

# ECE CHRONICLES

## EVENTS

WORKSHOP  
ART & PHOTOGRAPHY

RESEARCH  
CELEBRATIONS

STARTUP &  
INNOVATIONS



- Where Circuits Meet Creativity
- Celebrating Minds, Fueling Dreams
- Shaping the Future of ECE

Edition  
**JULY- DEC 2025**





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## Department of ECE

Established in 1995, the ECE Department offers programs at the graduate, postgraduate, and doctoral levels, with Nano Electronics and VLSI technologies, Communication Systems, and Signal and Image Processing as the main areas of research. Equipped with exceptional infrastructural and instructional facilities, the department was recognized as a potential research centre by JNTUA, Anantapuramu, in 2013 and has since produced its first doctoral degree in 2019. Illustrious faculty, well-equipped laboratories, and state-of-the-art research centers have played a crucial role in the department, which has been accredited by the NBA five times.

### Vision:

- To become a center of excellence in academics and research in Electronics and communication engineering.
- To empower society by addressing current and future needs through innovation, ethical practices and human-centered solutions.

### Mission

- To educate the students in latest technologies to achieve best standards in theoretical and practical aspects.
- To have a strong collaboration with electronics industry.
- To develop indigenous and appropriate technologies at low cost to help the rural people.

### Program Specific Outcomes (PSOs)

- Students can analyze and design electronic circuits with the knowledge of courses related to circuits, networks, linear digital circuits, and analog electronics.
- Students can explore the scientific theories, ideas, and methodologies in the operation and maintenance of communication systems to bridge the gap between academics and industries.
- Students can work professionally with new cutting-edge Technologies in the fields of electronic design, communication, and automation

### Program Educational objectives (PEOs)

- To train competent Electronics & Communication Engineers in analysis, design, and testing of electronics systems by providing modern tools.
- To prepare graduates to take up gainful employment in the core sector and prepare them for a successful career in Multinational companies.
- To impart skills to develop affordable products for rural people by adopting a multidisciplinary approach.
- To undertake sponsored projects, consultancy, and internships by strengthening industry institute collaboration.

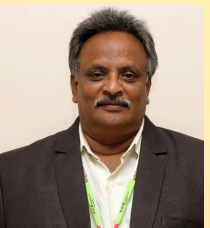




Chairman  
Dr. M. Santhiramudu



Managing Director  
Er.M. Sivaram



Principal  
Dr. T Jayachandra Prasad



Director  
Dr.D.V.Ashok  
Kumar



ECE-HOD  
Dr. J.Sofia Priya Dharshini

Role model for Dedication, commitment and effort. Our Chairman, the man with vision “Vidyarathna” Dr.M.Santhi Ramudu, who started the institution with a motto “EDUCATION FOR PEACE”. RGM CET is a road of elegant educational journey, yet path breaking in different dimensions. Dr.M.Santhi Ramudu strived a lot to bring technical education to the people of Rayalaseema. The secret of this visionary is his humility with his cheerful approach. He is enriching these rural lands with knowledge. As a skilled crafts-man, he utilizes each moment of the day and stands as an apostle of hard work and the living example for the saying ‘HARD WORK NEVER DECEIVES’.

A young, result driven, self-motivated and resourceful managing director with a proven ability and in charge to lead, develop, motivate and strengthen managing team in the Institution. He is a paramount member in reviewing, refining, developing the strategy and direction of College governing body. He is Entrepreneurial by nature and able to see the bigger picture and is responsible for the day-to day running of the Institution with a particular emphasis on developing the Institution in a holistic way. He is involved in planning, organizing and act as a Mentor for Institutional Clubs, Sports and Cultural activities held in the college. He is a good critic of policies and keeps vitalizing them for better future. He is the founder of Santiram Seva Samithi which focuses on Philanthropic works.

Keynote:

I am delighted to extend my warm greetings to each of you as we unveil the latest edition of the Electronics and Communications Engineering (ECE) newsletter. This publication stands as a testament to the continuous pursuit of excellence and innovation that defines the department and its members.

The world of electronics and communications is undergoing rapid transformation, shaping our lives in profound ways. In this dynamic landscape, it is essential that we stay abreast of the latest advancements and trends. This newsletter serves as a platform to showcase the remarkable work of the students, faculty, and alumni who are at the forefront of this ever-evolving field.

Thank you for being an integral part of the Electronics and Communications Engineering department. Together, we will continue to embrace the challenges and opportunities that lie ahead, contributing to advancements that shape the world.

Keynote:

Altogether, the brilliant minds of the Electronics and Communication Engineering (ECE) department are advancing innovation and quality in science and education. Beyond textbooks, mentoring fosters young architects' critical thinking and develops their insatiable curiosity. Discovery for a better society is sparked by dedication. ECE excels at developing thought leaders for an improved future.

From the Desk of the chief editor :

Dear Readers

Greetings to all members of the Electronics and Communications Engineering (ECE) community! It brings me immense joy to extend my warm welcome to you through the pages of the latest ECE newsletter.

In the dynamic realm of technology, The ECE Department stands at the forefront of innovation and progress. This newsletter serves as a platform to share the achievements, research endeavors, and exceptional contributions made by our students and faculty members.

The field of electronics and communications is constantly evolving, and the Department has consistently risen to the challenges and opportunities presented by this evolution. The commitment to excellence in education and research is evident in the remarkable accomplishments we celebrate in this publication.



SEMICON India 2025

Vikram32 (designed by ISRO & SCL)

Latest Tech News

Industrial Visit

Internal Hackathon (SIH)

58<sup>th</sup> Engineer's Day

75<sup>th</sup> Indian Constitution Day

Workshops

Guest Lectures

Faculty Publications

Fresher's Fiesta 2K25

Photography & Art



# SEMICON India 2025

An unprecedented success

With 35,000 registrations, over 30,000 footfalls, 25,000+ live/online viewers, 350 exhibitors, and delegates of 48 countries, along with hundreds of MoUs, press releases, and thousands of B2B meetings,

SEMICON India 2025 has truly set a new benchmark in India's semiconductor journey. The impressive lineup of global leaders and speakers has further strengthened our confidence in driving this mission ahead. The event witnessed unprecedented participation across the entire value chain—from industry leaders, government officials, and academia to researchers and students making it a landmark gathering for the ecosystem.

We were honored by the presence of Hon'ble Prime Minister Shri Narendra Modi, Union Minister Shri Ashwini Vaishnaw, and MoS Shri Jitin Prasada across two days of the event, along with the Chief Ministers of Delhi and Odisha. Hon'ble Prime Minister Shri Narendra Modi's motivational and visionary address set the tone for India's aspiration to become a trusted global semiconductor powerhouse.

The inaugural session was significantly enriched by the participation of nine global CXOs, who contributed their perspectives on the progress, challenges, and opportunities shaping the semiconductor industry. Their active engagement reflected the strong leadership commitment to advancing India's semiconductor agenda.



# VIKRAM 3201



The Vikram 3201 is India's first fully indigenous 32-bit microprocessor, developed by the Indian Space Research Organisation (ISRO) in partnership with the Semiconductor Laboratory (SCL), Chandigarh. Officially unveiled at the Semicon India 2025 conference, the chip was presented to Prime Minister Narendra Modi by Electronics and Information Technology Minister Ashwini Vaishnaw, marking a significant milestone in India's pursuit of semiconductor self-reliance. It is designed specifically for space applications, including launch vehicles and satellites, and is qualified to operate in the extreme conditions of space missions, with a temperature range of  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ . The Vikram 3201 is an advanced successor to the 16-bit Vikram 1601 processor, which has powered ISRO's launch vehicles since 2009. It features a 32-bit architecture, enabling data more efficiently than its predecessor.



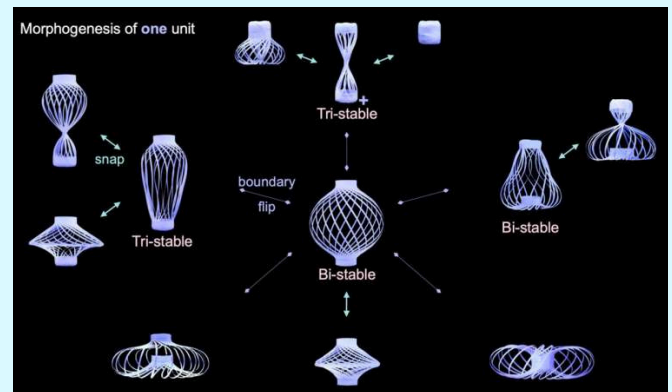
The processor supports 64-bit floating-point operations, which are critical for precise trajectory and guidance calculations in aerospace missions. It also includes compatibility with the Ada programming language, widely used in safety-critical aerospace systems, and features two on-chip 1553B bus interfaces for reliable communication with other avionics modules. The chip is fabricated using 180-nanometre CMOS technology at SCL's facility in Chandigarh, a process node chosen for its proven reliability in aerospace-grade applications. It operates at a clock speed of 100 MHz, consumes less than 500 mW of power, and draws a quiescent supply current of less than 10 mA.





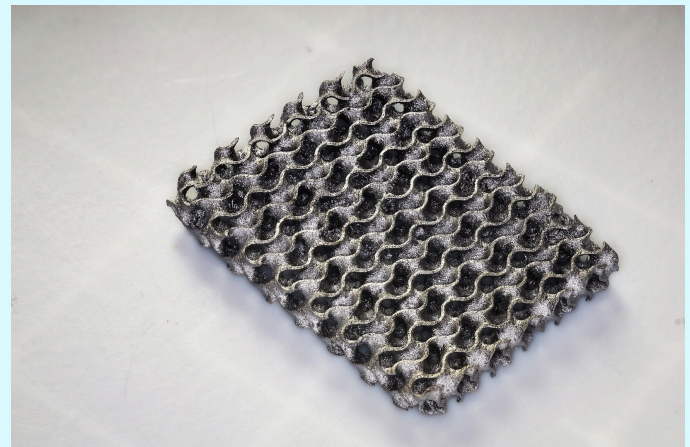
## 1. POLYMER “CHINESE LANTERN” ENABLES PROGRAMMABLE 3D SHAPES FOR ELECTRONICS

A team at North Carolina State University has developed a polymer structure that snaps into multiple stable 3D forms--like a lantern or spinning top--via compression or twisting, with added materials allowing programmable changes. This could transform flexible electronics and robotics by enabling adaptive components.



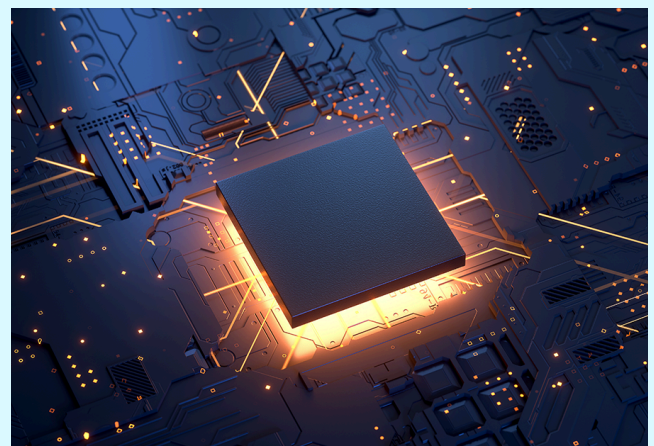
## 2. HYDROGEN-TO-METAL 3D PRINTING YIELDS 20X STRONGER STRUCTURES

EPFL scientists have pioneered a method to convert hydrogels into dense, high-strength metals and ceramics through multiple metal salt infusions, eliminating porosity issues in traditional 3D printing. The result is structures up to 20 times stronger, paving the way for advanced electronic components and additive manufacturing.



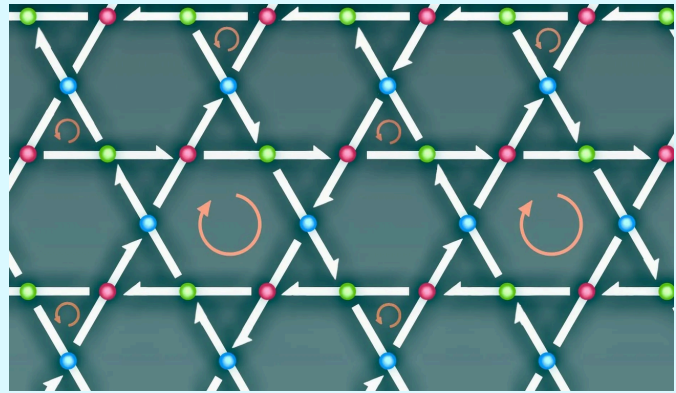
## 3. LIGHT -CONTROLLED ELECTRON GAS PROMISES ULTRA-FAST, ENERGY-EFFICIENT ELECTRONICS

Researchers at CNRS/Thales have created an electron gas in oxide layers using light stops, boosting current in optical detectors by up to 100,000 times. This could lead to light-operated transistors, reducing chip contacts by a third and enabling faster photonics-electronics hybrids for quantum computing and mobile data.



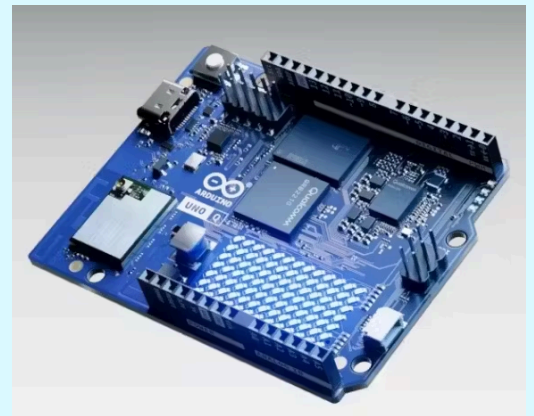
## 4. MAGNETIC FIELDS REVERSE CURRENTS IN KAGOME METALS FOR QUANTUM ELECTRONICS

Researchers at CNRS/Thales have created an electron gas in oxide layers using light stops, boosting current in optical detectors by up to 100,000 times. This could lead to light-operated transistors, reducing chip contacts by a third and enabling faster photonics-electronics hybrids for quantum computing and mobile data.



## 5. QUALCOMM ACQUIRES ARDUINO, LAUNCHES LINUX-SUPPORTED DEV BOARD

Qualcomm has bought Arduino, resulting in the Arduino UNO Q board powered by a Dragonwing MPU and STMicro MCU. It supports Linux and Zephyr OS, AI/LLM coding from prompts, and signal processing, making development accessible for beginners in embedded electronics.



## 6. CLS ACQUIRED GROUND CONTROL TO EXPAND SATELLITE IOT CAPABILITIES

Satellite services firm CLS has acquired UK/US-based Ground Control Technologies, adding expertise in IoT devices and cloud monitoring. This bolsters CLS's Earth Observation portfolio with four new sites, enhancing global satellite electronics for IoT and connectivity.





# INDUSTRIAL VISIT

**ANTENNAS**

**RADAR**

**CLOUDS**

**CONVECTIVE  
SYSTEMS**

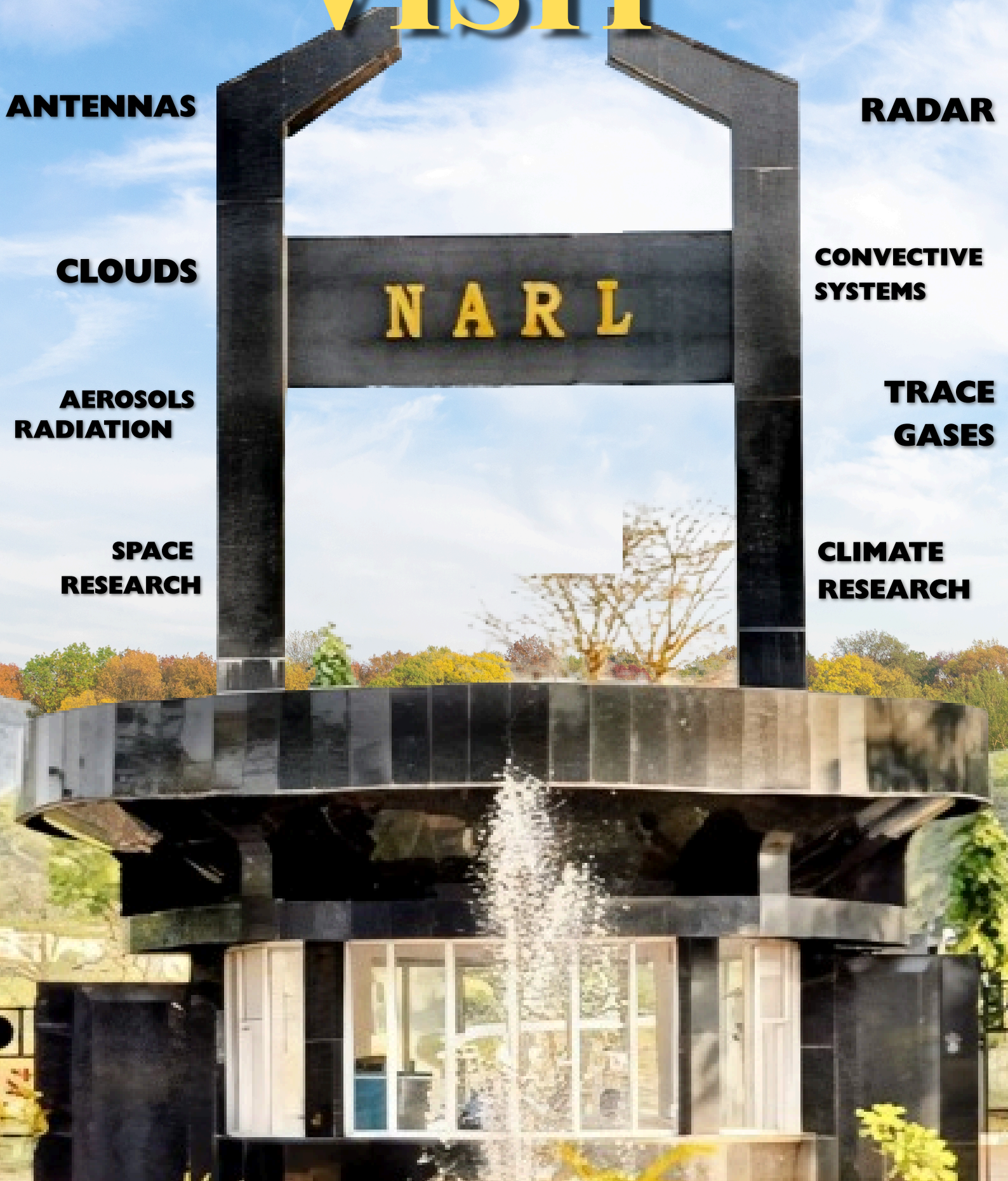
**AEROSOLS  
RADIATION**

**TRACE  
GASES**

**SPACE  
RESEARCH**

**CLIMATE  
RESEARCH**

**NARL**





# INDUSTRIAL VISIT

**I**s one of India's leading research centers under the Department of space. It plays a vital role in the study of atmospheric dynamics, climate variability, and space weather phenomena. Equipped with state-of-the-art radar and remote sensing systems, NARL conducts cutting-edge research in meteorology and space sciences. The laboratory's contributions to India's space missions and atmospheric modeling make it a significant hub for scientific innovation. Its research outcomes support national projects related to weather prediction and space communication.

The Department of Electronics and Communication Engineering at Rajeev Gandhi Memorial College of Engineering & Technology (Autonomous), Nandyal, organized an industrial visit to the National Atmospheric Research Laboratory (NARL), Gadanki, from 26th to 27th September 2025. This program aimed to provide third-year B.Tech students with practical exposure to space and atmospheric research. The visit was led by Dr. J. Sofia Priya Dharshini, Head of the Department, with coordination from Dr. S. V. Ratan Kumar and Mr. K. Nagendra Kumar. Their guidance ensured that students gained valuable insights into the practical applications of classroom learning.

The main objective of this industrial visit was to help students understand advanced research in atmospheric science, weather monitoring, and communication systems used in space technology. It focused on making students aware of how theoretical knowledge in Electronics and Communication Engineering is real-world research institutions. The visit also aimed to inspire students to take up research-oriented careers by exposing them to cutting-edge instruments and technologies in use at NARL.





# INDUSTRIAL VISIT

The visit concluded with a strong sense of motivation among the students. They gained firsthand experience in radar systems, remote sensing, and satellite communication. This enhanced their technical knowledge and inspired them to pursue higher studies and research in related domains. The active participation of the faculty and the hospitality of NARL staff contributed to the program's success. Overall, the visit served as a bridge between academic learning and professional research, leaving a lasting educational impact on the students.

Students expressed immense gratitude and admiration for NARL's dedicated team of scientists and their innovative work. They described the visit as an eye-opening and inspiring experience that deepened their curiosity in space research. Many students shared that NARL left a lasting impression as a center of knowledge, innovation, and national pride.





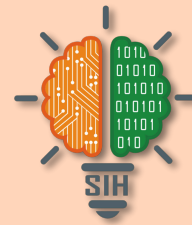


# SMART INDIA HACKATHON





# SMART INDIA HACKATHON



SMART INDIA  
HACKATHON

**THE** Department of Electronics and Communication Engineering (ECE), in association with the Institution's Innovation Council (IIC) and IQAC, successfully organized Smart India Internal Hackathon – 2025 at Rajeev Gandhi Memorial College of Engineering and Technology (RGM College), Nandyal, Andhra Pradesh. The event was conducted under the guidelines of the Ministry of Education (MoE), Government of India, the MHRD Innovation Cell, and the AICTE, aligning with the vision of the Smart India Hackathon (SIH 2025) to foster innovation and problem-solving among young engineers.

The event was inaugurated by Dr. B. Rami Reddy, who encouraged students to think creatively and address real-world challenges through innovation and teamwork. Dr. J. Sofia Priya Dharshini, Head of the Department (ECE), along with Dr. P. V. Gopi Krishna Rao (SPOC) and Ms.T.Shanthala (IIC Coordinator), played key roles in the successful organization of the program.

The hackathon served as a platform for students to innovate, create, and elevate their ideas into tangible solutions. Over 80 teams from various departments showcased their technical brilliance through prototypes addressing real-world challenges

The event was guided by national-level standards under the Ministry of Education and AICTE initiatives. Participants tackled problem statements spanning diverse themes such as Agriculture, Cybersecurity, Green Technology, HealthTech, Smart Vehicles.

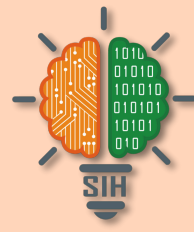


## INTERNAL HACKATHON





# SMART INDIA HACKATHON



SMART INDIA  
HACKATHON

Each team's innovation was evaluated for creativity, feasibility, and social impact, promoting a spirit of collaboration and interdisciplinary learning.

The event concluded on a high note with several innovative projects shortlisted for the National Smart India Hackathon 2025. The valedictory session, presided over by Dr. D. V. Ashok Kumar, appreciated the enthusiasm and creativity of the participants, highlighting their potential to drive technological advancement. The program inspired students to think beyond conventional boundaries and develop impactful solutions for real-world challenges. It truly reflected RGM CET's unwavering commitment to nurturing innovation and excellence while aligning with the national vision of Digital India and Startup India, empowering young minds to shape the nation's technological future.

## Prize Distribution by Director & HOD of ECE, SPOC Winners and Runner up



## Organized by the Dept of ECE in Association with IIC & IQAC





# 58<sup>th</sup> ENGINEER'S DAY

Project Title		Embedded
Name of the Principal Investigator		Dr. Suresh S
Total Grant Sanctioned by AICTE		Rs. 3.80,00,000
Total Grant Released by AICTE		Rs. 3.04,00,000
Total Cost of the Project		Rs. 3.80,814.00
Date of Commencement of the Project		20-12-2017
Duration of the Project		2 Years
Date of Completion of the Project		20-12-2019

DETAILS OF EXPENDITURE			
<b>A. NON-RECURRING: Rs.2,88,814.00</b>			
S.No.	List of Items Procured	Unit Price (Rs.)	Total Cost
1	45 x ESP32 Development Board (B7) + Bluetooth	525.00	
2	45 x XBee S2C Low Power Module with wire antenna	160.00	Rs. 90,750
3	75 x Arduino Due - Made in Italy - Original	2,789.00	Rs. 1,16,115
4	20 x Pulse Sensor KD-58C	225.00	
5	20 x Ultrasonic Distance Measurement Sensor	480.00	
6	20 x LM 35 Analog Temperature Sensor	70.00	
7	20 x DS18B20 Digital Temperature Sensor	281.00	
8	20 x MQ-135 Air Quality & Hazardous Gas Sensor Module	123.00	
9	20 x DHT11 Humidity & Temperature Sensor Module	120.00	
10	20 x Water Flow / Fluid Flow Sensor	290.00	
11	20 x PIR Motion Detection Sensor Module	80.00	
12	20 x High Sensitivity Vibration Sensor Module	360.00	
13	20 x Universal 16 Key Keypad	125.00	
14	20 x Rotary Encoder Module	190.00	
15	50 x XBee Explorer USB CP2102	285.00	
16	20 x Color Sensor Module - TCS3200 based	197.00	
17	20 x 12DOF 3 Axis Gyro Acceleration Magnetometer & Air Pressure Module	880.00	Rs. 45,180
18	20 x RFID Reader / Writer 13.56 MHz RC 522	200.00	
19	15 x Raspberry Pi 4 Model B 4 GB RAM	4,350.00	Rs. 76,950
(Three Lakhs, Eighty Thousand, Eight Hundred Eightyfour)			<b>Total Rs. 2,88,814.00</b>
<b>B. RECURRING: Nil</b>			
<b>Total Cost of the Project (A &amp; B):</b>			



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 15/09/2025 11:37 AM GMT +05:30



# 58<sup>th</sup> ENGINEER'S DAY

The event began with a formal welcome address, followed by tributes to Sir M.Visvesvaraya. The dignitaries shared their perspectives on the role of engineers in nation-building. Special emphasis was placed on the theme Innovate, Integrate & Inspire, motivating students to innovate in research, integrate interdisciplinary knowledge, and inspire peers with creativity.

The Chief Guest's speech was followed by interactive sessions, where students engaged with thought-provoking ideas on emerging technologies in electronics and communication.

The Engineers' Day celebration created an inspiring atmosphere where students were encouraged to appreciate the contributions of engineers to society. The event also reinforced the importance of pursuing excellence in technical education and research.

The program concluded with a vote of thanks, acknowledging the support of the management, faculty, and student coordinators who worked diligently to make the celebration a grand success

The Engineers' Day 2025 celebration at RGM CET was not only a tribute to Sir M. Visvesvaraya but also a motivating platform for budding engineers. The event successfully instilled the spirit of innovation, integration, and inspiration among the students, aligning with the vision and mission of the institution to nurture competent and socially responsible engineers.







# 75<sup>TH</sup> CONSTITUTION DAY — CELEBRATION —



## PREAMBLE OF THE CONSTITUTION OF INDIA

**WE, THE PEOPLE OF INDIA,**

having solemnly resolved to constitute India into a **SOVERIGN SOCIALIST  
SECULAR DEMOCRATIC REPUBLIC**

and to secure to all its citizens:

**JUSTICE**, social, economic and political;

**LIBERTY** of thought, expression, belief, faith and worship;

**EQUALITY** of status and of opportunity;



# 75<sup>th</sup> INDIAN CONSTITUTION DAY

The 75th Indian Constitution Day marks an important milestone in India's democratic history.

It highlights the adoption of the Constitution, which defines the nation's political and legal framework.

The day reminds citizens of the values of justice, liberty, equality, and fraternity.

It helps students and youth understand the vision of the Constitution's framers.

Celebrating this day promotes awareness of constitutional principles and democratic ideals. Also increases awareness about fundamental rights and duties among citizens.

Helps people understand the importance of active participation in the democratic process.

Encourages respect for national values, unity, and integrity.

Strengthens constitutional literacy through activities, discussions, and programs.

Motivates individuals to uphold the spirit of the Constitution in everyday life.







# *Creative Explorations:* **WORKSHOPS**





# AI in Medical Applications



Mr. Sai Satish, Founder and CEO of Indian Servers, Vijayawada, is a renowned Cyber Security Expert, Ethical Hacker, Microsoft Security Researcher, and AI Innovator. As the President of AIMER Society (Artificial Intelligence Medical and Engineering Researchers Society), he has played a key role in promoting research and innovation in the healthcare domain.

Mr. Sai Satish,  
Founder & CEO of India Servers, Vijayawada

The objective of the guest lecture is to provide insights into the role of Artificial Intelligence (AI) in revolutionizing healthcare by enhancing diagnostic accuracy, improving patient care, enabling predictive analysis, supporting medical imaging, and assisting in drug discovery. It aims to create awareness among students and researchers about the latest AI techniques, tools, and real-time applications in the medical domain, while also highlighting challenges, ethical considerations, future trends in AI-driven healthcare solutions.





Gained hands-on experience with practical AI tools and platforms

- Streamlit for creating interactive medical applications.
- Ultralytics for deploying deep learning models.
- Roboflow.in & Roboflow Universe for dataset preparation and sharing.
- Gemini API, Hugging Face, and Google AI Studio for integrating advance AI models.

Learned about core medical AI applications

- Medical image classification.
- Object detection in healthcare scenarios.
- Natural Language Processing (NLP) for medical text and images.

Built a chatbot for doctors to support clinical decision-making.

Exposure to real-world healthcare applications of AI, helping students



The workshop on AI in Medical Applications was highly insightful and practical. It provided hands-on experience with tools like Streamlit, Ultralytics, Roboflow, Gemini API, Hugging Face, and Google AI Studio.

The workshop on AI in Medical Applications successfully equipped participants with practical skills in advanced AI tools and platforms, while demonstrating their real-world impact on healthcare. By exploring applications such as medical image classification, object detection, NLP, and clinical chatbots, the sessions bridged the gap between academic knowledge and industry practice.



# Embedded Systems for Robotics and Automation

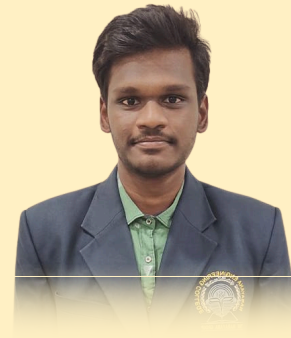
~ By Vikas Reddy Rapuru and Cyril Arogya Das

Mr. Vikas Reddy Rapuru shared valuable insights into embedded systems design, real-time applications, and industry trends in robotics and automation. His sessions focused on practical implementation, startup culture, and emerging opportunities in embedded technologies.



Mr. Vikas Reddy Rapuru,  
Founder & CEO,  
RoboMonk Technologies Private Limited

Mr. Cyril Arogya Das conducted hands-on sessions on embedded programming, hardware interfacing, and automation concepts. He demonstrated real-time applications and guided students through practical exercises effectively.



Mr. Cyril Arogya Das,  
Technical Associate,  
RoboMonk Technologies Private Limited

The workshop was conducted in association with RoboMonk Technologies Private Limited, a DPIIT-recognized startup, with the objective of providing students hands-on exposure to embedded systems and their applications in robotics and automation.

The workshop was organized with the objective of providing II Year ECE students a strong foundation in embedded systems and their critical role in robotics and automation. The event aimed to enhance students' understanding of microcontroller-based system design, embedded programming, and hardware interfacing techniques. To introduce students to the fundamentals of embedded systems used in robotics and automation.



To bridge the gap between theoretical concepts and real-world industrial applications.

To provide practical exposure to microcontrollers, sensors, and automation techniques.

To motivate students towards innovation, product development, and industry-oriented learning.

To enhance technical competency relevant to emerging technologies.



Understanding of embedded system architecture and components.

Hands on experience with microcontrollers and peripheral interfacing.

Knowledge of robotics and automation applications using embedded platforms.

Exposure to industry-relevant tools and development practices.

Improved problem-solving and analytical skills through practical sessions.

Students expressed that the workshop was informative, well-structured, and aligned with current industry trends. They appreciated the clarity of explanation, practical orientation, and real-time examples provided by the resource persons. Many students felt that the

hands-on sessions significantly improved their confidence in understanding embedded systems and their applications. Participants also mentioned that the workshop motivated them to explore advanced projects, internships, and certifications in embedded systems, robotics, and automation. The event significantly enhanced the technical knowledge and practical skills of II Year ECE students. The interactive sessions and hands-on training provided valuable industry exposure, making the workshop highly beneficial.



# Intellectual Property Rights and IP Management for Start-Ups

~ By Dr. I. Thirunavukkarasu Indiran

Dr. I. Thirunavukkarasu, Professor, Department of Instrumentation & Control Engineering. He is a distinguished academician with extensive experience in teaching, research, and professional training.



Dr. Thirunavukkarasu Indiran,  
Professor,

Manipal Institute of Technology, Manipal

In the present era of rapid technological advancement and innovation-driven economy, Intellectual Property Rights (IPR) play a vital role in protecting creative ideas and technological inventions. With the growing start-up ecosystem in India, engineers must possess fundamental knowledge of IP creation, protection, and management. In this context, the Department of Electronics and Communication Engineering (ECE), RGM CET, Nandyal organized a workshop on “Intellectual Property Rights and IP Management for Start-ups” for II ECE students.

The primary objective of the Expert talk on Intellectual Property Rights and IP Management for Start-ups was to create comprehensive awareness among II ECE students about the significance of Intellectual Property Rights in engineering innovation and entrepreneurship. The workshop aimed to familiarize students with various forms of IPR such as patents, copyrights, trademarks, and industrial designs, with special emphasis on patent systems relevant to technological inventions.

Students gained a clear understanding of Intellectual Property Rights and their relevance in engineering and start-up ecosystems.

Awareness was created on the patent filing process, including basic steps, documentation, and timelines.



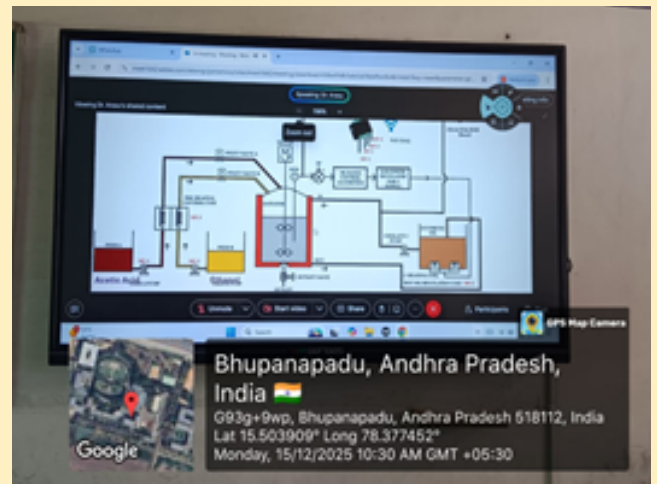
Participants learned how IP protection enhances the commercial value and credibility of start-ups.

The session highlighted common IP challenges faced by start-ups and strategies to overcome them.

Students understood the importance of early-stage IP planning during product development.

The workshop inspired students to think innovatively and consider IP as a strategic business tool rather than just a legal formality.

Participants appreciated the clarity of the concepts explained and found the session extremely relevant to their academic and career aspirations.



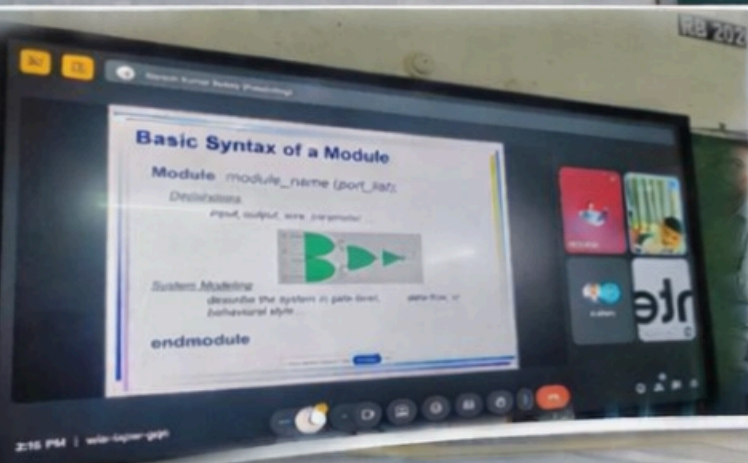
.Students expressed that the workshop helped them understand the practical aspects of protecting innovations and managing intellectual assets. Many students showed interest in learning more about patent drafting, start-up incubation, and innovation funding. The interactive nature of the session and real-time examples related to start-ups made the workshop engaging and effective.

The workshop on “Intellectual Property Rights and IP Management for Start-ups” was successfully conducted by the Department of ECE and achieved its intended objectives.

The session effectively bridged the gap between technical innovation and legal protection, enabling students to understand the strategic importance of IPR in today’s competitive environment.



# GUEST LECTURES



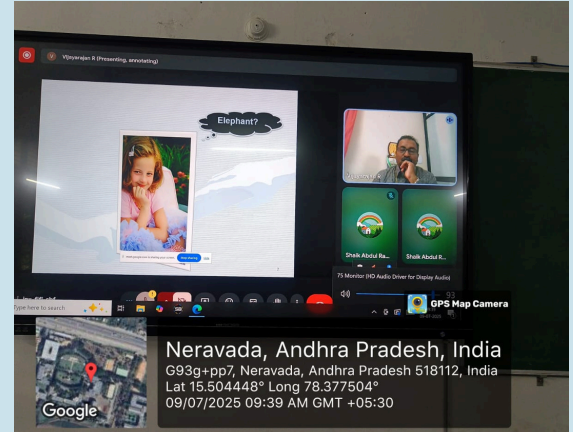


# Image Processing and Machine Learning for Classification

~ By Dr. R. Vijayarajan

A guest lecture on “Image Processing and Machine Learning for Classification” was organized to provide students with insights into modern techniques and real-world applications of image-based data classification using AI and ML tools.

The objective of the session was to bridge the gap between theoretical concepts and practical applications, particularly focusing on how image data can be processed, analyzed, and classified using machine learning algorithms.



Introduction to Digital Images- Understanding pixels, bit-depth, and image formats.

Pre-processing Techniques-Noise reduction, normalization, feature extraction. Feature Engineering-Edge detection, texture analysis, and color histograms.

Real-World Applications-Medical image diagnostics, facial recognition, traffic monitoring.

Tools and Platforms Brief on Python libraries like OpenCV, Scikit-learn, TensorFlow.



The guest lecture successfully achieved its objective of familiarizing students with the synergy between image processing and machine learning. It sparked curiosity and encouraged students to explore related fields for projects and research.



# Verilog for ASIC Design: Challenges and Solutions

~ By Dr. B. Naresh Kumar

The primary objective of the guest lecture was to provide insights into the practical challenges and emerging solutions in the domain of Verilog-based ASIC (Application-Specific Integrated Circuit) Design. The session aimed to bridge the gap between academic concepts and industry-level design methodologies, emphasizing the importance of Verilog HDL in the VLSI industry.



ASIC vs FPGA Design Flow: Understanding the differences and use cases.

Importance of Verilog HDL: Role in designing combinational and sequential circuits.

Design Challenges: Common issues in synthesis, timing closure, and area optimization.

Verification Techniques: Brief overview of testbenches, simulation, and debugging.

Career Scope: Emphasis on how ASIC design is a promising field for ECE

graduates, with demand in semiconductor industries like Intel, Qualcomm, AMD, etc.

The session helped them recognize the significance of Verilog HDL in modern electronics and encouraged them to explore VLSI design as a career path.



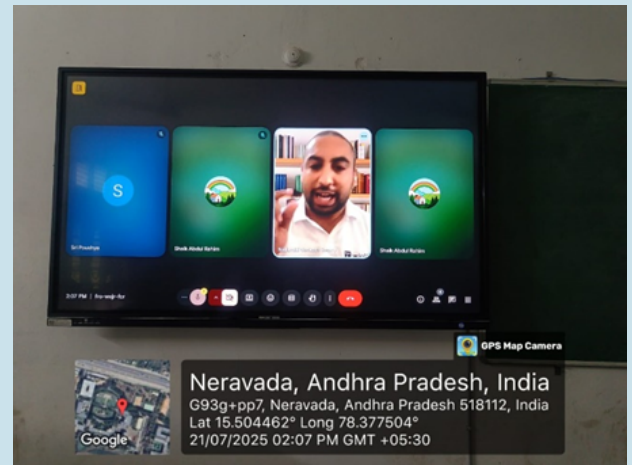


# Exploring through Embedded System & IoT Applications

~ By N. Venkata Reddy

The objective of the guest lecture on "Exploring through Embedded Systems and IoT Applications" is to provide students with a comprehensive understanding of the fundamental principles and practical significance of Embedded Systems and the Internet of Things (IoT).

The session aims to bridge the gap between theoretical knowledge and real-world implementations by introducing the architecture, design, and functionality of embedded devices and their integration with IoT technologies.



Understanding the fundamentals of Embedded Systems and IoT architecture.

Knowledge of key components: sensors, actuators, microcontrollers, and communication protocols.

Insight into how embedded and IoT technologies are integrated in real-time applications.

Awareness of current trends and innovations in fields like smart cities, healthcare, and automation.

Exposure to design challenges and development tools used in embedded and

IoT systems.

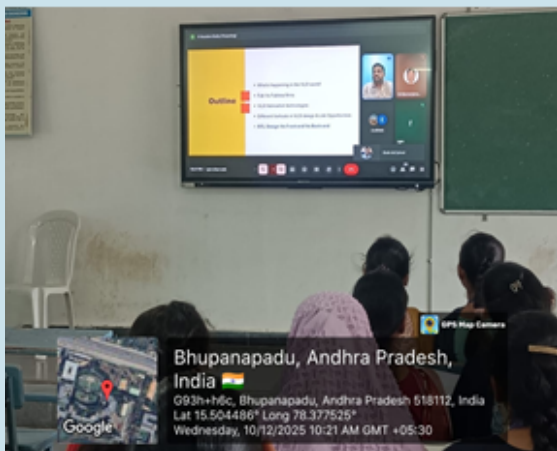
The guest lecture on "Exploring through Embedded Systems and IoT Applications" concluded with a strong emphasis on the growing relevance and transformative potential of these technologies in modern engineering and everyday life.



# The Role of Physical Design Engineer in VLSI Design

~ By Dr. K. Vasudeva Reddy

In the present era of rapid technological advancement and innovation-driven economy, Intellectual Property Rights (IPR) play a vital role in protecting creative ideas and technological inventions. The primary objective of the Expert talk on Intellectual Property Rights and IP Management for Start-ups was to create comprehensive awareness among II ECE students about the significance of Intellectual Property Rights in engineering innovation and entrepreneurship.



Students developed a clear understanding of the fundamentals and importance of Intellectual Property Rights in engineering and technology domains.

Participants gained practical insights into different types of IPR, particularly patents, and their relevance to innovative ideas and academic projects.

The workshop enhanced students' knowledge of the patent filing process, including prior art search, documentation, and protection strategies.

The sessions motivated students to think innovatively and pursue entrepreneurship

with proper legal advice and ethical awareness. The Expert talk on “Intellectual Property Rights and IP Management for Start-ups”, organized by the Department of ECE, RGM CET, Nandyal, was a significant step towards enhancing IPR awareness among engineering students.



# Fundamentals of Fabrication of Semiconductor Devices

~ By Mr. A. Aditya

Mr. A. Aditya discussed the fabrication of semiconductor devices involves complex processes to create integrated circuits and electronic components used in various applications, from microprocessors to memory chips and sensors.

Objectives of mastering semiconductor fabrication fundamentals include:

**Understanding Semiconductor Physics:** A strong grasp of semiconductor physics is essential, including concepts such as band theory, carrier transport, doping, and semiconductor-device interactions.

**Fabrication Process Knowledge:** Mastery of fabrication processes such as photolithography, etching, deposition, and doping techniques is crucial.

**Cleanroom Techniques:** Semiconductor fabrication typically takes place in cleanroom environments to minimize contamination.

**Device Design and Simulation:** The ability to design semiconductor devices using simulation tools is important for optimizing device performance and characteristics.



Mastering these fundamentals enables engineers and researchers to design, fabricate, and characterize semiconductor devices with improved performance, reliability, and efficiency, driving advancements in electronics and technology.

# Advance VLSI Tools

~ By Dr. M. Chennakesavulu

The objective of this guest lecture is to provide students with a comprehensive understanding of cutting-edge VLSI design tools used in the semiconductor industry. The session aims to bridge the gap between theoretical concepts and practical applications by demonstrating the use of industry-standard software for digital and analog circuit design, simulation, synthesis, layout, and verification.



Overview of VLSI Design Flow – Understanding the complete VLSI design cycle from RTL design to physical layout and verification.

Practical Design Methodologies – Insights into digital and analog circuit design techniques using modern EDA tools.

Real-Time Project Challenges – Understanding the industrial practices and challenges faced during chip development.

Importance of Verification and Testing – Emphasis on functional verification, timing analysis, and fault coverage using

advance tools.

Career and Research Opportunities – Awareness of current trends, career paths, and research directions in the VLSI domain.

The session was insightful and well-delivered, offering a clear understanding of modern VLSI design tools and workflows.

The guest lecture on "Advanced VLSI Tools" successfully enhanced students' understanding of modern VLSI design practices and industry-relevant tools.



# Awareness on MS in Abroad

~ By VAP Educon Visa Global

The Guest Lecturer by Smt. Aparna highlights the immense academic and professional opportunities available for students pursuing higher studies abroad.

It helps students comprehend international admission requirements such as GRE, IELTS/TOEFL, SOPs, and LORs.

The session emphasizes how pursuing MS abroad enhances global employability and builds strong international professional networks.



Smt. Aparna, presenting on behalf of VAP Educon Visa Global, gave a thought-provoking and motivational guest lecture on "Awareness on MS in Abroad."



Experts from VAP Educon explained the step-by-step process of applying for MS programs abroad.

Students were made aware of English proficiency tests like IELTS, TOEFL, and GRE requirements.

The importance of preparing a strong Statement of Purpose (SOP) and recommendation letters was discussed.

Information on tuition fees, living costs, and available scholarships in countries like the USA, UK, Canada, and Germany was shared.

The lecture covered visa procedures, documentation, and interview preparation in detail.

The program's inclusion in a tech-focused event, to start, highlights how participants' understanding of international educational systems, admissions standards, and job chances has grown.

# Talk on MIMO Antennas for Vehicular and WBAN Applications

~By Dr. B. T. P. Madhav.

The main objective is to provide participants with an in-depth understanding of MIMO antenna design principles, performance parameters, and implementation strategies for Vehicular and Wireless Body Area Network (WBAN) applications, highlighting recent advancements, challenges, and real-world deployment scenarios to enhance knowledge in modern wireless communication systems.



The Talk on MIMO Antennas for Vehicular and WBAN Applications was highly informative and engaging, providing clear insights into the fundamentals, design considerations, and practical challenges of MIMO technology in real-world scenarios. The speaker effectively combined theoretical concepts with practical examples, making complex topics accessible. The session highlighted recent advancements in vehicular and WBAN antenna systems, encouraging participants to explore innovative approaches for future wireless communication. Overall, it was a valuable learning experience that enhanced participants' knowledge and understanding of modern antenna technologies.



# Cadence for VLSI: From Schematic to Layout

-By Mr. Rakesh B R



The objective of this guest lecture is to provide participants with a comprehensive understanding of VLSI design using Cadence tools. It aims to demonstrate the complete design flow from schematic creation to layout implementation, including simulation and verification of circuits. The lecture seeks to equip students with practical, hands-on skills for designing integrated circuits and to bridge the gap between theoretical concepts and real-world VLSI applications.



The guest lecture on “Cadence for VLSI: From Schematic to Layout” was highly informative and practical. Participants gained hands-on experience with Cadence tools, learning the complete VLSI design flow from schematic creation to layout, along with simulation and verification techniques. The session effectively bridged theory and practical application, providing valuable skills for students to implement real-world VLSI projects. By covering the complete design flow, including schematic creation, layout, simulation, and verification, the session bridged the gap between theory and real-world applications.



# Induction Programs

## INDUCTION PROGRAM FOR FIRST YEAR

~ By Dr. J. Sofiya Priya Dharshini, HoD of ECE

As part of the First-Year Induction Programme, the Department of Electronics and Communication Engineering, RGM CET organized laboratory visits for newly admitted students.

The primary objective of the visits was to introduce students to various departmental laboratories, familiarize them with equipment and experimental setups, and highlight the practical importance of core subjects. The visits were organized under the guidance of the Head of the Department, Dr. J. Sofia Priya Dharshini, along with faculty members and lab instructors.

Interactive sessions with senior students and alumni gave valuable insights into research, higher studies, and placement opportunities. Students were taken to the following laboratories:

1. Internet of Things (IoT)
2. ADICA Lab
3. EDC Lab
4. MP&MC Lab
5. DSP Lab
6. VLSI Lab
7. Communication System Lab
8. Microwave & Antennas Lab
9. Simulation/CAD Lab.

The laboratory visits to IoT Lab, ADICA Lab, EDC Lab, MPMC Lab, DSP Lab, VLSI Lab, Communication Lab, Microwave & Antenna Lab and Simulation CAD Lab gave first-year students valuable exposure to the practical side of electronics.





# Outreach Programs

## STEM OUTREACH PROGRAM

~ By G. Kranthi Kumar and Mahammed Arif

The program was effectively supported by Signal Processing Society (SPS):

1. Mr. G. Kranthi Kumar, Chair - SPS

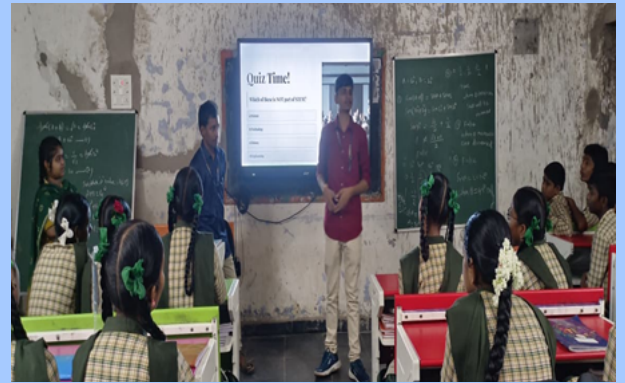
2. Mr. Mahammad Arif, Vice Chair - SPS

The programme included interactive discussions, demonstrations, and motivational talks. Students actively participated and expressed keen interest in

learning more about technology-driven subjects. The event succeeded in creating curiosity and enthusiasm among the participants.

· Mr. G. Kranthi Kumar, Chair-SPS, RGM CET, delivered an engaging session on the role of technology in today's world and motivated students to pursue careers in science and engineering.

· Mr. D. Mahammed Arif, Vice Chair-SPS, RGM CET, conducted interactive sessions highlighting problem-solving through real-life applications of STEM concepts.



**Venue: ZPHS Balapanur, Nandyal**

The event aimed to inspire and motivate school students towards Science, Technology, Engineering, and Mathematics (STEM) by providing them with practical insights and awareness of modern technological advancements. The programme emphasized the importance of STEM education in building problem-solving skills, creativity, and innovation among young learners.

The STEM Outreach Programme proved to be a significant initiative by RGM CET and IEEE SPS Society in promoting STEM education at the school level. It encouraged students to think innovatively and motivated them to pursue higher studies in engineering and technology.

The Department of ECE, RGM CET, along with IEEE SPS, plans to continue such outreach activities to nurture young minds and contribute to the advancement of scientific temperament in society.

# Outreach Programs

## STEM OUTREACH PROGRAM

~ By Md Arif and Lakshmi Narasimhaiah (Final Year)

The program was effectively supported by student mentors:

1. Md Arif, ECE
2. Lakshmi Narasimhaiah, ECE

Under the guidance of:

Dr. P. V. Gopi Krishna Rao

The student mentors played a crucial role in bridging the gap between theoretical concepts and practical implementation for the school students. They patiently guided participants through every stage of the bootcamp, starting from idea generation and problem identification to hands-on fabrication and testing of prototypes.

To introduce school students to the basics of innovation and design thinking.

To promote hands-on learning through practical activities.

To encourage creativity and problem-solving abilities.

To help students convert ideas into simple real-world prototypes.

The organizers express their sincere gratitude to the Management and Principal of RGM CET, the Department of ECE, and the administration of ZPHS, Panyam for their encouragement, cooperation, and support.

The 3-Day Hands-On Bootcamp organized by RGM CET IQAC in association with IIC and the Department of ECE proved to be a meaningful and impactful outreach initiative. The program successfully provided school students with early exposure to innovation, hands-on learning, and problem-solving, thereby fostering curiosity and interest in science and technology.





# Interaction Programs

## ALUMNI TECH TALK

~ By Mr. Sunil Kumar Kamisetty

The objective of the Alumni Tech Talk & Interaction Program was to bridge the gap between academic learning and industry practices by providing students with direct exposure to real-world engineering applications. The program aimed to motivate students, enhance their technical awareness in emerging technologies, and guide them towards industry-relevant skills and career pathways in the domain of Embedded Systems and VLSI.



The Alumni Tech Talk & Interaction Program was successfully organized in the advanced electronics/embedded systems laboratory with enthusiastic participation from students and faculty members.

Understanding of industry expectations from engineering graduates.

Insights into Embedded Systems, ARM architecture, and real-time applications.

Importance of hands-on laboratory skills alongside theoretical knowledge.

Awareness of career opportunities, internships, and skill requirements in core electronics companies.

Motivation to pursue higher learning, certifications, and industry-oriented projects.



The program received highly positive feedback from students and faculty members. Students appreciated the alumni's approachable nature, practical explanations, and career guidance.

The Alumni Tech Talk & Interaction Program was effectively organized and achieved its intended objectives by strengthening alumni engagement and enhancing students' technical competencies through industry exposure.

# Training Program

## JOB TRAINING PROGRAM

~ By Department of ECE

A One Week Job Training Program (JTP) on Basic Electronics Laboratory Practicals for students of T.C. Junior Vocational College, Panyam, Nandyal (Dt), A.P. at the request of T.C. Govt. Junior College, Panyam, Nandyal.

Job Training Program for T.C College students is to equip learners with essential technical knowledge, practical skills, and professional competencies required for industry readiness. This program aims to bridge the gap between

academic learning and real-time workplace expectations by offering hands-on training, expert sessions, and interactive learning experiences.

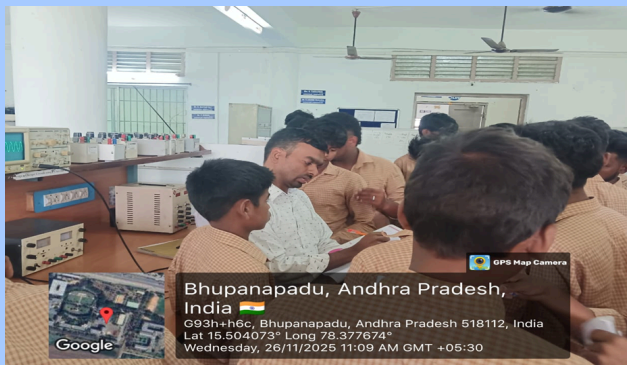
Dr. J. Sofia Priya Dharshini, HoD dept. of ECE extended a warm and heartfelt welcome to T.C College faculty coordinators, all trainee students, Faculty coordinates of the RGM College, Technical staff and supporting staff.

-Studied and verified the determination of resistor values using Resistor colour coding process that is a colour coding process which uses a system of colored

bands to indicate the value and tolerance of resistors.

Studied and verified the operation of PN Diode & Zener Diode working in forward bias, reverse bias conditions.

Provide essential computer knowledge to the students, helping them gain a strong foundation in basic digital skills and practical applications. The event was closed by the HOD, who motivated and encouraged the students for their effort and exhorted them to pursue excellence in their academic and professional pursuits.





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## PATENTS

- Dr. S V RATANKUMAR et al. Published a patent with title of Invention "HOUSEHOLD ENERGY CONSUMPTION FORCECASTING AND ANALYSIS USING MACHINE LEARNING TECHNIQUES," Application No. 202541049371 A in the official journal of patent office application filled on 22/05/2025, published on 20/06/2025.





# FACULTY PUBLICATIONS

## PATENTS

- Dr. S V RATANKUMAR et al. Published a patent with title of Invention “Cross-Model transformer fusion framework for scalable human action recognition in dynamic environments,” Application No. 202541070479 A in the official journal of patent office application filled on 24/07/2025, published on 01/08/2025.
- Dr. S V RATANKUMAR et al. Published a patent with title of Invention “Adaptive machine learning framework for multimodal human action recognition using context aware fusion and temporal ,” Application No. 202541070456 A in the official journal of patent office application filled on 24/07/2025, published on 01/08/2025.

\* \* \*





ECE  
7th SEGMENT COUNCIL  
FRESHERS  
FIESTA 2K25

# FRESHERS

## FIESTA 2K25

DEPT OF ECE

7 SEGMENT COUNCIL

RGM CET, NANDYAL

The ECE department focuses on the design and application of electronic systems, communication networks, and embedded technologies.

A student-driven ecosystem of seven specialized clubs empowering you to explore, create, and lead through technology, creativity, and innovation.

RGM Engineering College is a reputed institution known for quality technical education and a strong academic environment.



# FIESTA 2025



The vibrant stage set the perfect backdrop for unforgettable memories. Lights, décor, and design reflected the spirit of celebration. A platform where new beginnings turned into lifelong experiences.

Respected faculty members graced the occasion with their presence. Their support and guidance added dignity to the freshers celebrations.



A proud moment as achievements were recognized and honored. The ceremony reflected encouragement, motivation, and appreciation.



# FIESTA 2025



A graceful classical performance blending tradition with expression. Every movement narrated culture, discipline, and elegance. An artistic tribute to India's rich cultural heritage.

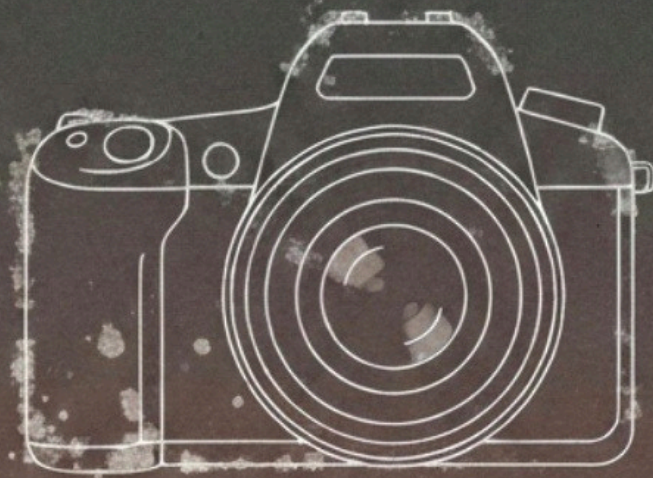
A powerful opening act that set the stage on fire with energy and unity. The dancers reflected confidence, coordination, and youthful spirit. A perfect celebration of talent welcoming the new batch.





# PHOTO & ART

THE ART OF  
**LANDSCAPES**  
CAPTURE STUNNING SCENERY





# PHOTOGRAPHY



A moment of breathtaking beauty captured over the campus. Golden rays pierce the twilight sky, casting a warm, dramatic glow over the trees and buildings. The perfect backdrop to another day of learning and growth.

**Y.Tanmai**  
**23091A04M5**  
**ECE**

Nature's artistry in a single frame. The striking patterned wings of this butterfly provide a captivating contrast to the soft yellow of the flower it visits. A perfect, fleeting moment of life captured.



**T.DHANUSH**  
**23091A0440**  
**ECE**



Finding a pause in the pace of academic life. These beautiful deer stand as a symbol of the thriving ecosystem right outside our doors, reminding us of the importance of coexisting with nature's quiet inhabitants.

**M.BalaRangadu**  
**23091A0421**  
**ECE**

A vista of raw natural beauty. The deep blue sky and white clouds contrast sharply with the earthy tones of the dry grass and the dense, rolling hills. A reminder of the breathtaking, vast landscapes.



**M.S.Fayaz Hussain**  
**23091A0443**  
**ECE**





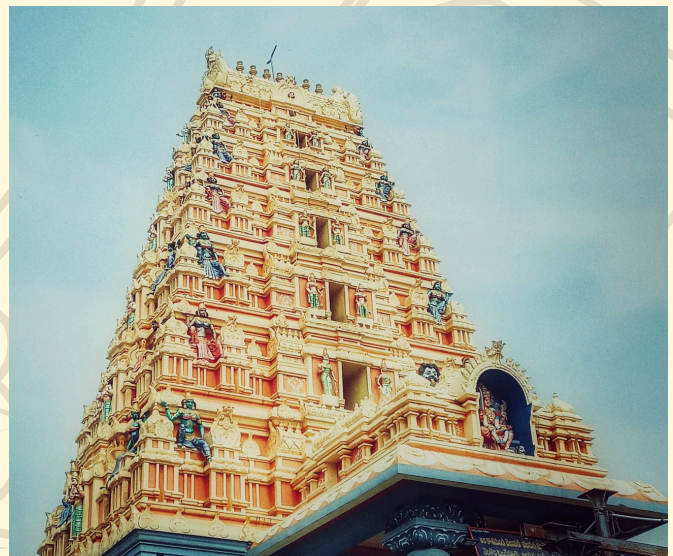
# PHOTOGRAPHY



The image captures a dramatic lightning strike during a storm, branching through a cloudy, pale-grey sky. A tall telecom tower stands at the center, appearing almost aligned with the lightning, while dark green trees form a low horizon at the bottom. The scene feels intense and atmospheric, highlighting the raw power of nature against man-made structures.

**N.Vijay**  
**23091A04S0**  
**ECE**

The gopuram rises sharply against a clear, pale blue sky, giving a sense of height, grandeur, and spiritual presence. The detailed craftsmanship and symmetrical layering highlight traditional Dravidian temple architecture, conveying a calm yet majestic atmosphere.



**M.Yashwanth**  
**24091A04S8**  
**ECE**



image shows a tall, ancient stone gopuram (gateway tower) constructed from reddish-brown stone, rising in stepped tiers toward the top. Each level is richly carved with intricate sculptures, reliefs, and architectural details, reflecting traditional South Indian temple architecture.

**S.Mahammad Saif**  
**23091A04H0**  
**ECE**





# ART



Pulimaddi Vyjayanthi  
Reg no. 23091A04T1  
ECE



Pulimaddi Vyjayanthi  
Reg no. 23091A04T1  
ECE



G.Varsha  
Reg no : 23091A04P8  
ECE





# ART



S.Surekha  
Reg no. 23091A04N6  
ECE

V.Likitha

Reg no. 23091A0498  
ECE



K.Umesh  
Reg no. 24091A04Q0  
ECE





DEPARTMENT  
OF  
**ELECTRONICS AND COMMUNICATION ENGINEERING**



**(ESTD-1995)**

**Dept. of Electronics and Communication Engineering,  
Rajeev Gandhi Memorial College of Engineering & Technology  
(Autonomous),**

**Affiliated to JNTUA, Ananthapuram, Approved by AICTE, New Delhi, Accredited by  
NBA & NAAC with A+ Grade, Nandyal, AP - 518501.**

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