



About GMRIT

www.gmr.it.edu.in

GMR Institute of Technology is situated in Rajam, a small industrial town approximately 100 kilometers away from the 'city of destiny,' Visakhapatnam in Andhra Pradesh. The institute's campus spans over a sprawling 117 acres of land. The lush, sylvan, and idyllic surroundings in the heart of the agricultural belt provide an ideal setting for higher studies. The institute is affiliated with Jawaharlal Nehru Technological University Gurajada, and approved by AICTE New Delhi. It has been accredited with NAAC - 'A' grade by UGC. The Department of EEE has been accredited by the National Board of Accreditation (NBA) in Tier-I for the academic years 2022-23 to 2024-25.

GMRIT offers 4-year B.Tech. programs in eight core disciplines and 2-year M. Tech programs in five specializations. The institution has received a grant extension of autonomous status for a period of ten years, starting from 2018-19 to 2027-2028.

About EEE Department

Vision

To be a preferred department of learning for students and teachers alike, with a commitment towards Academics & Research, serving the students in an atmosphere of innovation, critical thinking and making them Industry ready.

Mission

- M1. To provide adaptable education in a collaborative and innovative environment in skilling the graduates to solve real world problems in the field of Electrical & Electronics Engineering
- M2. To prepare the students as critical thinking professionals with multidisciplinary research orientation and Innovation
- M3. To instill ethical values and nurture the graduates who will be able to contribute to the society

Overview

The Department of Electrical & Electronics Engineering was established in 1997. The department offers four-year B.Tech and two-year M.Tech programs. It has a rich tradition and well-qualified faculty, along with widely recognized laboratories. The department aims to provide a strong foundation in Electrical and Electronics Engineering fundamentals, emphasizing mathematical and scientific principles. Additionally, the course focuses on developing skills in the application of design processes for innovative engineering solutions. The annual intake of students in this department is 120.

Facilities & Infrastructure

- Sophisticated Laboratories include:
 - Electrical Machines Lab
 - Electrical Engineering Lab
 - Electrical Measurements Lab
 - Power Systems Lab
 - Power Electronics Lab
 - Electrical Systems Simulation
 - Power Electronics and Drives Lab (PG)
- A well-stocked department library
- To enable the students and provide opportunities, to understand in the industrial eco-systems and work on latest technological developments in the industries, MoUs are signed with various industrial organizations
- Committed and dedicated faculty

Major Courses Offered

- Electrical Machines
- Electrical Circuits
- Measurements and Instrumentation
- Semiconductor Devices & Circuits
- Linear and Digital integrated circuits
- Electromagnetic Field Theory
- Control Systems
- Power Generation, Transmission and Distribution
- Power System Protection
- Green Energy Technologies
- Power Electronics
- Electrical Vehicle Technologies
- Signals and Systems Theory
- Electrical Drives
- Power System Analysis and Control
- Engineering Economics and Project management

Research and Academic Achievements

Papers Published in Conferences

- V. Manoj, M. R. Reddy, G. N. Raju, R. Raghutu, P. A. Mohanarao, and A. Swathi, "Machine learning models for predicting and managing electric vehicle load in smart grids," E3S Web of Conferences, vol. 564, p. 02009, Jan. 2024, doi: 10.1051/e3sconf/202456402009
- M. Rambabu, G. N. Raju, V. Manoj, and P. A. Mohanarao, "Integrated dc-dc converter with single input and dual output for electric

- vehicles," E3S Web of Conferences, vol. 564, p. 02010, Jan. 2024, doi: 10.1051/e3sconf/202456402010
- B. Pragathi, M. I. Mosaad, M. R. Reddy, V. Manoj, A. Swathi, and U. Sudhakar, "Fast charging electrical vehicle using PSCAD," E3S Web of Conferences, vol. 564, p. 02014, Jan. 2024, doi: 10.1051/e3sconf/202456402014
 - M. I. Mosaad, V. Manoj, B. Pragathi, V. Guntreddi, D. R. Babu, and A. Swathi, "PV-wind-diesel based grid connected water pumping system driven by induction motor," E3S Web of Conferences, vol. 564, p. 04004, Jan. 2024, doi: 10.1051/e3sconf/202456404004
 - V. Guntreddi, P. Suresh, V. Manoj, D. R. Babu, A. Swathi, and M. M. Muhamad, "A perspective on the evolution of solar cell and solar panel materials," E3S Web of Conferences, vol. 564, p. 05008, Jan. 2024, doi: 10.1051/e3sconf/202456405008.
- ### Papers Published in Journals
- Tummala A.S.L.V.; Polumahanthi N.; Khan B.; Ali A., "Accurate parameters identification of proton exchange membrane fuel cell using Young's double-slit experiment optimizer", Frontiers in Energy Research, Vol. 12, 2024, ISSN 2296598X, (WoS & Scopus indexed, Q2, Impact Factor 2.6, <https://doi.org/10.3389/fenrg.2024.1384649>)
 - Kotte S., Injeti S.K., Thunuguntla V.K., Kumar P.P., Nuvvula R.S.S., Dhanamjayulu C., Rahaman M., Khan B., "Energy curve based enhanced smell agent optimizer for optimal multilevel threshold selection of thermographic breast image segmentation", Scientific Reports, Vol.14, no.1, 2024. (WoS & Scopus indexed, Q1, Impact Factor 3.8, <https://doi.org/10.1038/s41598-024-71448-6>)
 - Varaprasad M.V.G., Nuvvula R.S.S., Kumar P.P., Radwan N., Dhanamjayulu C., Shaik M.R.; Khan B., "Design and implementation of single DC-link based three-phase multilevel inverter with CB-PWM techniques", Scientific Reports, Vol.14, no.1, 2024. (WoS & Scopus indexed, Q1, Impact Factor 3.8, <https://doi.org/10.1038/s41598-024-72904-z>)
 - Rao N.T.; Kumar K.K., Kumar P.P., Nuvvula R.S.S., Mutharasan A., Dhanamjayulu C., Shaik M.R., Khan B., "Multiobjective optimal TCSC placement using multiobjective grey wolf optimizer for power losses reduction", Scientific Reports, Vol.14, no.1, 2024. (WoS & Scopus indexed, Q1, Impact Factor 3.8, <https://doi.org/10.1038/s41598-024-72124-5>)
 - Vadivel T.S.; Suseelan A., Karthick K., Safran M., Alfarhood S., "Experimental Investigation and Machine Learning Prediction of Mechanical Properties of Rubberized Concrete for Sustainable Construction", Scientific Reports, Vol.14, no.1, 2024. (WoS & Scopus indexed, Q1, Impact Factor 3.8, <https://doi.org/10.1038/s41598-024-73504-7>)
 - Kishore G.I., Ayyarao T.S.L.V., Venkatesh M., "Performance of Integrated High Voltage Gain DC-DC Converter and Diode Clamped Multi Level

Inverter with Renewable Energy Source in Standalone Applications”, Journal of the Institution of Engineers (India): Series B, 2024. (Scopus indexed, Q3, Impact Factor 2.0, <https://doi.org/10.1007/s40031-024-01149-1>)

- Reddy Gatla V., Injeti S.K., Kotte S., Kumar Polamarasetty P., Nuvvula R.S.S., Singh Vardhan A.S., Singh M., Khan B., “An Effective Approach for Extracting the Parameters of Solar PV Models Using the Chaotic War Strategy Optimization Algorithm with Modified Newton Rapson Method”, IEEE Journal of the Electron Devices Society, Vol.12, pp. 849-858, 2024. (WoS & Scopus indexed, Q2, Impact Factor 2.23, <https://doi.org/10.1109/JEDS.2023.3340445>)

Professional Development Activities by Faculty Members

- Dr G Indra Kishore attended a one-week online FDP on “OBE and Application of Generative AI in Teaching and Research (SMC & DCE) at “St Mary College, Date: 17.10.2024 to 24.10.2024

Guest Lecture / Expert talk / Other Events Organized

➤ Teachers' Day Celebration

GMR Institute of Technology (GMRIT) in Rajam celebrated Teachers' Day on September 5, 2024, to honor the invaluable contributions of educators. The event featured heartfelt tributes from students, cultural performances, and

speeches highlighting the pivotal role of teachers in shaping the future. Dr. J. Girish, Director of Education, and Dr. C.L.V.R.S.V. Prasad, Principal, addressed the gathering, emphasizing the significance of education and expressing gratitude to the faculty. The celebration fostered a sense of community and appreciation, reinforcing GMRIT's commitment to academic excellence.





➤ Sensitization Program on Research Opportunities at IIT-Guwahati under iNUP

On 21st September 2024, GMRIT hosted a Sensitization Program featuring Professor D. Pamu from IIT-Guwahati. The program focused on exploring research opportunities available under the iNUP (Indian Nanoelectronics Users Program) and provided valuable insights into preparing project proposals in a novel and impactful manner.



➤ Lakshmi Pooja Celebrations at GMRIT for Diwali 2024

On 30th October 2024, GMR Institute of Technology (GMRIT) celebrated the auspicious occasion of Lakshmi Pooja as part of the Diwali Festival. The event was marked by traditional rituals and festivities, creating a spiritual and joyous atmosphere on the campus.



➤ Diwali Celebrations 2024 at EEE Department



Guest Lectures / Technical Contributions to the External World by Faculty Members

- Dr L V Suresh Kumar acted as session chair at "IEEE Conference" organized by Mahindra University, Hyderabad on 28.09.2024.
- Dr S P Mishra delivered a Guest Lecture at GIET, Bhubaneswar on 17.10.2024.

Student-Centric Events and Engagement

- **TECH TALK - IEEE Event** Date: 02.09.2024
Organized By: IEEE Student Coordinators K. Vinay Kumar and L. Nirupama

The TECH TALK event, organized by IEEE student coordinators K. Vinay Kumar and L. Nirupama, aimed to provide a platform for students to showcase their technical knowledge and communication prowess. The event featured a single round where each participant spoke for five minutes on a technical topic of their choice.

A total of 19 students from the EEE department enthusiastically participated in this event, engaging actively and delivering impressive performances.

The event ran smoothly for two hours, with participants being judged on three key aspects: Performance, Presentation & Proposed Solutions. At the end of the session, the top performers were selected based on their overall excellence in the given criteria.

Winner: M. Bala Prasad (23345A0208)

Runner-up: P. Siva Sai (23345A0214)



➤ Group Discussion - IEEE Event:

The Group Discussion event was successfully organized by student coordinators K. Vinay Kumar and L. Nirupama on September 23, 2024. The event witnessed enthusiastic participation from 52 students, who engaged in meaningful discussions on diverse and thought-provoking topics such as Artificial Intelligence, the invention of the wheel, and online education.

The aim of the discussion was to foster an exchange of ideas and perspectives, allowing students to actively participate in sharing their views. Each participant had an equal opportunity to voice their opinions, contributing to a lively, insightful, and interactive session. Key aspects of the discussion included the sharing of diverse viewpoints and respectful listening, promoting collaboration and critical thinking.

The session lasted for two hours and was skillfully moderated to ensure a balanced and respectful dialogue. Participants concluded by summarizing the key takeaways from the discussion, emphasizing the importance of open-mindedness, cooperation, and effective communication in addressing real-world challenges.

Winners:

V. Divya (22341A02C4); S. Ramya (22341A02B2); V. Gowrisankar (22341A02C5); R. Nagasai (22341A02A1); L. Bharadwaj (22341A0271); P. Anitha (22341A0292); Y. Sai Geethika (22341A02Do)



➤ Mind-Bender Sequence ISTE Event

The **Mind-Bender Sequence** event, organized by student coordinators **V. Hari** and **K. Harika**, was successfully conducted on **October 7, 2024**. This exciting competition was designed to challenge participants' reasoning and problem-solving abilities, providing them with an engaging platform to showcase their analytical skills.

Participants competed individually, facing a series of thought-provoking reasoning questions designed to test their critical thinking under time constraints. The event attracted a diverse group of students eager to prove their intellectual mettle and compete for top honors.

Throughout the event, the atmosphere was charged with enthusiasm as participants demonstrated exceptional mental agility while tackling challenging puzzles. Each round introduced unique problems, keeping the participants actively engaged and on their toes.

The event concluded with a **prize distribution ceremony**, where the top performers were recognized and rewarded for their outstanding efforts.

Duration: The event lasted for **two hours**, during which participants were evaluated based on their involvement, problem-solving accuracy, and overall performance.

Winners:

- **Winner:** V. Divya (22341A02C4)
- **Runner-up:** P. Sivasai (23345A0214)



➤ Pictionary ISTE Event:

The **Pictionary** event, coordinated by **V. Hari** and **K. Harika**, provided students with a platform to demonstrate their creativity and observational skills through descriptive writing. The event consisted of a single round where participants were shown various images, ranging from scenic views to abstract concepts, and were tasked with writing detailed descriptions.

The descriptions were evaluated based on **clarity, creativity, and depth of interpretation**, challenging participants to think critically and creatively. A total of **10 students** from the EEE department

enthusiastically participated, showcasing their imaginative and observational prowess.

Throughout the event, participants engaged actively, delivering impressive descriptions that reflected their creative abilities and keen observations of the displayed images.

Duration: The event lasted for **two hours**, during which participants were judged on their descriptions and their overall creativity.

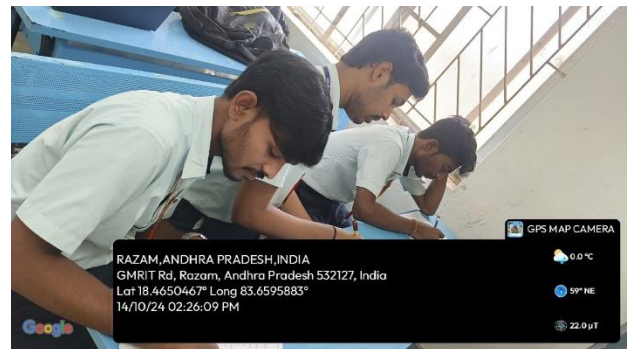
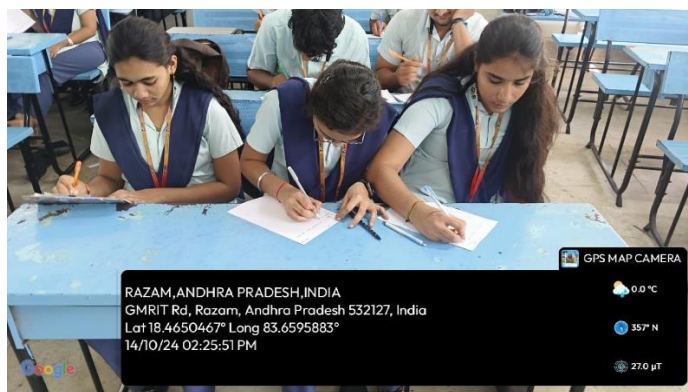
Evaluation Criteria:

- Clarity of Expression
- Creativity and Imagination
- Depth of Observation

Winner:

- P. Jyothi

The **Pictionary** event was a great success, fostering an environment of fun, creativity, and intellectual engagement. Events like this continue to contribute to the holistic development of students in the department.



➤ Essay Writing Competition (ISTE)

On **October 21, 2024**, an engaging **Essay Writing Competition** was organized by student coordinators **V. Hari** and **K. Harika**. The event attracted **40 participants** who delved into reflective and thought-provoking writing on two significant themes:

- Environmental Sustainability
- The Role of Artificial Intelligence in Daily Life

Each participant was given an hour to compose a structured essay, highlighting their writing skills, analytical thinking, and originality. The topics provided a platform for diverse perspectives, encouraging students to discuss pressing environmental challenges and the transformative role of AI in modern society.

Evaluation Criteria:

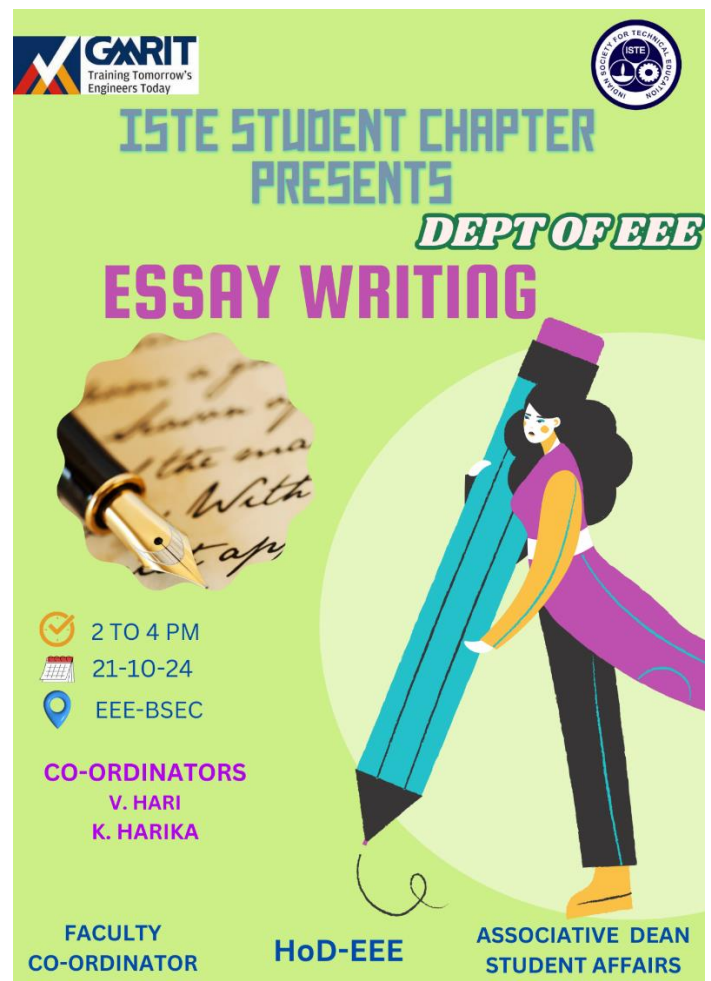
- Creativity and Originality
- Coherence and Structure
- Relevance and Adherence to the Topic

Throughout the session, participants showcased their ability to critically analyze issues, propose solutions, and present coherent arguments. The event concluded with a feedback session, where students shared their experiences and reflected on key takeaways from the competition. The coordinators praised the high standard of submissions, acknowledging the depth of thought and effort demonstrated by participants.

Duration: The competition lasted for **two hours** and ended with the announcement of the winner.

Winner:

- K. Lavanya (22341A0268)



➤ Debate - IEEE Systems Council Event

A **Debate** event was successfully conducted on **October 28, 2024**, organized by student coordinators **K. Vinay Kumar** and **L. Nirupama**. The event provided a platform for **37 enthusiastic participants** to engage in spirited discussions on three professional and thought-provoking topics:

1. **The Role of Technology in Bridging the Education Gap: Online vs. Traditional Learning**
2. **Ethical Dilemmas in Artificial Intelligence: Balancing Innovation and Privacy**
3. **Sustainable Engineering: Challenges and Opportunities in Achieving Net Zero Goals**

Each participant presented their perspective, contributing to lively and dynamic discussions. Key insights from the debates included:

- Online vs. Traditional Learning
- Ethical Dilemmas in Artificial Intelligence
- Sustainable Engineering

The session was expertly moderated to ensure a respectful, balanced, and productive dialogue. Participants shared key takeaways, highlighting the importance of critical thinking, collaboration, and informed decision-making in tackling modern challenges.

Duration: The event lasted for **two hours**, with participants being evaluated on their **engagement, clarity of arguments, and overall performance.**

Winners:

- L. Bharadwaj (22341A0271)
- S. Raja Varma (22341A02B1)
- U. Thriveni (22341A02Co)
- S. Triveni (22341A02A5)
- S. Kumudu (22341A02B5)
- S. Ramya (22341A02B2)
- V. Mokshayini (22341A02C2)
- S. Lavanya (22341A02Bo)
- S. Chaitanya (22341A02A7)
- P. Padma (22341A0289)
- V. Jyoshna (22341A02C6)

The **Debate** event was a grand success, offering participants an opportunity to develop their communication, analytical, and critical thinking skills while addressing some of the most pressing

issues of our time. The department looks forward to hosting more such intellectually stimulating events in the future.

IEEE STUDENT CHAPTER PRESENTS DEPT OF EEE DEBATE

28.10.2024 **CO-ORDINATORS**
VINAY KUMAR
NIRUPAMA

Faculty co-ordinator HoD-EEE **Associative Dean Student Affairs**



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Dr.K.Karthick

Section Editors (Faculty)

Research and Academic Achievements

Dr G Indira Kishore

Guest Lecture / Expert talk / Events Organized

Dr. Rajesh Kumar Patnaik

Dr L V Suresh Kumar

Guest Lectures / Technical Contributions to the External World by Faculty Members

Dr. Hemanth Kumar Chappa

Section Editors (Students)

Student-Centric Events and Engagement

Budumuru Gireesha (22341A0225)

Turubilli Kiran (23345A0206)

Gandreti Sai Varun (22341A0244)

Guddala Harshitha (22341A0252)

Kondaka Harika (22341A0266)

Vangapandu Hari (22341A02C3)

Koneti Vinay Kumar (22341A0267)

Lenka Sai Nirupama (22341A0273)