CET NEWSLETTER
COLLEGE OF ENGINEERING, TRIVANDRUM
ELECTRICAL AND ELECTRONICS ENGINEERING
2024-25

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ELECTRICALANDELECTRONICSENGINEERING DEPARTMENT

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From the Head of the Department

It gives me immense pleasure to present this edition of the Department of Electrical and Electronics Engineering Newsletter of the College of Engineering Trivandrum. This publication serves as a reflection of the continuous growth, achievements, and innovative spirit that define our department.

Our students, faculty, and researchers consistently strive for excellence whether in academics, research, or community engagement. The department continues to foster a vibrant learning environment that encourages creativity, critical thinking, and hands-on experience. Through our curriculum, research initiatives, and industry collaborations, we aim to prepare our students to become competent professionals and responsible engineers capable of addressing the challenges of a rapidly evolving technological world.

The department takes pride in its strong legacy of academic excellence and its commitment to shaping future leaders in electrical engineering. Over the years, our laboratories have been upgraded with advanced facilities to enhance experiential learning, and our faculty members have actively engaged in interdisciplinary research and consultancy projects that contribute to national development.

We also take great pride in the achievements of our students and alumni who have excelled in various fields, be it higher studies, research, entrepreneurship, or industry. Their success stories are a testament to the quality education and mentorship imparted in this department. I take this opportunity to congratulate all contributors' students, faculty members, and staff whose efforts have made this newsletter possible.

Dr. Arun Kishore W C

Vision and Mission of the Institute

Vision

National Level Excellence and International Visibility in Every Facet of Engineering Research and Education.

Mission

- To facilitate quality transformative education in Engineering and Management.
- To foster innovations in technology and its application for meeting global challenges.
- To pursue and disseminate Quality Research.
- To equip, enrich and transform students to be Responsible Professionals for better service to humanity.

Vision and Mission of the Department of Electrical Engineering

Vision

Be a centre of excellence and higher learning in Electrical Engineering and allied areas.

Mission

- To impart quality education in Electrical Engineering and bring-up professionally competent engineers.
- To mould ethically sound and socially responsible Electrical Engineers with leadership qualities.
- To inculcate research attitude among students and encourage them to pursue higher studies.

Department Highlights – 2024

IEEE SB CET Activities

The IEEE Student Branch CET demonstrated another year of leadership through diverse subchapters and technical initiatives.

IEEE PES SBC CET

EV Code and Drive Challenge
A flagship PES event combining coding and control system design. Participants built EV motor control algorithms and implemented real-time simulations using embedded hard- ware.

Powering the Future
A pre-Drishti renewable-energy prototype event encouraging students to design smart microgrids and solar storage systems for the CET campus.

IEEE RAS SBC CET

Autonomous Ground Vehicle Lecture Series
A technical series covering path planning, obstacle detection, and motion control using ROS and Arduino platforms.

START 2024–Collaboration with ISRO
Hands-on rover design and testing sessions exploring traction, navigation, and localization for planetary exploration vehicles.

IEEE AES SSBC CET

Equinox 2024
A week-long aerospace technology fest featuring a MAT-LAB workshop on flight-path analysis, UAV design challenge, and industrial visit to VSSC, providing exposure to aerospace R&D.

IEEE WIE AG CET

Empower Her 2024
A mentorship initiative promoting women engineers in leadership. It included technical paper writing sessions, AI-for- good projects, and communication skill workshops.

IEEE SBC ET Workshops

Connected Living Workshop
A beginner- friendly IoT event teaching smart-home control via Node MCU and Blynk Cloud.

Engineering for a Sustainable World Exhibition
An inter-disciplinary exhibition displaying student prototypes on renewable systems, robotics, and environmental sustain-ability.

IET On Campus CET Activities

Mini Drone Workshop
Over 80 students learned UAV design, assembly, and control with real-time flight demonstrations.

Game Design Workshop
Conducted during Drishti 2024, focusing on Unity-based 3D prototyping and creative logic design.

Arduino Hackathon
Teams developed IoT solutions for smart farming, home automation, and biometric security.

Mock Placement Drive
A simulated recruitment program with aptitude, GD, and technical interview rounds.

Verilog Workshop
Introduced FPGA-based design work flows for digital circuit implementation.

Tech Pulse 2024
Concluded the year with a leadership and ethics conclave on technology and engineering policy.

Astro CET and Aero CET Activities

National Space Day Celebration
Featured models, astrophotography, and solar observation commemorating Chandrayaan's success.

AI/ML for Space Exploration Workshop
Introduced deep learning for celestial data analysis and exoplanet detection.

Night Drone Racing Challenge
A thrilling IEEE AESS- funded drone race emphasizing design precision and control at night.

Aerothon 2024
A 36-hour aero modeling hackathon testing endurance, innovation, and aerodynamics.

Orbit Magazine Contributions
Student research articles featured in CET's annual aerospace technology magazine.

ISTE and IEDC CET Activities

Robo Forge Workshop
Hands-on training on embedded control and automation using microcontrollers.

LaTeX for Research Writing
Session under Pantheon X on scientific documentation and publication formatting.

Panel Discussion on Entrepreneurship in Film
Explored intersections between engineering, creativity,and media innovation.

Startup Spark 2024
IEDC flagship event featuring idea pitching, mentoring, and incubation guidance.

Ignite Competition
Student participation in Kerala Startup Mission's innovation program with renewable farming projects.

HO(Helping Hands Organization)

Chirag Initiative
Recycling drive funding education kits for under privileged children.

DAFFODILS PROGRAM
Weekly teaching and engagement for differently-abled students.

CENTRE STAY PROGRAM
Two day volunteer camp planning annual service projects.

HEALTH FOR ALL
Blood donation and wellness camp organized with local hospitals.

FLOOD RELIEF DRIVE
Relief material collection and distribution to monsoon affected regions.

Research and Publications–2024

The department's research achievements included multiple IEEE conference papers. *"IoT-Based Line Breakage Detection and Alerting System for Overhead Distribution Lines"* was presented at ICSPCRE 2024. *"IoT-Based Power Monitoring and Energy Conservation System"* earned recognition at SSITCON 2024. Projects on renewable microgrids and AI-driven converter control gained funding proposals under KSCSTE and DST. A new Research Innovation Cell was established to guide student research publications.

Student Achievements – 2024

Students excelled in national contests and internships. Jeharsha M interned on EV design at Techmaghi; Abhishek A S won third place at IIT Palakkad's AI challenge. Sreekumar P S represented CET at IEEE SAUVC Singapore, while "Watt Innovators" ranked in AICTE's Green Energy Challenge. Students also contributed as IEEE volunteers and paper reviewers during CET Energize Expo.

Department Initiatives and Outlook–2025

The new **Power Electronics Systems Laboratory** with DSP- based converters enhances hands-on learning. Workshops on *MATLAB Simscape*, *PMSM Control*, and *IoT-enabled Microgrids* linked academia and industry. Future plans include establishing an EV Research Hub, expanding consultancy in energy auditing, and promoting interdisciplinary projects for sustainable innovation.

Additional Department Highlights–2024

Research and Innovation Awards

BIO-SIGNAL ACTIVATED FPGA-BASED REHABILITATION SYSTEM
Hrishikesh H Pillai presented this at the 3rd International Conference on Robotics, Automation and Artificial Intelligence (RAAI 2023).

AUTOMATIC SOLAR PANEL CLEANING SYSTEM INTEGRATED WITH ML AND IOT
Nandana Kurup and team won the **First Prize (20,000)** at ANERT Renewable Energy and E-Mobility Innovation Contest 2024 and 3rd place at KREEPA Green Power Expo 2023.

SUPER-CAPACITOR-BASED BACKUP UNIT FOR EV APPLICATIONS
Abin Raj and team won the **Second Prize (15,000)** at ANERT 2024 for rapid-charge backup innovation.

AUTONOMOUS NAVIGATION ALGORITHM FOR PLANETARY ROVERS
Presented by Hrishikesh H Pillai and Malavika R Saji at IEEE I2 CT 2024, focusing on multimodal sensor fusion for terrain mapping.

WIND DRIVEN TENG (WD-TENG)
Akhil Hayash M and team demonstrated wind-driven triboelectric nano generators at RAEEUCCI 2024.

Student Participation and Outreach

EEE students represented CET at national and global events.

SELF-DRIVING EV WORKSHOPS
Teams trained at IIT Kharagpur, NIT Calicut, and Techmaghi Labs on EV automation.

NATIONAL COMPETITIONS
Abhishek A S secured 3rd place at IIT Palakkad's Ardinno vate; Sreekumar P S participated in IEEE SAUVC Singapore 2024.

HACKATHONS AND INTERNSHIPS
Students joined SIGNIA Hackathon (IEEESPS),Drone KP (Kerala Police Cyberdome), and Texas Instruments internships, gaining industrial exposure.

WORKSHOPS AND CERTIFICATIONS
Attended courses on AI, Robotics, and Quantum Physics via IIT Madras, NIT Calicut, and Cisco programs.

Sports and Cultural Recognition

Beyond academics, students excelled in sports and culture. Abhiram P K won the Fashion Show at *Dhanak IIST 2024*; Joachim B Kattookaran represented KTU at the All India Inter-University Shooting Tournament. EEE students also secured positions in volley ball, chess, and technical quizzes, reflecting holistic excellence.