Students: Guduru Nikisha, B. Laxmi Prasanna, Dandem Bhumika
Guide: Ms. K. Padmaleela



This project develops a machine learning-based model to predict autism spectrum disorder in toddlers using behavioral datasets. Early detection can significantly improve treatment outcomes. The model leverages data analytics and classification techniques, highlighting the importance of AI in healthcare diagnostics.

TG-SPP: One Transmission Gate Short Path Padding for Voltage Resilient Circuits

Students: Donkeshwar Madhuri, Giddala Bhargavi, Dulam Manasa
Guide: Mr. T. Pullaiah



This project introduces a transmission gate-based short path padding technique to enhance voltage resilience in digital circuits. The proposed approach improves reliability and performance in low-voltage operations, making it suitable for modern VLSI systems.

Restaurant Management System

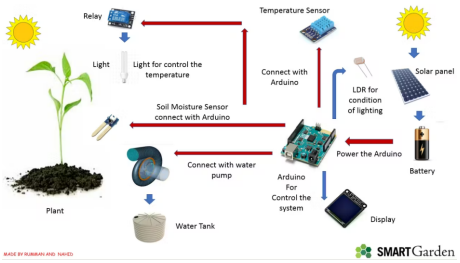
Students: Bethi Sahithi, Nagapuri Nandini, Ankinapalli Mamatha
Guide: Mr. G. Ganesh Reddy

The Restaurant Management System is a software solution designed to streamline restaurant operations, including order management, billing, and inventory tracking. The system enhances efficiency and reduces manual errors, demonstrating the application of database management and software development skills.

Smart Garden Monitoring System Using IoT

Students: Gujjula Anjali, E. Prathusha, B. Keerthy Reddy
Guide: Mr. E. Nagaraju

This project focuses on developing an IoT-based smart irrigation and monitoring system. Sensors measure soil moisture, temperature, and humidity, enabling automated watering and efficient resource utilization. The system promotes sustainable agriculture and smart environmental management.



DASARA CELEBRATIONS

The Department of Electronics and Communication Engineering celebrated Dasara with great enthusiasm and traditional fervor on 20th October 2023 in the department premises. The celebration reflected the spirit of unity, culture, and togetherness among faculty members and staff.

The event began with a traditional pooja ceremony, symbolizing the victory of good over evil and the importance of knowledge and righteousness. The Head of the Department and senior faculty members performed the rituals in the presence of teaching and non-teaching staff. The pooja area was beautifully decorated with flowers, traditional lamps, and festive arrangements, creating a spiritually vibrant atmosphere.

FACULTY ARTICLES

The Role of 5G Technology in Next-Generation Communication

By Mr. T. Pullaiah, Associate Professor, Department of ECE

The evolution of wireless communication has reached a revolutionary milestone with the deployment of 5G technology. Unlike previous generations, 5G offers ultra-low latency, high data rates, and massive device connectivity. This advancement is not just about faster internet; it enables technologies such as autonomous vehicles, smart cities, telemedicine, and Industrial IoT.

For Electronics and Communication Engineers, 5G opens new research opportunities in antenna design, millimeter-wave communication, network security, and signal processing. The integration of artificial intelligence with communication networks further enhances system efficiency and reliability.

As educators and researchers, it is our responsibility to prepare students to contribute to this digital transformation and lead innovations in wireless communication systems.

Internet of Things (IoT): Transforming Everyday Life

By Dr. Shaik Masthan Basha, Associate Professor, Department of ECE

The Internet of Things (IoT) has transformed the way devices interact and communicate. From smart homes and wearable health monitors to industrial automation, IoT systems are redefining convenience and efficiency.

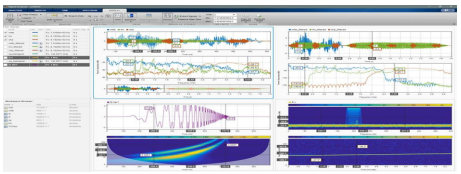
ECE plays a crucial role in IoT development through sensor design, embedded systems, wireless communication protocols, and data transmission techniques. The integration of cloud computing and data analytics with IoT devices ensures real-time monitoring and intelligent decision-making.

With growing demand in automation and smart infrastructure, IoT continues to provide vast research and career opportunities for students in Electronics and Communication Engineering.

Artificial Intelligence in Signal Processing

By Mr. P.Harikrishna, Associate Professor, Department of ECE

Signal processing has traditionally relied on mathematical models and algorithms. However, the integration of Artificial Intelligence (AI) and Machine Learning (ML) has significantly enhanced the capability of modern signal processing systems.

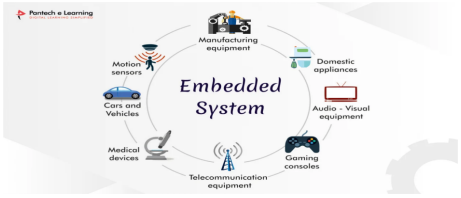


Applications such as speech recognition, image processing, biomedical signal analysis, and radar systems now benefit from intelligent data-driven techniques. AI-based adaptive filters and predictive algorithms provide improved accuracy and efficiency compared to conventional approaches.

For ECE students and researchers, combining core signal processing knowledge with AI skills creates powerful solutions for real-world engineering challenges.

Embedded Systems: The Brain Behind Smart Devices

By Mr. G. Ganesh Reddy, Assistant Professor, Department of ECE



Embedded systems form the backbone of modern electronic devices. From smartphones and medical equipment to automotive control systems, embedded technology enables automation and intelligent control.

Advancements in microcontrollers, low-power design, and real-time operating systems have enhanced

the performance of embedded applications. In the era of Industry 4.0, embedded systems are essential for robotics, automation, and smart manufacturing.

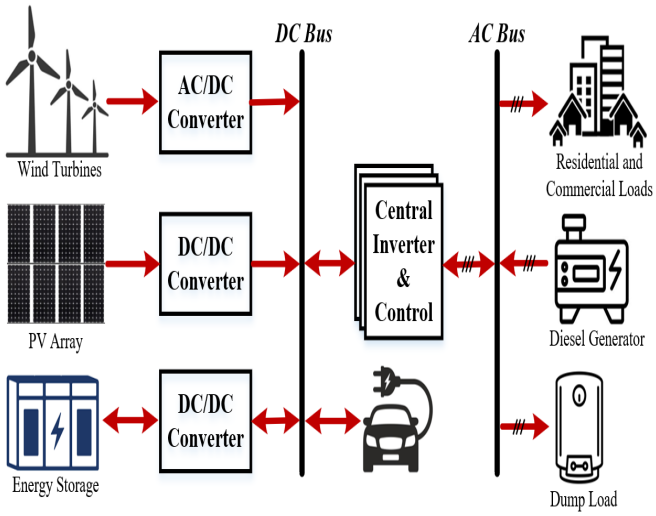
ECE education emphasizes hands-on learning in embedded design to prepare students for innovative product development and research.

An Article on Renewable Energy Systems and Power Electronics

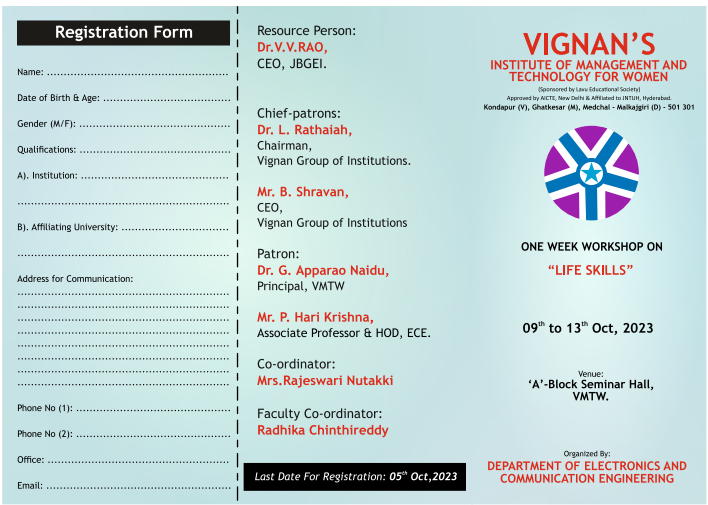
By Mr. J. Sunil Kumar, Associate Professor, Department of ECE

With the increasing demand for sustainable energy, renewable sources such as solar and wind power have gained significant attention. Power electronics plays a vital role in converting and managing renewable energy efficiently.

Modern inverters, converters, and smart grid technologies ensure reliable energy distribution. Research in energy storage systems and efficient power conversion techniques continues to shape the future of green energy solutions.



UP COMING EVENT



Program Outcomes (Adapted from NBA)

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.