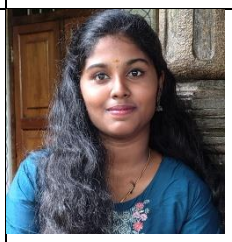
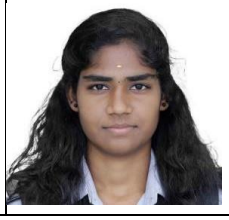
ROHINI
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Approved By AICTE & Affiliated to Anna University
NBA Accredited for All Eligible B.E/B.Tech Programs | NAAC Accredited with A+ Grade
Near Anjugramam - Kanyakumari Main Road, Palkulam, Variyoor P.O.-629401, Kanyakumari Dist, Tamil Nadu.

ELECTRONICS AND COMMUNICATION ENGINEERING ASSOCIATION INAGURATION (2025-2026)

The Inaugural function of ECE Association the faire Connectorns was held on 6 August 2025, at 2.30 P.M. We are keep moving forward to welcome the new office bearers and provide an opportunity to enhance the skill of each and every student through various event to be organized by our Association. The event was headed over by the college chairman, Shri. K.Neela Marthandan, the Pro Chairman Dr. N. Neela Vishnu, the managing director Dr. Blessy Geo, and the Principal, Dr. R. Rajesh, presided over the function. Principal Dr.R.Rajesh Deliver a presidential address.

Dr. E.Sree Devi , Faculty Advisor of The Faire Connectorns Introduce the office bearers of The Faire Connectorns for the academic year 2025 -2026. The annual Report was conveyed by Mr. Fathima Farzanaa.A III/ECE . Dr.M.Reji Introduce the Chief Guest Dr.D.Gilbert Chandra, Group Director,IPRC, ISRO, Mahendiragiri. The Chief guest deliver a Lecture Evolution of Satellite Communication. Principal Dr.R.Rajesh Honour the Chief guest with momento. . He also motivated students to Innovate new ideas for their carrier development.Ms.Mahalekshmi.A.B, Treasurer of The Faire Connectorns deliver vote of Thanks. Mr. Pushpa Raj.c and Mr.Sheik Anfal Khan carry out the Master Of Ceremony of the Function.

ECE ASSOCIATION MEMBERS:

POSITION	NAME	YEAR	PHOTO
PRESIDENT	Dr. E.SREE DEVI		
GENERAL SECRETARY	SIVA HARI M	IV ECE	
JOINT SECRETARY	FATHIMA FARZANA A	III ECE	
TREASSURER	MAHALEKSHMI A B	IV ECE	
EXECUTIVE MEMBER	HARINI M	IV ECE	

EXECUTIVE MEMBER	JEGADHEESH S	IV ECE	
EXECUTIVE MEMBER	RISHIKESH R V	III ECE	
EXECUTIVE MEMBER	GOHUL S V	III ECE	
EXECUTIVE MEMBER	DHARANI DHARAN S	II ECE	
EXECUTIVE MEMBER	NISHANTH R K	II ECE	

1. SPECTRA 2025 – An Intra-college technical carnival

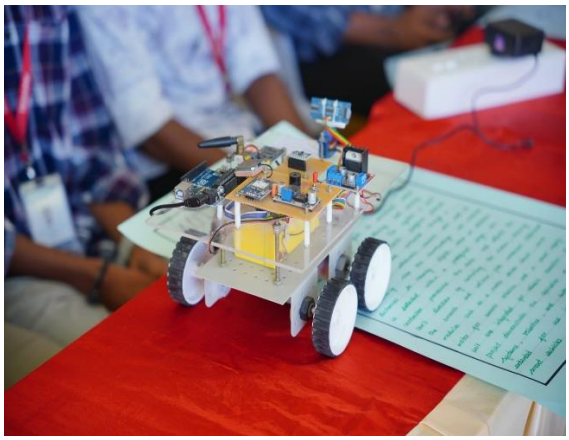
The **Department of Electronics and Communication Engineering** at **Rohini College of Engineering and Technology** successfully organized **Spectra 2025 on 12/9/2025**, an intra-college technical carnival, marked by enthusiastic participation and great success. The event was graced by the **Guest of Honour**, *Mr. S. Abisheck Venkadesh*, Managing Director of Ekkad Technologies, along with *Er. N. Saravan Prasad*, Software and Hardware Trainer/Developer at Ekkad Technologies.

A variety of technical competitions were conducted to help students enhance their practical skills and knowledge. These included Circuit Debugging, Embedded Coding Challenge, PCB Design Challenge, and Electro Jam Coding. Winners of the competitions were awarded exciting prizes and cash awards in recognition of their outstanding performance.

The event culminated in a lively cultural program, offering students an opportunity to display their artistic talents and celebrate their accomplishments.

2. MINI PROJECT EXPO 2025

The Department of Electronics and Communication Engineering organized a Mini Project Expo on 12th September 2025 in the Opulent Hall**.** Students showcased a wide variety of innovative projects, demonstrating their creativity, technical skills, and problem-solving abilities.

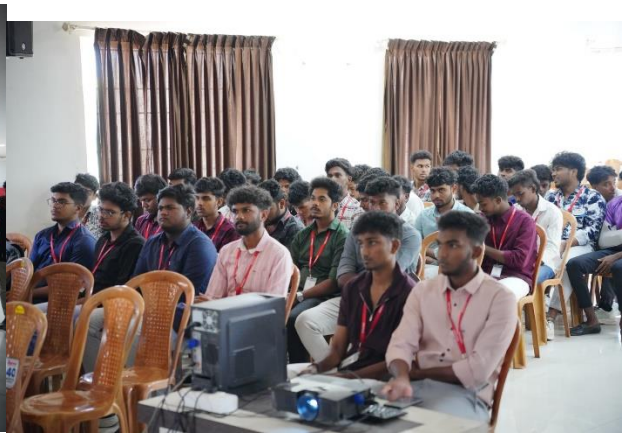


Guest Dr.Jackson Daniel and Dr.Benisha (HOD, Biomedical Engineering) extend their best wishes to the students on their remarkable achievements.

3. WORKSHOP ON 5G COMMUNICATION

The Department of Electronics and Communication Engineering organized a one-day **Workshop on 5G Communication** for third and final year students to provide students with insights into the latest advancements and technologies in next-generation wireless communication systems. The session focused on the evolution from 4G to 5G, its architecture, enabling technologies, and practical applications across various industries.

The workshop was handled by Mr. S. Abisheck Venkadesh, **Managing Director of Ekkad Technologies,** who explained the fundamental principles of 5G such as millimeter wave communication, massive MIMO, beamforming, network slicing, and Internet of Things (IoT) integration**. Students were introduced to** 5G architecture**,** core network design**,** and spectrum utilization**.** Demonstrations and simulation sessions gave participants a clear understanding of how 5G enhances data rates, latency, and connectivity compared to previous generations.

4. WORKSHOP ON SEMICANDUCTOR FABRICATION

The Department of Electronics and Communication Engineering organized a one-day workshop on 5G Communication on 12th September 2025 for Second year students. *Er. N. Saravan Prasad*, Software and Hardware Trainer/Developer at Ekkad Technologies. The session aimed to bridge the gap between theoretical knowledge of microelectronics and real-world semiconductor manufacturing practices used in the electronics industry.

The workshop covered the **fundamental steps in semiconductor fabrication**, including **wafer preparation, oxidation, photolithography, doping, etching, metallization, and packaging**. Experts explained the working principles of **cleanroom environments**, **thin-film deposition**, and **microfabrication techniques** used in integrated circuit (IC) production. Demonstrations and visuals helped students understand how **transistors, diodes, and**

integrated circuits are fabricated at the microscopic level using advanced equipment and precise process control. The outcomes are

- Understood the **complete process flow of semiconductor device fabrication**.
- Gained knowledge about **cleanroom technology** and **safety protocols** in fabrication labs.
- Learned about **photolithography, doping methods, and wafer processing**.
- Developed awareness of **VLSI and nanotechnology applications**.
- Recognized the **importance of fabrication technology** in modern electronics, computing, and communication systems

The workshop provided a valuable learning experience, enhancing students' understanding of how semiconductor devices are designed and manufactured. It helped bridge theory with industry-oriented knowledge and encouraged participants to explore careers and research opportunities in **VLSI design, microelectronics, and semiconductor manufacturing**.

5. ONE DAY WORKSHOP ON ARDUINO PROGRAMMING

The Department of Electronics and Communication Engineering organized a one-day workshop on Arduino Programming on 26th July 2025. The resource person for the workshop was M. Arun Babu, AB Technology. This workshop helped students develop their programming skills, and all participants successfully completed simple projects during the session.

6. ONE DAY WORKSHOP ON ESP32 INTERFACING

The Department of Electronics and Communication Engineering organized a one-day workshop on ESP32 Programming on 30th August 2025. The resource person for the workshop was Dr. M. Reji, HOD and Professor of ECE The workshop began with an introduction to the **architecture and features of the ESP32**, including its **dual-**

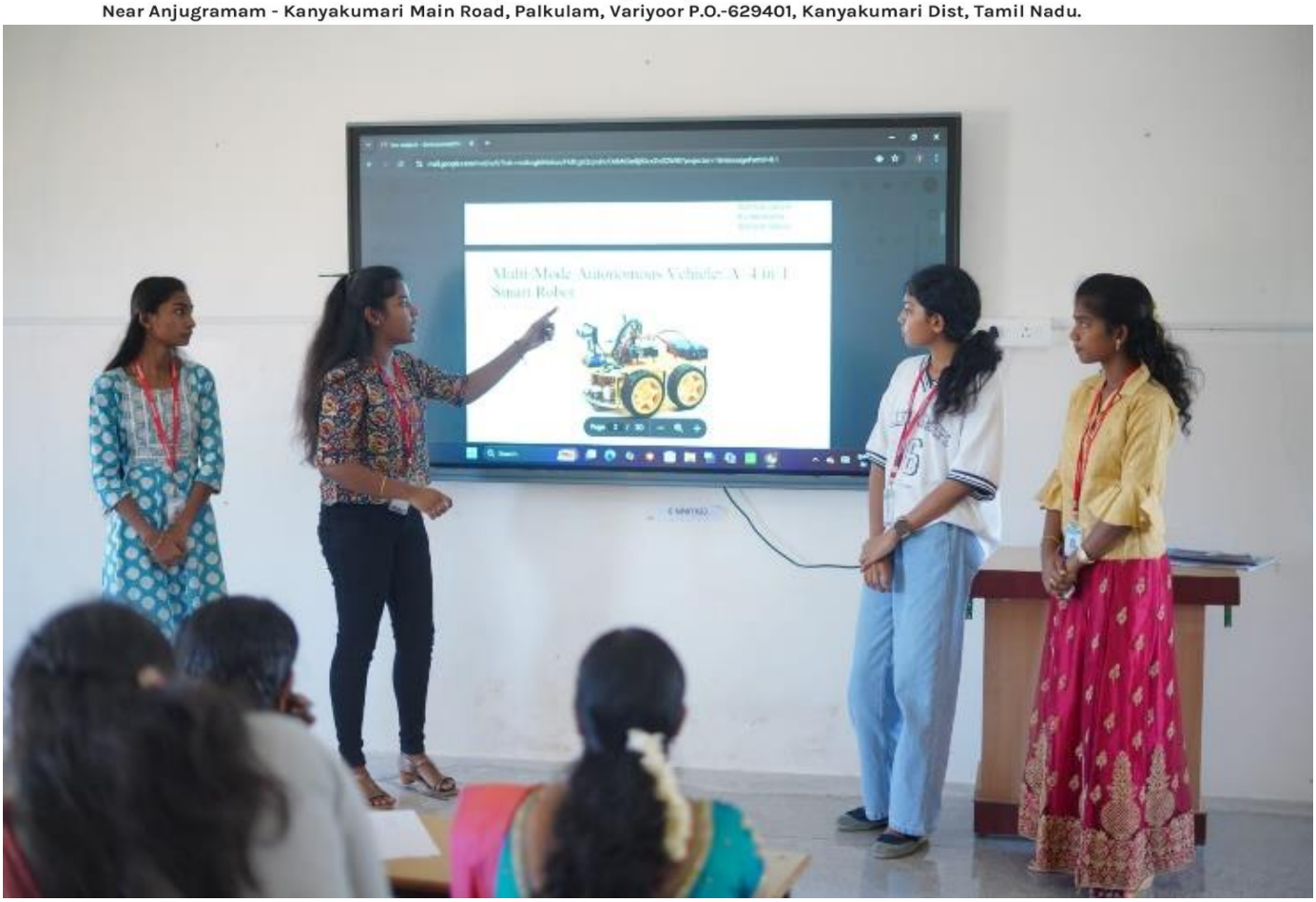
core processor, Wi-Fi and Bluetooth connectivity, GPIO, ADC, DAC, and sensor interfacing capabilities. Students learned how to set up the **Arduino IDE** for programming ESP32 and how to interface sensors such as temperature, humidity, and motion detectors. The resource person also demonstrated **real-time data transmission over Wi-Fi**, cloud connectivity, and simple automation projects using ESP32. The outcomes are

- Gained practical experience in **configuring and programming the ESP32 microcontroller**.
- Understood **sensor interfacing techniques** and **real-time data communication**.
- Learned to develop **IoT-based applications** using Wi-Fi and Bluetooth modules.
- Enhanced skills in **embedded programming, debugging, and circuit integration**.
- Motivated to pursue further **projects in IoT, home automation, and smart systems**.

The one-day workshop on ESP32 Interfacing was highly interactive and informative. It helped students connect theoretical knowledge with practical applications in embedded systems and IoT. The session encouraged participants to innovate and experiment with microcontroller-based smart solutions for real-world problems.

7. IoT Hackathon

The Department of Electronics and Communication Engineering organized an IoT Hackathon on 7/8/2025. Participants collaborated in teams to design and develop innovative Internet of Things (IoT) solutions

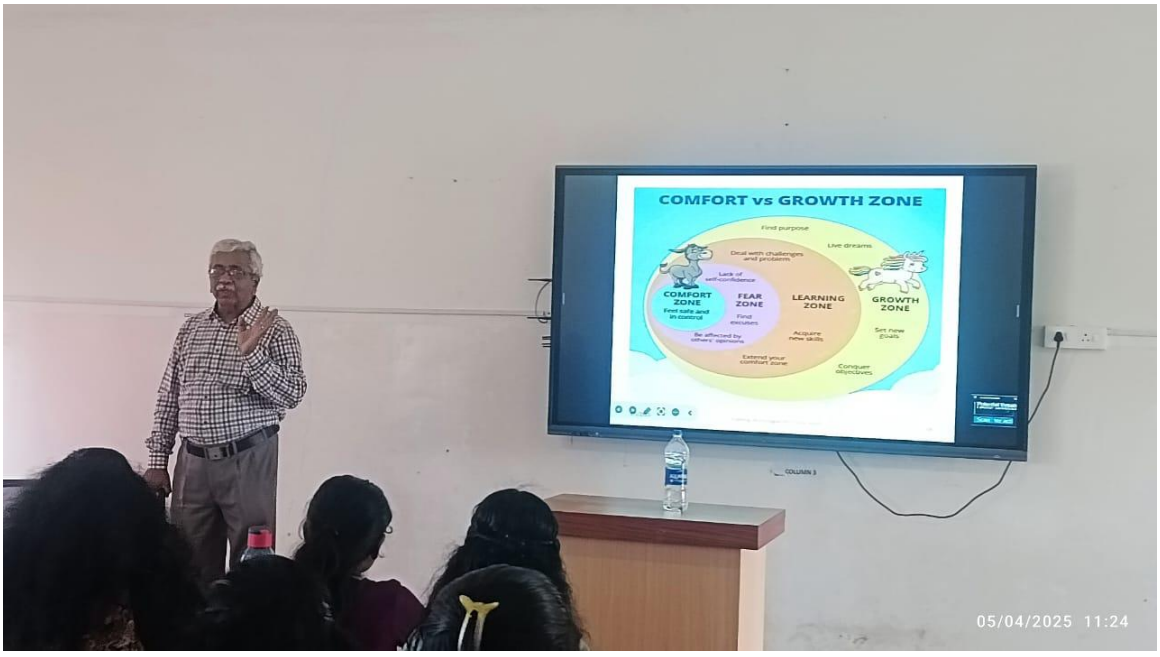


The event fostered creativity, problem-solving skills, and hands-on experience with emerging IoT technologies.

8. GUEST LECTURE ON ENABLING TECHNOLOGIES FOR FUTURE VISION

On behalf of IETE committee of RCET and Department of Electronics and Communication Engineering, a Guest Lecture was organized on 05-04-2025 for I Year ECE students. The forenoon session was started at around 10.00 AM with the lecture made by the guest speaker, Dr. S. Arumuga Perumal, Director, Riyasaa labs Nagercoil. The lecture was delivered on the topic, "Enabling Technologies for Future Vision" by the guest speaker. The lecture was focused on the importance of mastering cutting edge technologies to achieve a sustainable improvement in career. He also gave an insight on the importance of IETE

membership to the students. Following the fore noon session, the next lecture topic was “The Art of Article Writing and Effective Presentation”, delivered by Dr.Sumi M S, ASP/ECE, RCET. Through this lecture, the importance of article writing, its different categories as well as importance of publishing in peer reviewed journals and preparation for an effective presentation were all discussed during the lecture. Students were also asked to prepare a sample article based on the received information during the lecture.



9. WORKSHOP 5G BEYOND: HAND ON TRAINING WITH SDR AND WIRELESS SIMULATION

The Department of Electronics and Communication Engineering organized a **workshop on "5G Beyond: Hands-on Training with SDR and Wireless Simulation"** to provide students with practical exposure to **next-generation wireless communication technologies on 13/10/2025**. The guest is **Mr. R. Saravanakumar, Managing Director & CEO, ICONIX Software Solution & Saskive Technologies.** The workshop aimed to bridge the gap between theoretical concepts of 5G and their practical implementation using **Software Defined Radio (SDR)** and simulation tools.

The session began with an introduction to **5G fundamentals**, including network architecture, key enabling technologies like **massive MIMO, beamforming, OFDM**, and spectrum management. Participants learned to set up **SDR hardware**, configure transmitters and receivers, and perform **signal modulation, transmission, and reception**. Additionally, wireless simulation tools such as **MATLAB Simulink and GNU Radio** were used to model and analyze communication scenarios, helping students understand **real-time signal.**

The workshop provided a valuable opportunity for students to apply theoretical knowledge to **real-world 5G communication systems**. It enhanced technical skills, fostered innovation, and encouraged participants to explore projects and research in **SDR, wireless simulation, and advanced communication networks**.

10. GUEST LECTURE ON EDGE AI & IOT : THE FUTURE OF SMART CONNECTIVITY.

The Department of Electronics and Communication Engineering organized a **Guest Lecture on "Edge AI & IoT: The Future of Smart Connectivity"** on 13/10/2025 to enhance students' understanding of emerging technologies shaping the future of intelligent systems. The session focused on how the convergence of **Artificial Intelligence (AI)** and the **Internet of Things (IoT)** at the edge is transforming industries by enabling faster, smarter, and more efficient decision-making.

The guest speaker, **Mr. Prudhivi Sivaprasad**, Scientific Officer – F and Officer In-charge (IT), Nuclear Power Corporation of India Limited (NPCIL), Kudankulam., discussed the fundamental concepts of **Edge Computing**, its advantages over cloud-based processing, and its integration with AI-enabled IoT devices. The lecture covered topics such as **edge analytics, neural network deployment on embedded systems, latency reduction, data privacy, and smart device connectivity**. Real-world examples and case studies from sectors like **smart cities, healthcare, and industrial automation** were presented to illustrate the impact of Edge AI.

The guest lecture was highly informative and provided valuable exposure to one of the most dynamic and future-oriented domains in electronics and communication. It broadened students' perspectives on how **Edge AI and IoT technologies** are revolutionizing connectivity and intelligent automation. The session motivated participants to explore innovative solutions and projects integrating AI with embedded and communication systems.

11. RONIX '25 – NATIONAL LEVEL TECHNICAL SYMPOSIUM

The Department of Electronics and Communication Engineering of **Rohini College of Engineering and Technology**, located near Anjugramam at Palkulam, organized a **national-level technical symposium titled "RONIX '25"** on October 13, 2025 with the objective of showcasing the technical skills of the students.

The event was presided over by **Mr. K. Neel Marthandan**, Chairman of the college. **Dr. N. Neel Vishnu**, Vice-Chairman, **Dr. V. M. Blessy Geo**, Executive Director, **Dr. R. Rajesh**, Principal, and **Dr. M. Reji**, Head of the Department of Electronics and Communication Engineering, participated in the program and delivered felicitations to the students.

The **chief guest** of the event was **Mr. Prudhivi Sivaprasad**, Scientific Officer – F and Officer In-charge (IT), Nuclear Power Corporation of India Limited (NPCIL), Kudankulam. He delivered a special address on current trends in technological development and elaborated on the contributions expected from engineering students in the modern era.

More than **250 students** from various engineering colleges participated in the symposium and showcased their talents through events such as **Paper presentation, Roboline, Electrobuzz, Circuit craze, Hackathon.** Prizes and certificates were awarded to the winners of the competitions.

12. INDUSTRIAL VISIT

The Department of Electronics and Communication Engineering organized an industrial visit to **Kalloor Electronics & Lighting Pvt. Ltd. (KELL)**, a reputed manufacturer of LED and solar-based lighting systems on 25/09/2025. The main objective of the visit was to provide students with practical exposure to the design, production, and testing of electronic lighting products and to understand how theoretical concepts from ECE are applied in real-time industry environments.

During the visit, students were introduced to various stages of the manufacturing process such as **circuit design, PCB layout, driver assembly, component soldering, and luminaire integration**. They also visited the **testing and quality control section**, where performance, reliability, and safety parameters of LED lights were demonstrated. The engineers at KELL explained the working principles of **power electronics, embedded controllers, and sensor-based automation** used in smart lighting and solar systems.

Through this visit, students gained valuable insights into **modern lighting technology**, **industrial workflow**, and **energy-efficient design practices**. The experience helped them relate classroom learning—particularly in electronic circuits, power devices, and microcontroller applications—to practical industrial solutions.

Overall, the industrial visit to KELL was highly beneficial. It broadened students' understanding of the electronics manufacturing sector and inspired them to explore innovation and sustainability in the field of lighting technology. The interaction with professionals also enhanced their awareness of career opportunities and emerging trends in electronics and automation.

13. INDUSTRIAL VISIT

The Department of Electronics and Communication Engineering organized an industrial visit to **Kerala Electrical & Allied Engineering Co. Ltd. (KEL) on 26/09/2025**, a Government of Kerala undertaking engaged in the manufacturing of electrical and electromechanical equipment. The objective of the visit was to provide students with hands-on exposure to the manufacturing processes of transformers, alternators, control panels, and other electrical systems used in industrial and public utility sectors.

During the visit, students were given a detailed orientation on the **design and production of distribution and power transformers**, **alternators for railways and defense applications**, and **customized control panels**. The engineers at KEL explained various aspects of **winding techniques, core assembly, insulation testing, and quality assurance**. Students also observed **testing laboratories** where products undergo electrical, thermal, and mechanical tests before dispatch.

The interaction with technical staff helped students understand how **electrical and electronic principles** are integrated into large-scale industrial systems. The visit also provided insights into **automation, protection circuits, and embedded control mechanisms** used in modern electrical engineering applications. The outcomes are

- Gained practical knowledge of **transformer and alternator design and testing**.
- Understood **industrial safety procedures and quality control practices**.
- Observed real-world applications of **power electronics and control systems**.
- Recognized the importance of **reliability, efficiency, and standardization** in manufacturing.
- Developed an appreciation for the **role of public sector industries** in India's electrical infrastructure.

The visit to Kerala Electrical & Allied Engineering Co. Ltd. was highly informative and provided valuable industrial exposure. It strengthened the students' understanding of electrical systems and their practical implementation. The experience motivated them to pursue further studies and careers in power systems, electrical design, and industrial automation.

14. One Day Workshop on "Converting Projects into Profitable Patents"

The department of Electronics and communication Engineering in Rohini College of Engineering and Technology organized a **One Day Workshop on "Converting Projects into Profitable Patents"** on **27 March 2026**.

The workshop was conducted with the objective of creating awareness among students about intellectual property rights, patent filing procedures, and the commercialization of innovative projects. The programme was attended by students and faculty members from various departments, including a large number of **Electronics and Communication Engineering (ECE) students**.

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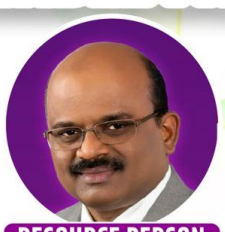
RESEARCH AND DEVELOPMENT CELL

INTELLECTUAL PROPERTY RIGHTS CELL

Organizes

ONE DAY WORKSHOP ON

CONVERTING PROJECTS INTO PROFITABLE PATENTS



RESOURCE PERSON

Dr. KANTHA BABU

Professor, Department of Manufacturing Engineering,
Director, Centre for Research, Anna University, Chennai

Welcome you all!

27 MAR 2026

The session was delivered by **Dr. Kantha Babu**, Professor, Department of Manufacturing Engineering and Director, Centre for Research, Anna University, Chennai. During his presentation, he explained the importance of protecting innovative ideas through patents and highlighted the process of transforming academic projects into commercially viable products.

The resource person discussed various aspects of patent drafting, patent filing procedures, technology transfer, and strategies for converting research outcomes into profitable ventures. He also shared several real-world case studies of successful patents and innovations developed by students and researchers.

The **ECE students actively participated** in the workshop and interacted with the resource person during the question-and-answer session. They gained valuable insights into innovation management, intellectual property protection, and entrepreneurship opportunities in the field of electronics and communication technologies.

The workshop motivated students to focus on research-oriented projects and encouraged them to explore patent opportunities for their innovative ideas. The participants found the session highly informative and beneficial for their academic and professional development.

The programme concluded with a vote of thanks to the resource person, management, faculty members, and students for their active participation and support in making the event a grand success.

15. INDUSTRIAL VISIT first year

As part of the academic curriculum, the Department of Electronics and Communication Engineering of Rohini College of Engineering and Technology organized an industrial visit to C-DAC (Centre for Development of Advanced Computing), Thiruvananthapuram, on 22 April 2026. The objective of the visit was to provide students with practical exposure to advanced technologies and research activities in the field of electronics and communication.

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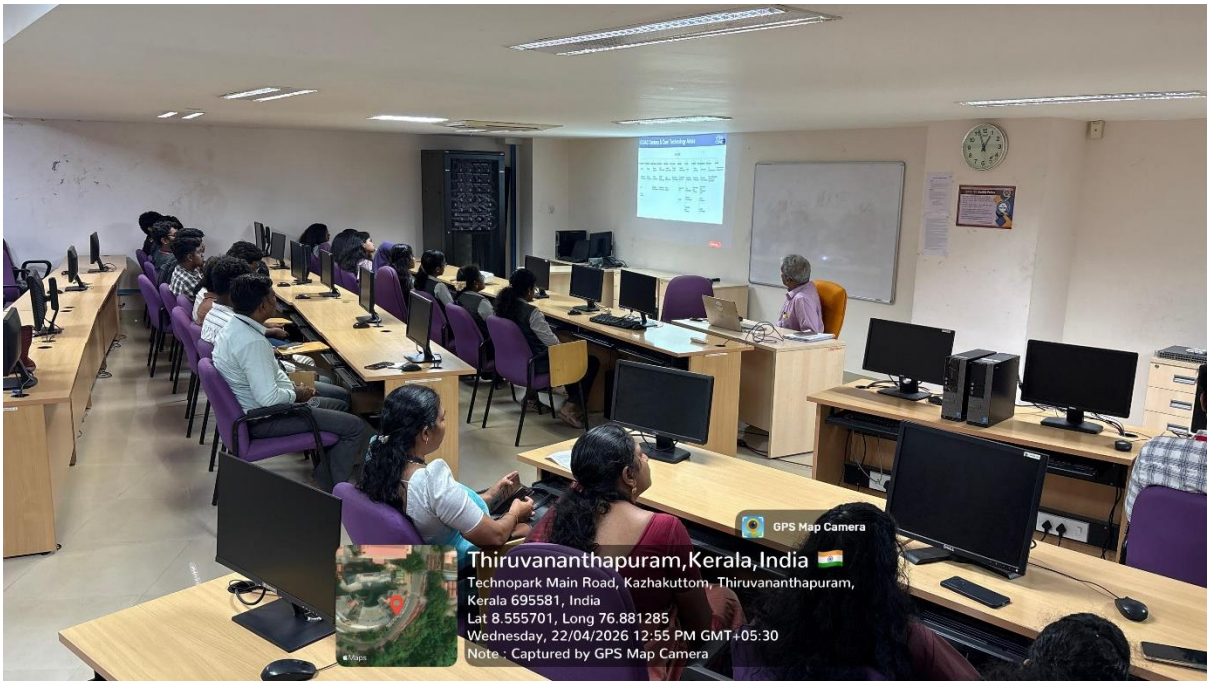
During the visit, we attended an informative technical session conducted by experts from C-DAC. The session provided an overview of the organization's achievements and contributions in areas such as High-Performance Computing (HPC), Embedded Systems, Artificial Intelligence, Cybersecurity, VLSI Design, and Digital Communication Technologies. The experts explained how these technologies are applied in real-world industrial and national development projects.



Students were introduced to various research initiatives and innovative solutions developed by C-DAC. The interaction helped us understand the practical applications of concepts studied in our ECE curriculum, including signal processing, embedded systems, and communication networks. We also gained valuable insights into current technological trends and career opportunities in research and development.

The industrial visit was highly informative and beneficial. It enhanced our technical knowledge, exposed us to a professional research environment, and motivated us to explore advanced technologies and innovation in the field of Electronics and Communication Engineering.

In conclusion, the visit to C-DAC Thiruvananthapuram was a memorable and enriching learning experience that successfully bridged the gap between academic learning and industrial practice.

16.Skill Development Course: Advanced Embedded Systems

A Skill Development Course on “Advanced Embedded Systems” was conducted by Marcello

Tech from 05 March 2026 to 11 March 2026. The course aimed to enhance II year ECE students'

knowledge and practical skills in embedded system design, programming, and real-time applications.

It provided an excellent platform for participants to gain industry-oriented exposure to modern embedded technologies.

The course began with an overview of embedded systems architecture, including microcontrollers, processors, memory organization, and peripheral interfaces. Students were introduced to the fundamental concepts of embedded hardware and software design, enabling them to understand the role of embedded systems in various applications such as consumer electronics, automotive systems, industrial automation, and IoT devices.

The training included hands-on sessions on embedded C programming, interfacing techniques, and debugging methodologies. Participants learned to develop and test embedded applications using development boards and simulation tools. Emphasis was given to writing efficient and reliable code for real-time embedded applications.

Advanced topics such as communication protocols, including UART, SPI, and I2C, were covered in detail. Students gained practical experience in interfacing sensors, actuators, and external devices with microcontrollers. The course also introduced real-time operating system (RTOS) concepts, task scheduling, and resource management techniques used in modern embedded systems.

To strengthen practical understanding, students worked on mini projects involving sensor interfacing, device control, and embedded application development. These activities helped them apply theoretical concepts to real-world engineering problems and improve their problem-solving abilities.

Course Outcomes

By the end of the course, students were able to:

- Understand the architecture and working principles of embedded systems.

- Develop embedded applications using Embedded C programming.
- Interface sensors, actuators, and peripheral devices with microcontrollers.
- Implement communication protocols such as UART, SPI, and I2C.
- Understand the fundamentals of Real-Time Operating Systems (RTOS).
- Design, test, and debug embedded system applications.
- Develop mini projects based on real-world embedded system requirements.

Overall, the Skill Development Course on Advanced Embedded Systems successfully enhanced the technical knowledge and practical skills of students. The training provided valuable industry-relevant experience and prepared participants for future opportunities in embedded system design and development.

17.Value Added Course: VLSI Front-End Design for FPGA Implementation

A Value Added Course on “VLSI Front-End Design for FPGA Implementation” was conducted by Clock Edge Technologies Private Limited from 24 February 2026 to 28 February 2026. The course was designed to provide students with practical knowledge and hands-on experience in digital design and FPGA-based implementation using Verilog HDL.

The training began with an introduction to the fundamentals of digital electronics, including number systems, logic gates, combinational circuits, and sequential circuits. Students gained a clear understanding of digital design concepts that form the foundation of VLSI front-end development. A major focus of the course was on Verilog RTL (Register Transfer Level) coding. Participants learned how to write synthesizable Verilog code for various digital circuits and understand the design flow from coding to simulation and implementation. Hands-on sessions enabled students to develop and test combinational and sequential logic circuits effectively.

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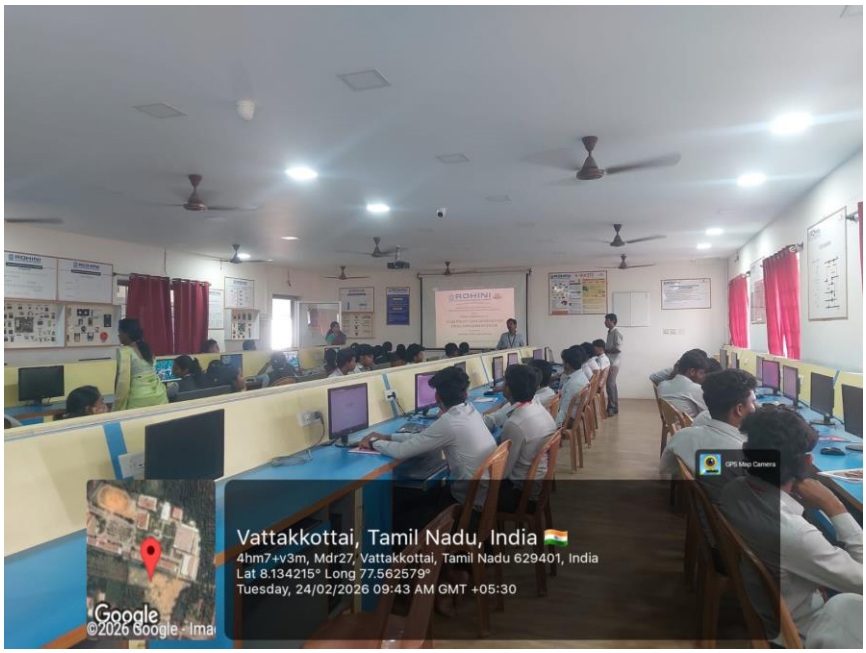

The course also covered the design and implementation of Finite State Machines (FSMs). Students learned FSM modeling techniques, state transition design, simulation, and verification. Practical exercises helped them understand the importance of FSMs in real-world digital systems. To enhance practical skills, students worked on mini projects such as Traffic

Light Controller, Arithmetic Logic Unit (ALU), and FSM-based applications. These projects provided exposure to RTL design, functional verification, debugging, and FPGA implementation concepts.

Course Outcomes

By the end of the course, students were able to:

- Understand digital design fundamentals.
- Write synthesizable Verilog RTL code.
- Develop combinational and sequential digital circuits.
- Implement and simulate Finite State Machines (FSMs).
- Build and verify small RTL-based mini projects such as Traffic Light Controllers and ALUs.

Overall, the course successfully bridged the gap between theoretical concepts and practical implementation in VLSI front-end design. It provided valuable industry-oriented knowledge and enhanced the technical competency of students in FPGA-based digital system design.

18.VALUE ADDED COURSE: Mobile Robots: Planning and Navigation

COURSE TITLE	**:**	**Mobile Robots: Planning and Navigation**
ORGANIZED BY	**:**	**RoboRAM Technologies and Education, Chennai**
DATE	**:**	**23/02/2026 to 27/02/2026**
CLASS	**:**	**III ECE**
DURATION	**:**	**30 Hours (5 Days Full-Time Programme)**

Details of the course:

The rapid advancement of robotics, automation, and intelligent systems has created a significant demand for engineers with practical knowledge in autonomous systems, embedded programming, and

sensor integration. Mobile robots are widely used in industries such as manufacturing automation, logistics, defense, healthcare, agriculture, and smart transportation systems. This Value Added Course on Mobile Robots: Planning and Navigation aims to bridge the gap between academic learning and industry requirements by providing students with hands-on training in robotics design, programming, and autonomous navigation techniques. The course enables students to develop practical skills in microcontroller programming, sensor integration, motor control, and navigation algorithms, which are essential for careers in robotics, automation, embedded systems, and artificial intelligence applications. Through practical projects and real-time demonstrations, students gain exposure to industry-standard technologies and build autonomous mobile robots capable of navigating environments and avoiding obstacles.

Objectives of the Course

The main objectives of this value-added course are:

1. To introduce students to the fundamental concepts of mobile robotics and autonomous systems.
2. To provide hands-on training in microcontroller programming and embedded system design.
3. To enable students to understand and implement sensor-based navigation systems used in modern robotics.
4. To develop the ability to design and control mobile robots using real-time data from sensors.
5. To train students in path planning and obstacle avoidance algorithms used in autonomous robotic systems.
6. To expose students to industry-relevant robotics technologies and development platforms.
7. To enhance students' problem-solving, programming, and system integration skills.
8. To motivate students to pursue robotics-based internships, projects, and higher studies in emerging technologies.
9. To prepare students with practical knowledge that supports job opportunities in robotics, automation, and embedded industries.
10. To encourage students to undertake future industry certification courses and research in robotics and intelligent systems.

Course Learning Outcomes

After successful completion of the course, students will be able to:

1. Understand the architecture and working principles of mobile robotic systems.
2. Identify and interface different robotic sensors such as ultrasonic sensors, IR sensors, LIDAR, and line-following sensors.
3. Program microcontrollers for robot movement, speed control, and directional control.
4. Design and implement obstacle detection and avoidance algorithms.
5. Develop path planning strategies for autonomous navigation.
6. Integrate hardware components and software algorithms to build functional robotic systems.
7. Construct and demonstrate a working autonomous mobile robot.
8. Apply robotics knowledge in mini projects, competitions, and research activities.
9. Gain confidence to pursue internships in robotics, automation, and embedded industries.
10. Improve employability by acquiring industry-relevant practical skills.

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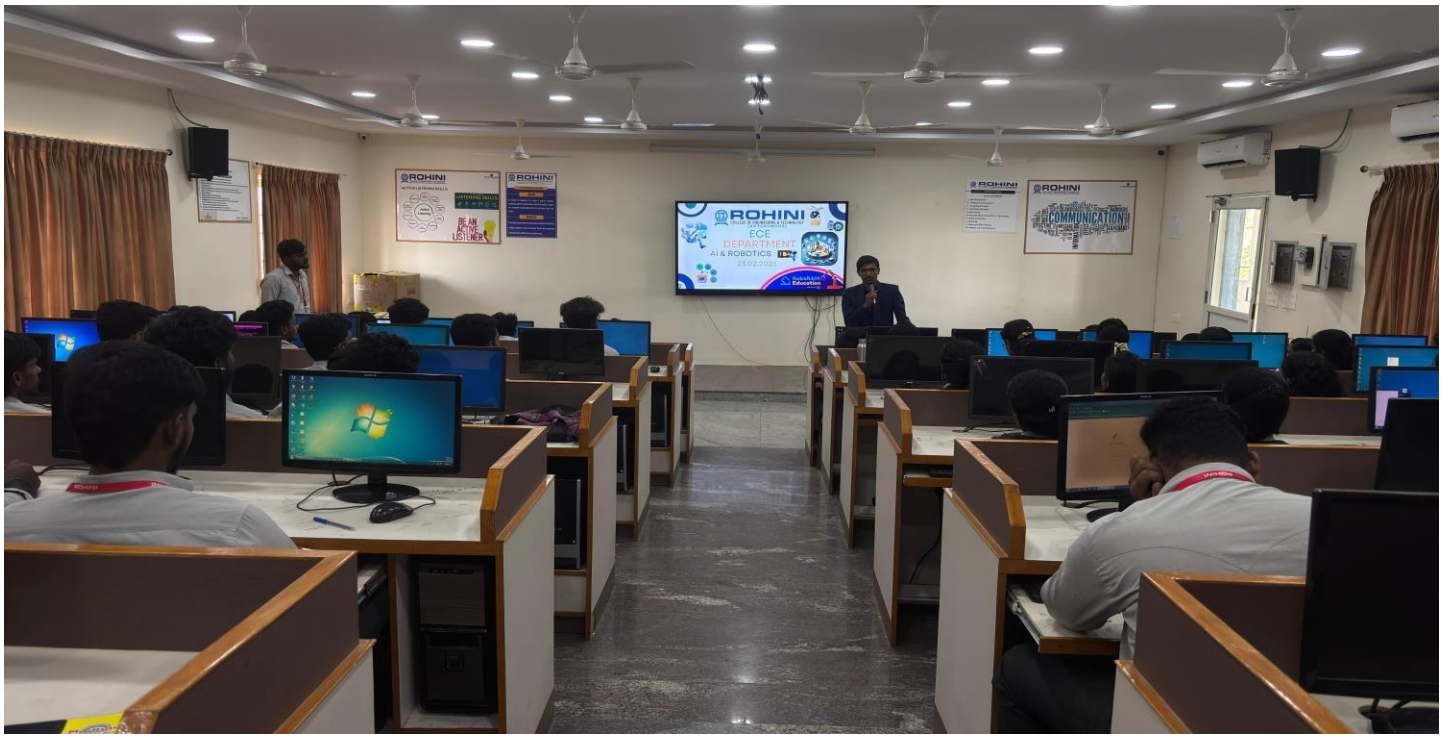

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