AY-2024-2025

NEXT GEN CIRCUITS

Newsletter from

DEPARTMENT OF

ELECTRICAL & ELECTRONICS ENGINEERING



GATES

INSTITUTE OF TECHNOLOGY

Autonomous

Approved by A.I.C.T.E. & Affiliated to JNTUA, Ananthapuramu, Gootyanantapur(v), Gooty, Ananthapuramu(Dist.)-515401

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INSIDE THIS EDITION

Contents

01 **From the HoD's Desk**
A message to students, faculty and well-wishers

02 **Vision & Mission**
Of the Institute and the Department

03 **The Year in Numbers**
2024–25 at a glance

04 **Feature Stories**
EV Technology workshop and 400 kV substation visit

05 **Student Achievements**
Prize winners at PRAVAHA 2K25 and E-Merge 2K24

06 **Activity Chronicle**
Programme highlights, July 2024 – March 2025

07 **Photo Gallery**
Students at Tata Electronics Systems Solutions

MESSAGE

From the HoD's Desk

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Dear Students, Faculty Members and Well-wishers,

It gives me immense pleasure to present this edition of Next Gen Circuits, capturing the academic and co-curricular journey of the Department of Electrical & Electronics Engineering through the Academic Year 2024–25.

The year brought together 10 carefully chosen programmes with more than 587 student participations. Hands-on training in Programmable Logic Control and a certification course in Electrical CAD built practical, industry-ready skills. The six-day workshop "The Future is Electric" took students deep into electric vehicle technology, and the industrial visit to the 400 kV Power Grid substation at Gooty showed them high-voltage transmission in action. Sessions on renewable energy, control systems in process industries and research methodology broadened their horizons further.

I am especially proud of our students who brought laurels to the department: Mr. B. Yugandhar Reddy, Mr. J. Mahesh Babu, Mr. S. Rafi and Mr. S. Md. Umar Farooq, who won the 1st Prize in the Project Expo at PRAVAHA 2K25, RGMCET; Ms. B. M. Manasa and Mr. S. Baba Vali, 1st Prize winners in Paper Presentation; Ms. M. Navya Sree, 2nd Prize in Poster Presentation; and Ms. I. Jyoshna, 1st Prize in Coding at E-Merge 2K24, JNTUACEA.

I thank our faculty coordinators and resource persons for their dedication, congratulate all our students, and encourage everyone to keep pushing the boundaries of learning and innovation.

Dr. N. Narasimhulu
Head of the Department, EEE

WHO WE ARE

Vision & Mission

INSTITUTE

VISION

To impart the best technical and management education instilled with discipline, values and leadership qualities that will produce professional technocrats.

MISSION

M1 To contribute to the social and economic development of this drought prone rural region through professional education.

M2 To prepare graduates who will engage effectively and responsibly in practicing of engineering and management profession in ever changing global economy.

M3 To contribute and to be a role model for a green and eco-friendly campus through solar energy.

DEPARTMENT OF EEE

VISION

To impart the best technical education instilled with discipline, values and leadership qualities that will produce professional technocrats in Electrical and Electronics Engineering.

MISSION

M1 To impart fundamental Electrical and Electronics Engineering concepts and a broad set of technical skills.

M2 To prepare Electrical and Electronics Engineering graduates who will engage effectively and responsibly in practicing engineering.

M3 To impart practical exposure on latest technological developments in Electrical and Electronics Engineering.

2024–25 AT A GLANCE

The Year in Numbers

10
programmes organised

587+
student participations recorded

114
students in the largest single programme

Type of programme	Count
Workshops & hands-on training	**5**
Certification course	**1**
Seminars, expert talks & guest lectures	**3**
Industrial visit	**1**

FEATURE STORY • SIX-DAY WORKSHOP

The Future is Electric: Six-Day Workshop on EV Technology

17 – 22 Feb 2025 | 67 students



Participants during the EV technology workshop

This six-day immersive workshop gave 67 students a complete, industry-relevant view of the electric vehicle ecosystem. The programme covered EV architecture and drivetrain configurations, lithium-ion and solid-state battery technologies and Battery Management Systems. Students then studied the power electronics that drive an EV — inverters and choppers for motor drives — along with regenerative braking. Sessions on charging infrastructure explained AC and DC fast charging and standards such as CHAdeMO and CCS, while Vehicle-to-Grid (V2G) showed how EVs can support the power grid. The workshop closed with India's EV policy, including the FAME-II scheme, career opportunities in the EV sector and emerging research directions.

What students gained Students gained a 360-degree understanding of EV technology and the skills and career paths opening up in e-mobility.

FEATURE STORY • INDUSTRIAL VISIT

Industrial Visit to the 400 kV Power Grid Substation, Gooty

06 Mar 2025 | 50 students



EEE students and faculty at the POWERGRID control room, Gooty

Fifty students visited the 400 kV POWERGRID substation at Gooty for a rare first-hand look at high-voltage transmission infrastructure. In the switchyard they observed power transformers, circuit breakers, isolators, bus bars, current and voltage transformers and protection relay panels operating at transmission voltage. At the control room, engineers explained how SCADA systems are used for real-time grid monitoring and load dispatch, and how protection schemes detect and clear faults to keep supply reliable. Students also learned about the strict safety practices followed around extra-high-voltage equipment. The visit brought Power Systems, Switchgear & Protection and Electrical Machines to life on a scale no classroom can match.

What students gained Students connected transmission and protection theory with the real operation of a major grid substation.

HALL OF FAME

Student Achievements

Our students represented the department at inter-collegiate technical symposiums and brought home five prizes. The department congratulates every winner on this recognition of their innovation, technical knowledge and presentation skills.

★ 1ST PRIZE

B. Yugandhar Reddy, J. Mahesh Babu, S. Rafi, S. Md. Umar Farooq

Project Expo • PRAVAHA 2K25, RGMCET, Nandyal • 13 – 14 Feb 2025

★ 1ST PRIZE

B. M. Manasa

Paper Presentation • PRAVAHA 2K25, RGMCET, Nandyal • 13 – 14 Feb 2025

★ 1ST PRIZE

S. Baba Vali

Paper Presentation • PRAVAHA 2K25, RGMCET, Nandyal • 13 – 14 Feb 2025

★ 2ND PRIZE

M. Navya Sree

Poster Presentation • PRAVAHA 2K25, RGMCET, Nandyal • 13 – 14 Feb 2025

★ 1ST PRIZE

I. Jyoshna

Coding • E-Merge 2K24, JNTUA College of Engineering, Ananthapuramu • 05 Nov 2024

PRAVAHA 2K25 — Project Expo winners

Mr. B. Yugandhar Reddy, Mr. J. Mahesh Babu, Mr. S. Rafi and Mr. S. Md. Umar Farooq won the 1st Prize in the Project Expo at PRAVAHA 2K25, the inter-collegiate technical symposium organised by RGMCET, Nandyal. Their project reflects the problem-solving ability, technical skill and creative teamwork that the department aims to nurture in every student.

MOMENTS FROM PRAVAHA 2K25



Certificate presentation
PRAVAHA 2K25 · RGMCET, NANDYAL



Winners with their certificates
PRAVAHA 2K25 · RGMCET, NANDYAL



The prize-winning team
PRAVAHA 2K25 · RGMCET, NANDYAL

Activity Chronicle

July – September 2024

01 Hands-on Training on Programmable Logic Control (PLC)

29 Jul – 03 Aug 2024 • Hands-on Training • 67 students

The academic year began with a week-long, hands-on programme on Programmable Logic Controllers, the backbone of modern industrial automation. Students were introduced to PLC architecture — the CPU, input and output modules, power supply and programming interface — and learned how a PLC scans inputs, executes logic and drives outputs. Most of the week was spent on ladder-logic programming, building control circuits step by step and learning to configure and troubleshoot them. Typical industrial applications such as motor starting, conveyor control and sequential operations were used to show where these skills are applied in manufacturing and process plants. The training gave students practical exposure that directly supports careers in automation, maintenance and plant operations.

Outcome: Students can read and write basic ladder-logic programs and understand how PLC-based control circuits are used in industry.



Participants of the PLC training programme

02 Workshop on Power Skills

21 – 22 Aug 2024 • Workshop • 54 students

This two-day workshop focused on the professional “power skills” that help engineers succeed alongside their technical knowledge. Sessions covered teamwork, time management, adaptability, workplace etiquette and professional behaviour. Through discussions and group activities, students reflected on how they plan their work, cooperate with others and respond to change and pressure. The workshop helped students see that employers value attitude, reliability and collaboration as much as subject knowledge, and encouraged them to start building these habits during their college years.

Outcome: Students strengthened their teamwork, time management and professional conduct, improving their readiness for placements and the workplace.

03 Six-Day Certification Course on Electrical Computer Aided Design

From 09 Sep 2024 • Certification Course

This six-day certification course gave students hands-on training in Electrical CAD in the computer laboratory. Students learned to prepare professional electrical drawings, including panel layouts, wiring diagrams and single-line diagrams, using standard symbols and drafting practices. Each session combined demonstration with practice, so participants built their drawings themselves and learned how design changes are made and documented. The course showed how accurate drawings are essential for the design, installation and maintenance of electrical systems in industry and buildings, and gave students a skill that is in demand with design consultants, panel builders and EPC companies.

Outcome: Participants earned a certificate and industry-ready skills in preparing electrical drawings with CAD tools.



Students practising electrical drafting in the CAD laboratory

04 Workshop on ICT Tools

20 Sep 2024 • Workshop • 64 students

This interactive workshop introduced students to Information and Communication Technology tools that support study and professional work. Topics included productivity software for documents, spreadsheets and presentations, online collaboration platforms for group work, and good practices for digital documentation and file management. Students saw how these tools can make project work more organised, help teams work together from different places and improve the quality of their reports and presentations. The workshop encouraged students to use digital tools confidently and responsibly throughout their course and career.

Outcome: Students improved their ability to use digital tools for collaboration, documentation and presentation.



Students at the ICT Tools workshop

05 Application of Control Systems in Process Industries and Automation

28 Sep 2024 • Expert Talk • 50 students

In this expert talk, students saw how the control-system theory they study in class is applied in real process industries. The speaker explained how feedback control, sensors and instrumentation work together to keep variables such as temperature, pressure, flow and level at their required values. Examples from industrial plants showed how automation improves product quality, saves energy and protects people and equipment. The session connected the Control Systems course with industrial practice and helped students understand the career opportunities available in process control and automation.

Outcome: Students related control-system concepts to real industrial automation and its role in efficiency and safety.



Students attending the expert talk

October – December 2024

06 Life Skills Programme

15 Oct 2024 • Workshop • 114 students

With 114 participants, the Life Skills programme was one of the best-attended activities of the year. It focused on the personal skills that support success in study, work and life — self-awareness, sound decision-making, stress management and interpersonal effectiveness. Students discussed how to understand their own strengths, handle pressure during examinations and placements, and build positive relationships with classmates, teachers and future colleagues. The programme supported the holistic development of students and the Institute's mission of producing disciplined, value-based professionals.

Outcome: Students gained practical strategies for managing stress, making decisions and working well with others.



Students at the Life Skills programme

January – March 2025

07 Renewable Energy Sources — Academic Session and Guest Lecture

20 Jan 2025 • Academic Session & Guest Lecture • 67 students

This full learning day on renewable energy combined an academic session with a guest lecture by an invited expert. The academic session covered solar photovoltaic systems, wind energy conversion, small hydropower and biomass energy, explaining their working principles, design considerations and the challenges of connecting them to the grid. The guest lecture gave an outside perspective on the global shift from fossil fuels to clean energy, energy storage, smart-grid integration and the growing role of electrical engineers in the renewable sector. Students also learned about India's National Solar Mission and renewable energy targets, linking Power Systems and Non-Conventional Energy Sources to national energy policy.

Outcome: Students understood renewable energy technologies, their grid integration and their importance for a sustainable future.



Interaction during the renewable energy programme

08 Seminar: Parenting Your Research Work — Opportunities and Challenges

10 Feb 2025 • Research Seminar • 54 students

This research-orientation seminar guided students and faculty through the full life of a research project — from spotting a research gap and forming a hypothesis to collecting and analysing data, reporting ethically and publishing. Expert speakers described the opportunities and challenges of research, including funding, intellectual property and authorship ethics. They also introduced useful digital tools such as Mendeley and Zotero for managing references and Turnitin for checking originality. The seminar encouraged a culture of inquiry in the department and showed students how to nurture an idea into a mature piece of research.

Outcome: Students understood the stages of a research project and the ethical practices expected in scholarly work.





Resource persons with students and faculty, and the seminar audience

09 The Future is Electric: Six-Day Workshop on EV Technology

17 – 22 Feb 2025 • Six-Day Workshop • 67 students • see Feature Stories

10 Industrial Visit to the 400 kV Power Grid Substation, Gooty

06 Mar 2025 • Industrial Visit • 50 students • see Feature Stories

PHOTO GALLERY

Students at Tata Electronics Systems Solutions

EEE students during their visit to the Tata Electronics Systems Solutions campus — an opportunity to see a large, modern electronics-manufacturing facility at first hand.



Our students at the campus entrance
INDUSTRY EXPOSURE



The EEE team at Tata Electronics Systems Solutions
INDUSTRY EXPOSURE

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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Program Educational Objectives (PEO's)

On successful completion of UG in Electrical and Electronics Engineering, the Graduates will:

PEO1: Have a successful professional career with a strong foundation in basic sciences, along with in-depth knowledge of electrical engineering.

PEO2: Pursue higher studies to contribute for the betterment of the society.

PEO3: Continue in their chosen profession by practicing lifelong learning.

Program Specific Outcomes (PSO's)

PSO1: Using Power Electronics knowledge in conjunction with Electrical Machines understanding to create an engineering solution in the domains of Electrical Drives.

PSO2: Develop innovative cutting-edge technologies in power systems related to efficient electrical power conversion and control.