News letter of Department of Electrical and Electronics Engineering.
K.Ramakrishnan college of Engineering,Samapuram, Tiruchirapalli.
Issue 1 (DEC 2021)

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 Stong 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)

P 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.

FROM THE DESK OF THE DEPARTMENT

The Department of Electrical and Electronics Engineering at K. Ramakrishnan College of Engineering successfully conducted numerous academic, technical, research, innovation, and professional development activities during the academic year 2021–2022.

The department remained committed to:

- Technical excellence
- Industry readiness
- Research development
- Innovation and entrepreneurship
- Professional society engagement
- Sustainable engineering awareness

Despite evolving academic and industrial challenges, the department actively organized:

- Quiz series
- Technical webinars
- Virtual seminars
- Entrepreneurship sessions
- Awareness programs
- Research-oriented activities
- Energy management initiatives

Professional bodies such as:

- IEEE
- IEEE Student Branch
- IEEE PES
- ISTE
- IEI
- IIC
- IQAC
- EnSav Club

played a significant role in enriching students' technical competency and professional growth.

The academic year also witnessed:

- Active student participation in national-level events
- Research paper presentations in IEEE conferences
- Technical skill enhancement activities
- Innovation-oriented learning initiatives

The department continuously focused on transforming students into technically competent, socially responsible, and industry-ready engineers.

TECHNICAL QUIZ SERIES AND KNOWLEDGE DEVELOPMENT PROGRAMS

The Department of EEE conducted a large number of technical quiz programs throughout the academic year to strengthen students' conceptual and analytical abilities.

Quiz Series on Power Systems

One of the major initiatives was the continuous "Quiz Series on Power Systems" organized under IEEE, ISTE, and IEI.

Objectives

- Improve conceptual clarity in power systems
- Enhance problem-solving abilities
- Prepare students for competitive examinations
- Develop technical confidence

The quiz series covered:

- Power generation
- Transmission and distribution
- Protection systems
- Renewable integration
- Power quality
- Smart grid technologies

The department successfully organized Quiz Series from Series-05 to Series-31 throughout the year.

Robotics and Automation Quiz Series

The Robotics and Automation Quiz Series focused on emerging technologies including:

- Industrial automation
- Robotics fundamentals
- Sensors and actuators
- Embedded systems
- Automation technologies

Students actively participated in multiple editions from Quiz Series-I to Quiz Series-XII.

These sessions encouraged students to explore future-oriented automation technologies and industrial applications.

Digital Electronics Quiz Series

IEEE Student Branch organized several quiz programs on Digital Electronics.

The quizzes focused on:

- Logic gates
- Sequential circuits
- Combinational circuits
- Digital system design

- Microprocessor basics

The programs helped students strengthen core electronics fundamentals essential for higher studies and placements.

VIRTUAL SEMINARS AND WEBINARS

The department organized numerous virtual seminars and webinars to expose students to emerging technologies and industry practices.

Students Virtual Seminar Series

IEEE Student Branch conducted several virtual seminars on advanced technologies such as:

- Haptic Technology
- Paper Battery
- Anti Sleep Alarm Systems
- Automatic Street Light Controller using LDR
- Medical Engineering Applications
- Tesla Self-Driving Technology
- Sixth Sense Technology
- Cryptography
- Neural Networks
- Home Automation using Adafruit IO
- Hadoop Technology
- Smart Helmet for Stroke Patients

These sessions encouraged students to:

- Explore interdisciplinary applications
- Improve technical presentation skills
- Understand real-world engineering innovations

The seminars significantly enhanced awareness regarding emerging research areas and future technologies.

Webinar on Cyber Security

A national-level webinar on Cyber Security was organized to educate students about:

- Digital security
- Ethical hacking
- Network protection
- Cyber threats
- Data privacy

Students gained awareness about the importance of cyber security in modern engineering systems.

Webinar on Electrical Testing and Commissioning

The webinar focused on industrial practices related to:

- Electrical installation testing

- Commissioning procedures
- Safety standards
- Industrial maintenance

The session provided valuable industrial exposure for students preparing for core engineering careers.

ENTREPRENEURSHIP AND INNOVATION ACTIVITIES

The Institution Innovation Council (IIC) and Department of EEE jointly organized several entrepreneurship-oriented activities.

Angel Investment and Venture Capital Funding

A webinar session on Angel Investment and Venture Capital Funding Opportunities for Early Stage Entrepreneurs was conducted to create startup awareness among students.

The session covered:

- Startup funding
- Investor expectations
- Business scalability
- Innovation ecosystems
- Entrepreneurship opportunities

Students gained valuable understanding about transforming innovative ideas into successful ventures.

Building Innovation and Product Fit for Market

This webinar focused on:

- Product development
- Market analysis
- Customer requirements
- Innovation validation

Students learned how engineering solutions can be transformed into market-ready products.

Incubation and Accelerator Opportunities

The department organized sessions explaining:

- Startup incubation
- Business accelerators
- Innovation support systems
- Entrepreneurship mentoring

The event motivated students and faculty members to pursue entrepreneurial activities and innovative project development.

Lean Startup and Minimum Viable Product

A mentoring session on Lean Startup and Minimum Viable Product (MVP) development provided insights into:

- Startup planning
- Product validation
- Customer-centric innovation
- Business sustainability

The session encouraged practical innovation and startup culture among students.

ENERGY CONSERVATION AND SUSTAINABILITY INITIATIVES

The EnSav Club played a major role in promoting energy conservation awareness and sustainable engineering practices.

Energy Management and Auditing Quiz Buzz Series

The department organized Quiz Buzz Series on Energy Management and Auditing.

The programs focused on:

- Energy conservation
- Energy auditing techniques
- Sustainable technologies
- Green energy concepts
- Efficient energy utilization

Students actively participated in Quiz Buzz Series 1 to 12 conducted throughout the academic year.

Cycle Rally for Energy Conservation

The EnSav Club organized a Cycle Rally emphasizing:

"Save One Unit of Electricity Per Day"

The event promoted:

- Environmental awareness
- Sustainable transportation
- Energy-saving practices
- Green engineering mindset

Students actively participated and spread awareness among the public regarding electricity conservation.

Solar Panel Cleaning Initiative

A practical awareness activity on rooftop solar panel cleaning was conducted to educate students about:

- Solar maintenance
- Renewable energy efficiency
- Sustainable power generation

The initiative enhanced practical understanding of renewable energy systems.

Mega Green Pledge Ceremony

The department conducted a Mega Green Pledge Ceremony and Walking Rally in connection with IGEN Green Day 2021.

The event created awareness regarding:

- Environmental sustainability

- Energy conservation
- Green technology adoption
- Social responsibility

Students enthusiastically participated in the awareness rally.

TECHNICAL PRESENTATIONS AND STUDENT DEVELOPMENT ACTIVITIES

The Department of EEE continuously encouraged students to improve technical communication and presentation skills.

Technical Presentation Day

Technical Presentation Days were conducted for:

- III Year EEE Students
- II Year EEE Students

Students presented technical topics related to:

- Electrical engineering innovations
- Renewable energy
- Smart systems
- Emerging technologies

The events improved:

- Presentation skills
- Technical communication
- Research orientation
- Confidence in public speaking

Students actively engaged in technical discussions and peer learning.

Seminar on Innovative Thinking Methodologies

A seminar talk on innovative approaches and thinking methodologies in engineering was conducted to develop:

- Critical thinking
- Innovation mindset
- Problem-solving ability
- Creative engineering approaches

The seminar inspired students to apply innovative strategies for solving engineering challenges.

Lecture on Power Quality Analyzer

An expert lecture on Power Quality Analyzer introduced students to:

- Electrical power quality
- Harmonic analysis

- Voltage disturbances
- Industrial monitoring systems

Students gained industry-oriented technical exposure in electrical diagnostics and analysis.

STUDENT PARTICIPATIONS AND PROFESSIONAL ACHIEVEMENTS

EEE students actively participated in various national-level technical events and professional development programs.

Active Student Participation

- Students such as:
- Akash SM
- Irfan Basha S
- Anusuya E
- Manikandan P
- Adithya R
- Kennedy Infant S
- Kishore R
- Saravanan N
- actively participated in:
- Technical quizzes
- Webinars
- Robotics events
- Cyber security sessions
- Entrepreneurship programs
- Digital electronics quizzes
- The consistent participation reflected strong enthusiasm toward technical learning and professional growth.

IGEN Project Presentations

- Student Irfan Basha S participated in:
- Summer Peak Demand Statistical Survey
- Smart Meter Implementation Survey
- These activities enhanced practical understanding of energy management and smart electrical systems.

Innovation and Entrepreneurship Participation

- Students attended sessions related to:
- Business Model Canvas
- Startup Mentoring
- Innovation and Entrepreneurship
- Product Development
- These activities encouraged innovation-driven learning and entrepreneurial thinking.

RESEARCH PUBLICATIONS AND IEEE CONFERENCE PRESENTATIONS

The Department of EEE continued to strengthen its research profile through student publications in reputed IEEE international conferences.

IEEE Xplore Publications

- Students successfully presented research papers in internationally recognized IEEE conferences.

Published Conferences

- International Conference on Smart Systems and Inventive Technology (ICSSIT)
- International Conference on Artificial Intelligence and Smart Energy (ICAIS)
- International Conference on Computing Methodologies and Communication (ICCMC)
- The publications focused on:
- Smart systems
- Artificial intelligence
- Communication technologies
- Energy systems
- Computing methodologies

Student Contributors

- S. Subhiksha

  Presented research work at ICSSIT conference published in IEEE Xplore.

- B. Swetha

  Presented research paper at ICAIS conference focusing on Artificial Intelligence and Smart Energy.

- K. Uma Maheswari

  Presented research contribution at ICCMC conference related to communication and computing technologies.

These achievements reflected the department’s commitment toward:

- Research excellence
- Innovation
- Technical publication culture
- International academic exposure
- The publications significantly enhanced the academic reputation of the department.

PROFESSIONAL SOCIETY ACTIVITIES

Professional societies played a vital role in technical enrichment during the academic year.

IEEE Student Branch Activities

IEEE Student Branch organized:

- Technical seminars
- Quiz contests
- Webinars
- Presentation sessions
- Emerging technology discussions
- Students gained exposure to advanced engineering domains and industry trends.

ISTE and IEI Activities

ISTE and IEI chapters actively supported:

- Technical competitions
- Knowledge sharing sessions
- Engineering awareness activities
- Professional skill development
- These organizations helped students improve technical competency and professional ethics.

EnSav Club Initiatives

The EnSav Club consistently promoted:

- Energy conservation
- Green engineering
- Environmental sustainability
- Public awareness campaigns
- The club's initiatives motivated students toward responsible engineering practices.

IIC Activities

Institution Innovation Council organized:

- Entrepreneurship webinars
- Startup awareness sessions
- Innovation mentoring
- Business model discussions

These activities created an innovation ecosystem within the department.

CONCLUSION

The academic year 2021–2022 was highly successful and achievement-oriented for the Department of Electrical and Electronics Engineering.

The department effectively:

- Conducted technical events
- Promoted research activities
- Encouraged innovation
- Enhanced entrepreneurship awareness
- Motivated students toward sustainable engineering practices

Students actively participated in:

- Quiz competitions
- Technical seminars
- Webinars
- Innovation programs
- Research conferences
- Energy conservation activities

The department's continuous commitment toward academic excellence and holistic development resulted in:

- Improved technical competency
- Enhanced research culture
- Greater industry readiness
- Strong professional engagement

The combined efforts of:

- Faculty members
- Student coordinators
- Professional societies
- Industry experts
- Alumni

contributed significantly to the success of the department during the academic year.

The Department of EEE continues its mission of producing competent engineers, innovators, researchers, and socially responsible professionals equipped to meet future technological challenges.

NEWSLETTER VERIFICATION & ACKNOWLEDGEMENT

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👨‍🎓 Student Editorial Team

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🏛️ 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**