News letter of Department of Electrical and Electronics Engineering.
K.Ramakrishnan college of Engineering,Samapuram, Tiruchirapalli.
Issue 3 (DEC 2023)

K.Ramakrishnan College of Engineering
Autonomous| Affiliated to Anna University Chennai

INSTITUTE VISION AND MISSION

VISION

- "To achieve a prominent position among the top technical institutions"

MISSION

- To bestow standard technical education par excellence through state of the art infrastructure, competent faculty and high ethical standards.
- To nurture research and entrepreneurial skills among students in cutting edge technologies.
- To provide education for developing high-quality professionals to transform the society.

ABOUT THE DEPARTMENT

The Department of Electrical and Electronics Engineering (EEE) at K. Ramakrishnan College of Engineering (KRCE), established in 2008, is committed to delivering quality education, fostering innovation, and providing industry-oriented learning. The department offers undergraduate and postgraduate programmes, including an M.E. in Power Systems Engineering (since 2013), designed to meet global technological demands.

The department has a team of 16 highly qualified faculty members. All faculty members hold postgraduate degrees in various specializations such as Power Systems Engineering, Power Electronics and Drives, Embedded Systems, Control and Instrumentation, High Voltage Engineering, Power Management, Process Dynamics and Control, and Energy Engineering. Among them, 7 are Ph.D. holders and 8 faculty members are pursuing doctoral research, fostering a strong academic and research culture.

With well-equipped laboratories such as Electrical Machines Laboratory, Power Electronics and Drives Laboratory, and Control & Instrumentation Laboratory, along with advanced research facilities, the department ensures hands-on learning and technical excellence. ICT-enabled classrooms, high-speed internet connectivity, and 24/7 Wi-Fi access creates a smart learning environment.

The department has an outstanding academic record with 36 University Rank holders, including a University First Rank. The institution is accredited by NAAC with an "A" grade, and the EEE program was accredited by the National Board of Accreditation (NBA) in 2019. KRCE attained Autonomous Status in 2020, enabling the department to design a dynamic and industry-relevant curriculum aligned with emerging technologies.

To enhance employability, structured training is provided from the third semester and dedicated placement drives for core companies are conducted. Over 95% of interested students have been placed in leading multinational companies such as TCS, Wipro, Cognizant, HCL Technologies, Hitachi, Capgemini, and Zoho, as well as in core engineering companies such as ABB, Schneider Electric, General Electric (GE), PDCS, 3 Phase Engineering, and ModPro.

The department strongly promotes higher education and global exposure. Students have qualified in competitive examinations and are pursuing higher studies in premier institutions such as Anna University and National Institutes of Technology (NITs), as well as internationally reputed universities including the University of Hertfordshire (UK) and Steinbeis University (Germany).

Research and innovation are key strengths, with four recognized research supervisors, publications in SCI and Scopus-indexed journals, and funding support from agencies such as AICTE, DST, IEEE, ISTE, IEI, and TNSCST. Strong industry collaboration through MoUs, consultancy works, and internships enhances real-world learning.

Students actively participate in and win accolades at national-level competitions such as TCS CodeVita, YUKTHI Innovation Challenge, and AICTE Vishwakarma Awards. Professional development is further supported through active student chapters of IEEE and IEI.

With a focus on academic excellence, global competence, and holistic development, the department prepares future-ready electrical engineers to address industry requirements and societal challenges worldwide.

DEPARTMENT VISION AND MISSION

VISION

"To emerge as a renowned department for high quality teaching,learning and research in the domain of Electrical and Electronics Engineering, producing professional engineers, to meet the challenges of society."

MISSION

- To establish the infrastructure resources for imparting quality technical education in Electrical and Electronics Engineering.
- To achieve excellence in teaching, learning, research and development.
- To impart the latest skills and developments through practical approach along with moral and ethical values.

RESEARCH

Research activities of EEE department is centered around the core domains of Power systems, Power Electronics, Electrical Drives, High Voltage Engineering, Optimization, Electrical machines, Renewable Energy systems, Power quality, FACTS, Energy conservation, and management. To impart and promote research interest among students in the above core domains of EEE, we encourage the students to perform regular R&D projects resulting in journal and conference publications or patents. Workshops, industry oriented seminars and conferences are also organized in our department to help the students of our department to enhance the knowledge in state-of-the art. Our R & D team is also actively involved in getting funds from IEEE, TNSCST, MNRE,DST etc.

Our department is recognized as R & D centre by Anna University, Chennai where several research scholars are doing Ph.D. in various domains. The Research laboratory is developed with the aim of enhancing the research capabilities for power engineers in the Electrical and Electronics Engineering department. These laboratories will be devoted to solving problems in cutting edge research topics of promise to future applications. It supports undergraduate, postgraduate and research scholars to enhance rapid technology transfer in various domains in the field of Energy, Power Systems Engineering and Power Electronics and Drives.

HIGHLIGHTS OF RESEARCH CENTRE

1. The department has been recognized as Research Centre by Anna University, Chennai since November 2017.
2. The research centre has two research supervisors recognized by Anna University, Chennai.
3. Eleven Research Scholars have registered for Ph.D. programme in the department research centre, in Part-Time category.
4. The faculty members and research scholars of our department consistently publish papers in referred national & international journals/conferences.
5. The Department is regularly conducting International Conference on Innovations in Engineering, Technology and Science (ICIETS) every academic year to promote academic research.
6. The Department of EEE has state of art facilities in research laboratory and is actively involved in collaborating with industries for research and consultancy works.

DESCRIPTION

The Research lab shows a new mechanism to improve the innovation ability of research scholars and to collaborate with the industry persons. It provides a platform for the research scholars in the department to share their knowledge in their field of expertise. It also helps the post graduate students to understand the basic necessity in doing research and to acquire guidance from the experts in various domains. The lab also supports in conducting lab sessions while conducting national/international short term training programs and workshops to all the participants satisfying their thirst in the recent fields of power systems and power electronics. Research in the department may be broadly divided into so-called "thrust" areas:

Renewable Energy Systems
Smart Grid Technology
Power System Deregulation
Soft Computing Techniques
Design and Analysis of Power Converters
Energy Conservation
Electrical Drives

RESEARCH SOFTWARES:

1. Mi Power Software Version 9.1, 5 User Network Licence, Unlimited number of buses and nodes
2. ETAP version 7.5.2, 10 user, 50 bus system
3. Matlab R2015a, software, 15 user
4. NI LabVIEW Full Package, 25 user
5. PSPICE software 25 user
6. PROTEUS software
7. MYRIO hardware ,10 user
8. MYDAQ hardware 10 user

RESEARCH EQUIPMENTS

1. EM-Type Over current Relay testing kit
2. Fluke 438- II / INTLI - Power Quality& Motor Analyzer.
3. AC Drives Training kit G120 with Sinamics 3 phase IM (Siemens)
4. DC Drives Training kit Sinamics DC Master 6RA80(Siemens)
5. Speed control of DC motor using Chopper
6. Re-programmable logic devices & programming (V/F Control)
7. Automatics voltage regulation of three phase Synchronous generator
8. 250KW Roof Top Solar power Plant with Grid Connected facility
9. Wind speed sensor DWT 8102
10. Air Temperature sensor DWT 8103
11. Relative humidity sensor DTH 8103
12. Module(Surface temperature model DWMT 8104)
13. Pyrometer Sensor DWR 8101
14. 4 Channel data logger DWL 1002
15. Hand held Anemometer DHA 111
16. 60KV Transformer BDV Oil test kit
17. Solar PV Module Training Kit
18. Fuel Cell Module Trainer Kit
19. Various electrical machines and meters

The research laboratories will be devoted to solving problems in cutting edge research topics of promise to future applications. EEE department will continue to help students in shaping them as future professionals and assist them to improve their performance by imparting career oriented courses periodically. Hands-on experience on practical power quality analyzer and motor analyzer are employed. This laboratory provides periodical in-house training programs and national level workshops for the UG/PG engineering students to bring out professional and technical excellence in them in order to bridge the gap between industries and academia. The main objective is to disseminate knowledge and appropriate skill practices through proper systems of training testing and certification.

PROGRAM EDUCATIONAL OBJECTIVES:

PEO1: Have Strong foundation in Electrical and Electronics Engineering to Excel in professional career, in higher studies or research.

PEO2: Analyze, design and develop various interdisciplinary projects and products, to contribute industrial needs and societal development.

PEO3: Have Professional ethics and effective communication skills with life-long learning attitudes.

PROGRAM OUTCOME (PO)

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

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

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

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

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

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

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

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

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

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

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

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

PROGRAM SPECIFIC OUTCOME (PSO)

PSO 1: Apply logical, analytical and technical skills to model and develop electrical systems and appliances that meet societal requirements.

PSO 2: Apply fundamental and advanced knowledge of Electrical and allied Engineering in the design and development of hardware and software tools for non-conventional electrical power generation and distribution.

PRESENTATION DAY – 2023- III YEAR

The Department of Electrical and Electronics Engineering of K. Ramakrishnan College of Engineering successfully organized **"Presentation Day – 2023"** for the III Year EEE students on **08 February 2023** at **LH 213**.

The event provided a valuable platform for students to exhibit their presentation skills, technical knowledge, creativity, and innovative ideas in various domains of Electrical and Electronics Engineering. Students actively participated with great enthusiasm and confidence, making the session highly interactive and informative.

The programme was conducted under the guidance and support of the faculty members and department administration. The event encouraged students to improve their communication, teamwork, analytical thinking, and professional presentation abilities.

Faculty Coordinators

- Dr. R. Manivasagam - Class Advisor
- Mr. T. Vadivelan – Class Advisor

Administrative Support

- Mr. A. Subramaniya Siva – Assistant HoD
- Mr. G. Gabriel Santhoshkumar – HoD/EEE
- Dr. D. Srinivasan – Principal
- Dr. S. Kuppusamy – Executive Director
- Dr. K. Ramakrishnan – Chairman

The Presentation Day concluded successfully with active student participation and appreciations from faculty members for the students' efforts and performances.



PRESENTATION DAY – 2023- II YEAR

The Department of Electrical and Electronics Engineering of K. Ramakrishnan College of Engineering organized **"Presentation Day – 2023"** for the II Year EEE students on **16 February 2023** at **LH 212**.

The event served as an excellent platform for students to demonstrate their technical presentation skills, innovative ideas, and subject knowledge in various areas of Electrical and Electronics Engineering. Students enthusiastically participated and confidently presented their topics before faculty members and peers.

The programme encouraged students to strengthen their communication abilities, teamwork, stage confidence, and analytical thinking. The active involvement of students made the session informative, interactive, and academically enriching.



Faculty Coordinators

- Mr. P. Vigneswaran – Class Advisor
- Mr. U. Ramani – Class Advisor

Administrative Support

- Mr. A. Subramaniya Siva – Assistant HoD
- Mr. G. Gabriel Santhosh Kumar – HoD/EEE
- Dr. D. Srinivasan – Principal
- Dr. S. Kuppusamy – Executive Director
- Dr. K. Ramakrishnan – Chairman

The Presentation Day concluded successfully with appreciations from faculty members for the students' active participation and presentation excellence.

IEI Sponsored All India Workshop on "Role of Power Converters and Drives for Electrical Vehicles"

The Department of Electrical and Electronics Engineering of K. Ramakrishnan College of Engineering in association with The Institution of Engineers (India) successfully organized an **IEI Sponsored All India Workshop** on **"Role of Power Converters and Drives for Electrical Vehicles"** on **17 & 18 February 2023** at **TLC Hall, First Floor**.

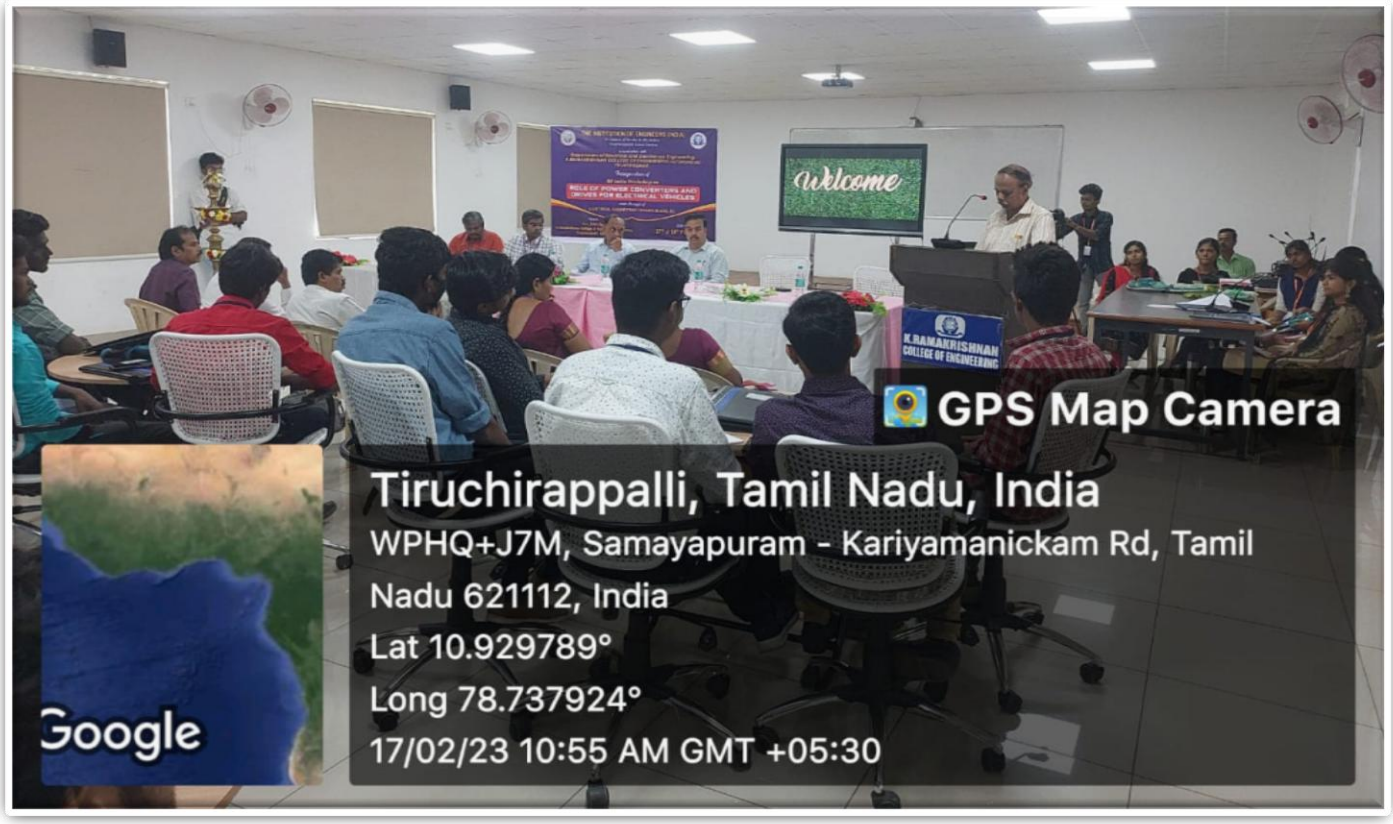
The two-day national level workshop focused on recent advancements in Electric Vehicle technologies, power electronic converters, electric drives, battery management systems, and simulation studies related to EV applications. The programme aimed to provide students, faculty members, and researchers with practical exposure and technical insights into the rapidly growing Electric Vehicle sector.

The workshop was inaugurated by **Dr. J.A. Pathanjali**, Managing Director, High Energy Batteries (I) Ltd., Tiruchirappalli, who delivered the inaugural address highlighting the importance of sustainable transportation and future EV technologies.

Day 1 Technical Sessions

The first day featured expert sessions from industry professionals and academicians:

- **Dr. K. Karthick**, Manager, Business Development Group, BHEL Trichy, delivered a session on **"Overview of EV Technologies and Major Subsystems."**
- **Mr. B. Senthil Kumar**, Head – Research and Development, Jascon Energy Pvt. Ltd., Trichy, presented on **"Battery Management System for Electric Vehicle."**
- **Dr. Shelas Sathyan**, Assistant Professor, NIT Trichy, handled a technical session on **"AC-DC Converter Topologies for Interfacing ESSs to Power Systems."**



Day 2 Technical Sessions

The second day included advanced sessions delivered by faculty members from NIT Trichy:

- **Dr. Jose Thankachan** discussed **"Electrical Machines for Electric Vehicles."**
- **Dr. S. Senthil Kumar** explained **"Power Quality Issues for EVs."**
- **Dr. P. Srinivasa Rao Nayak** delivered a lecture on **"Design of DC-DC Converters for EVs."**
- **Dr. V. Sankaranarayanan** concluded the technical sessions with **"Electric Vehicle Performance and Simulation Study."**



The workshop witnessed active participation from students, faculty members, and researchers from various institutions. Interactive discussions, expert lectures, and technical knowledge sharing made the event highly informative and beneficial for the participants.

The programme concluded with a valedictory session and feedback interaction coordinated by:

- Mr. G. Gabriel Santhosh Kumar – Coordinator
- Dr. S. Dharmalingam – Convenor / IEI
- Dr. S. Titus – Organizing Secretary
- Dr. D. Srinivasan – Principal

The workshop successfully enhanced participants' understanding of modern Electric Vehicle technologies and emerging trends in power converters and drive systems.

INDUSTRIAL VISIT TO WREL (WALHAN SOLAR TN LIMITED)

The Department of Electrical and Electronics Engineering of K. Ramakrishnan College of Engineering organized an Industrial Visit to **WREL (Walhan Solar TN Limited)**, a subsidiary of Tata Power, located at Krishnapuram Village, Musiri, Tiruchirappalli on **05 March 2023** for the III Year EEE students.

A total of **39 students** from III year [2020-2024 Batch] accompanied by faculty coordinators **Mr. M. Senthilkumar** and **Mr. T. Vadivelan** participated in the visit. The industrial visit aimed to provide students with practical exposure to solar photovoltaic power generation systems and their real-time industrial applications.

WREL is a **149 MW Solar Photovoltaic Power Plant** and an integral part of the Tata Power Group, known for its significant contribution towards renewable energy development and sustainable power generation. During the visit, students gained insights into the Tamil Nadu Solar Energy Policy and the importance of renewable energy integration into the power grid.

Highlights of the Visit

Students were guided through various sections of the solar power plant, where they learned about:

- Solar photovoltaic panel operation and energy generation
- Series and parallel connections of solar panels
- Solar modules, arrays, and inverter systems
- Grid-connected solar power generation
- Battery systems and charge controllers
- Transmission equipment such as transformers, CTs, PTs, insulators, and lightning arresters



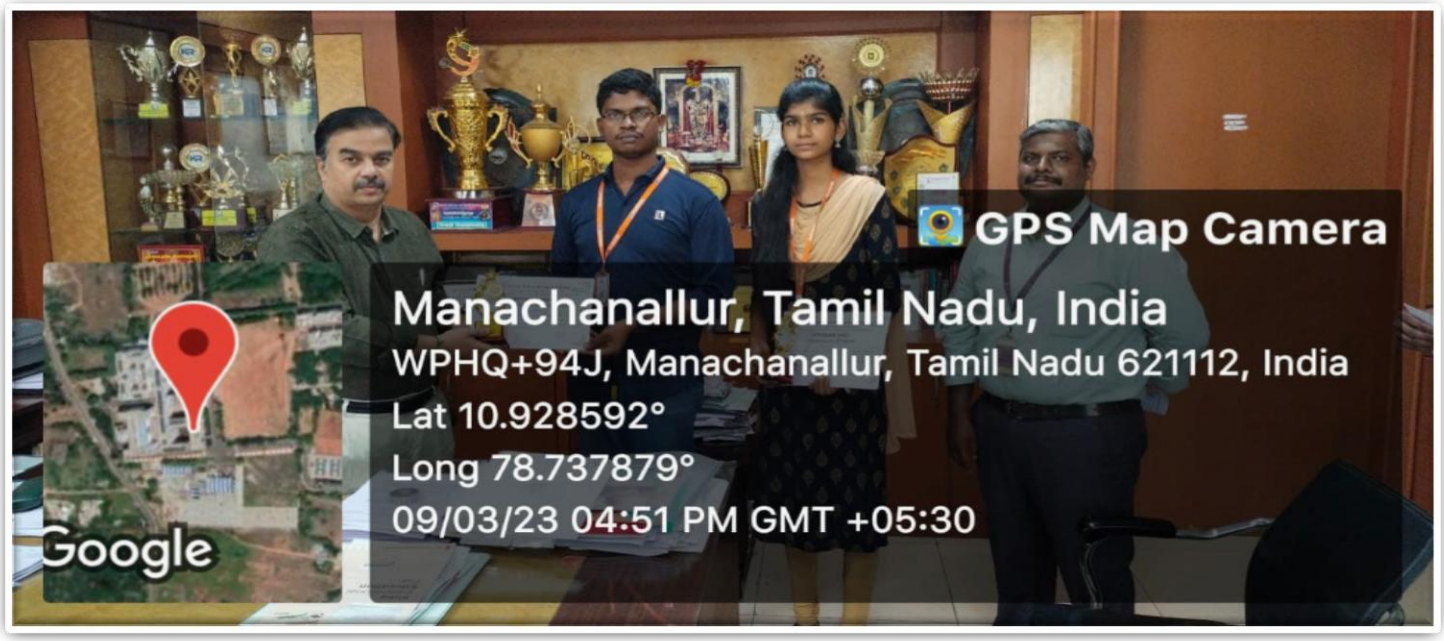
The students also visited the **Control Room**, where they observed the functioning of the **SCADA system** used for automatic monitoring and control of the entire plant. They gained practical knowledge about protection systems and relays used in power system operations.

The industrial visit provided an excellent opportunity for students to bridge the gap between theoretical concepts and real-world industrial practices. The interactive sessions and on-site demonstrations enhanced the students' understanding of renewable energy technologies, power generation, transmission systems, and industrial safety practices.

The visit concluded successfully with students gaining valuable technical knowledge and practical exposure in the field of solar energy systems and modern power plant operations.

"VYUGAS 2023" NATIONAL LEVEL TECHNICAL SYMPOSIUM

The Department of Electrical and Electronics Engineering of K. Ramakrishnan College of Engineering is delighted to share that the III Year EEE students **Gopika P.** and **Suswin Ganesh R.** secured prizes in the **"Debugging"** event conducted as part of **VYUGAS 2023**, a National Level Technical Symposium organized by the Department of Computer Science and Computer Applications at SRM Trichy Arts and Science College on **03 March 2023**.



The students showcased excellent problem-solving ability, programming logic, and debugging skills during the competition and brought laurels to the institution through their outstanding performance.

The symposium provided a valuable platform for students to demonstrate their technical competencies, analytical thinking, and competitive spirit while interacting with participants from various institutions.

The management, faculty members, and students of the Department of Electrical and Electronics Engineering congratulated **Gopika P.** and **Suswin Ganesh R.** for their achievement and wished them continued success in their future academic and technical endeavors.



SAE TN45 MOTORSPORTS TEAM SECURES
"BEST DESIGN AND AESTHETICS AWARD" AT GKDC 2023

The SAE TN45 Motorsports team of K. Ramakrishnan College of Engineering achieved a remarkable milestone by securing the **"Best Design and Aesthetics Award"** in the prestigious **10th Go-Kart Design Challenge (GKDC) 2023** held at Kari Motor Speedway from **10 April 2023 to 13 April 2023**.

The national-level championship was organized by ISNEE Motorsports Private Limited and witnessed participation from **83 registered teams** from various engineering institutions across the country. The competition focused on innovation, vehicle design, engineering analysis, fabrication quality, endurance, speed, and aesthetics in go-kart development.

The SAE TN45 Motorsports team showcased exceptional creativity, engineering excellence, and teamwork throughout the competition. Their innovative vehicle design, impressive fabrication standards, and outstanding aesthetic presentation earned them the **Winner – Aesthetics Award**, bringing pride and recognition to the institution.

EEE Student Participants

The following III Year Electrical and Electronics Engineering students were part of the award-winning team:

- Clive Nelson – III EEE
- Karthiban – III EEE
- Karuppaiah – III EEE
- Lokesh – III EEE







The event provided students with valuable hands-on experience in automotive design, vehicle dynamics, manufacturing processes, teamwork, and motorsports engineering. The competition also enabled participants to strengthen their practical knowledge and problem-solving skills in real-time engineering applications.

The management, faculty members, and students of the Department of Electrical and Electronics Engineering congratulated the SAE TN45 Motorsports team for their outstanding achievement and for bringing laurels to the institution.

INDUSTRIAL VISIT TO KEL, KOCHI

The II Year B.E. Electrical and Electronics Engineering students [2021-2025 Batch] of K. Ramakrishnan College of Engineering, Trichy, along with faculty coordinators Mr. U. Ramani and Mr. T. Vadivelan, visited the Mamala Unit of Kerala Electrical & Allied Engineering Co. Ltd. on 17 March 2023.

A total of 39 students participated in the industrial visit, which provided valuable exposure to industrial practices, electrical manufacturing processes, and real-time engineering applications.

The visit enabled students to gain practical insights into the functioning of a government undertaking company and enhanced their understanding of industry-oriented technologies and operations.



The officials of KEL guided the students throughout the visit and explained the company's manufacturing activities, quality standards, and industrial operations. The visit served as an informative and enriching learning experience for all the participants.

ISTE BEST STUDENT AWARD

The Department of Electrical and Electronics Engineering of K. Ramakrishnan College of Engineering is proud to announce that **S. Irfan Basha** and **M. Saraswathy**, Final Year EEE students, received the prestigious **ISTE Best Student Award** at Sri Venkateswara College of Engineering on **29 April 2023**.

The ISTE Best Student Award is presented in recognition of students' outstanding academic excellence, technical proficiency, leadership qualities, active participation in co-curricular and extracurricular activities, and overall contribution to the institution.





The students were honoured for their consistent performance, dedication towards academics, and active involvement in professional and technical activities throughout their course of study. Their achievement brought pride and recognition to the Department of Electrical and Electronics Engineering and the institution.



The management, faculty members, and fellow students congratulated **S. Irfan Basha** and **M. Saraswathy** for their remarkable accomplishment and wished them continued success in their future academic and professional endeavors.

Students Excel in Japanese Language Course

The Department of Electrical and Electronics Engineering, K. Ramakrishnan College of Engineering, proudly congratulates the students who successfully cleared the Japanese Language Course – N5 Level.

The following students achieved this milestone through their dedication and continuous learning efforts:

- Aarthi E
- Akshaya R
- Abishek J



Their accomplishment reflects their commitment towards acquiring global communication skills and exploring international learning opportunities. The Department appreciates the students for their sincere efforts and wishes them continued success in their future endeavors.

NEWSLETTER VERIFICATION & ACKNOWLEDGEMENT

News letter of Department of Electrical and Electronics Engineering.

K.Ramakrishnan college of Engineering,Samapuram, Tiruchirapalli.

Issue 3 (Dec 2023)

Student Editorial Team

S. No	Register No.	Student Name	Year & Section
1	8115U20EE001	ADITHYA R	III YEAR

Faculty Coordinator / Class Advisor

Name: Mr.G.Gabriel Santhosh Kuma
Designation: Assistant Professor
Department: Electrical and Electronics Engineering

Verification & Approval

This is to certify that the above newsletter has been **prepared by the students under my guidance**, and the contents are **verified and approved** for publication.

Signatures

Newsletter Faculty Coordinator	Signature of Head of the Department
Name: Mr.G.Gabriel Santhosh Kumar AP/EEE	Name: Mr.G.Gabriel Santhosh Kumar
Date:	Date: