



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

Books / Book Chapters Published

- Rambabu M.; Kavitha S.; Suganthi C.; Tilak Babu S.B.G.; Ishi M.S.; Kulkarni M.H., Book chapter No. 16 titled 'Quantum Algorithms for Network Analysis in Pathobiology With Quantum Network Medicine' Christo Ananth, Osamah Ibrahim Khalaf, Jose Anand (Eds.). (Aug, 2024). Quantum Networks and Their Applications in AI (1st ed.). IGI Global Scientific Publishing.

<https://doi.org/10.4018/979-8-3693-5832-o.ch016>. (Scopus Indexed).

Papers Published in Conferences

- Sai Tharun G, Anasuya Samhitha K, Honey D, Harika C.H, Mohith B, Nithin K, Manoj V, "Exploring Electromagnetic Engine Propulsion: Design of a Next-Gen Engine," E3S Web of Conferences, vol. 591, p. 03004, Jan. 2024, doi: 10.1051/e3sconf/202459103004.
- M. B. Prasad, P. Ganesh, K. V. Kumar, P. A. Mohanarao, A. Swathi, and V. Manoj, "Renewable Energy Integration in Modern Power Systems: Challenges and Opportunities," E3S Web of Conferences, vol. 591, p. 03002, Jan. 2024, doi: 10.1051/e3sconf/202459103002.
- V. Mokshayini, P. Sindhuri, K. Vivek, P. A. Mohanarao, A. Swathi, and V. Manoj, "Wireless Fast Charging Solutions for Electric Vehicles: Future Trends and Technological Challenges," E3S Web of Conferences, vol. 591, p. 07001, Jan. 2024, doi: 10.1051/e3sconf/202459107001.
- G. Indira Kishore, Chandra Sekhar Nalamati, Alok Agrawal, "A novel Zero Back Power Flow (ZBPF) controlled DAB for DC bus stability and energy storage integrations in hybrid DC/AC off-grid systems", Journal of Energy Storage, vol.105, 2025, 114547, ISSN 2352-152X, (Indexed by SCIE and WoS, Q1, Impact Factor 8.9, <https://doi.org/10.1016/j.est.2024.114547>)
- Thunuguntla V.K., Maineni V., Injeti S.K., Kumar P.P., Nuvvula R.S.S., Dhanamjayulu C.; Rahaman M., Khan B., "A TOPSIS based multi-objective optimal deployment of solar PV and BESS units in power distribution system electric vehicles load demand", Scientific Reports, vol. 14, no. 1, 2024. (WoS & Scopus indexed, Q1, Impact Factor 3.8, <https://doi.org/10.1038/s41598-024-79519-4>)
- 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", vol. 14, no. 1, 2024. (WoS & Scopus indexed, Q1, Impact Factor 3.8, <https://doi.org/10.1038/s41598-024-68293-y>)
- Dev A.; Kumar V., Pathak D., Tummala A.S.L.V., Sharma S., Kuppan V., Kumar V., "Improved Extraction of Parameters of Solar PV Cell Diode Model using Marine Walrus Inspired Optimization Algorithm", IEEE Access, 2024. (SCIE, Q2, Impact Factor 3.4, <https://doi.org/10.1109/ACCESS.2024.3504559>)

Papers Published in Journals

- Tummala A.S.L.V.; Khan B.; Ali A.; Verma A.; Chawla M.P.S., "An accurate parameters identification of solar PV models using a modified exponential distribution optimization", Microsyst Technol (2024), 2024. (Indexed by SCIE, Q3, Impact Factor 1.6, <https://doi.org/10.1007/s00542-024-05801-0>)

Professional Development Activities by Faculty Members

- Dr N V A Ravi Kumar Completed online NPTEL 12 weeks course from July 2024 to October 2024 titled 'Essential Mathematics for Machine Learning'.
- Dr. NVA Ravi Kumar attended ATAL online FDP Program titled 'Introduction to IoT and Machine Learning: Essential Skills for Smart Cities and Mobility' at Govt. Polytechnic, HAMIRPUR. date from 16th Dec to 21st Dec 2024.
- Dr. NVA Ravi Kumar attended ATAL online FDP Program titled 'Power Electronics Applications in Microgrid using AI (PEAMGAI - 2024)' at Jain Deemed To Be University Faculty Of Engineering And Technology. date from 09th Dec to 21st Dec 2024.
- Dr J S V Siva Kumar attended ATAL online FDP Program titled 'Power Electronics Applications in Microgrid using AI (PEAMGAI - 2024)' at Jain Deemed To Be University Faculty Of Engineering And Technology. date from 09th Dec to 21st Dec 2024.
- Dr Ch Hemanth Kumar attended ATAL online FDP Program titled 'Power Electronics Applications in Microgrid using AI (PEAMGAI - 2024)' at Jain Deemed To Be University Faculty Of Engineering And Technology. date from 09th Dec to 21st Dec 2024.

Guest Lecture / Expert talk / Other Events Organized

- Conducted **One-Week Online Faculty Development Program** in collaboration with Andhra University on "Emerging Trends in Renewable Energy Integration with Smart and Micro-Grid Technologies for Sustainable Power System" Date: from 17th to 21st December 2024.
- **Shri S.N. Subrahmanyam, Chairman & Managing Director of L&T, Visits GMRIT.**

GMR Institute of Technology (GMRIT) had the privilege of receiving Shri S.N. Subrahmanyam, Chairman & Managing Director of Larsen & Toubro (L&T), during his visit to Rajam on 7th December 2024. A significant highlight of the visit was the signing of a Memorandum of Understanding (MoU) between GMRIT and L&T EduTech, marking a milestone in their collaboration. This partnership is aimed at providing advanced learning and assessment solutions, enhancing the academic experience for students, and equipping them with industry-relevant skills to excel in their professional journeys.



edge technologies, fostering innovation and technical excellence. Key Focus Areas:

- ✓ Generative AI
- ✓ Cyber Security
- ✓ Robotics
- ✓ Drone Technologies
- ✓ Electric Vehicle Mobility

The summit was designed to expose students to the latest advancements in technology, encourage exploration of emerging trends, and prepare them for challenges in future industries.



➤ GMRIT Innovation Summit

The GMRIT Innovation Summit, jointly organized by GMRIT and GMR Innovex, took place on November 7 and 8, 2024. This two-day event was an extraordinary platform for students to engage in workshops and panel discussions on cutting-

Highlights of Day 1: Workshops

Day 1 of the summit on November 7, 2024, featured hands-on workshops that gave students an opportunity to deepen their technical skills through practical engagement. The workshops focused on the following areas:

Drone Technologies – The students gained an understanding of the mechanics, applications, and innovation potential of drones in diverse sectors.



Electric Vehicle Mobility – The session explored the advancements and challenges in electric vehicle systems, with a focus on battery technologies and sustainable mobility solutions.

Highlights of Day 2:

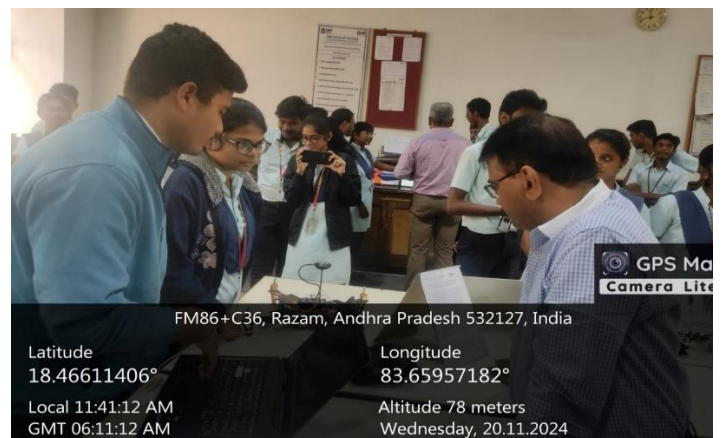
The second day of the summit, November 8, 2024, hosted insightful panel discussions, where industry experts, academicians, and researchers came together to discuss emerging trends, challenges, and future opportunities in the technological landscape.

Key topics discussed during the panels included:

- ✓ The role of Artificial Intelligence in shaping industries and society.
- ✓ The integration of Drone Technologies and Robotics in modern industries.
- ✓ Innovations in Electric Vehicle Mobility and the future of transportation.



- The Project Club (EEE) of GMRIT organized the Institute-Level Project Exhibition Contest – 2024 on 20th November 2024. The event showcased a diverse range of innovative projects developed by students from various departments, emphasizing creativity, technical expertise, and problem-solving skills. This exhibition provided a platform for students to present their ideas, receive valuable feedback, and foster interdisciplinary collaboration.



➤ Guest Lecture on Digital Signal Processing Applications in Medical and Allied Fields

The IIC-GMRIT, in collaboration with the EEE and ECE Departments, organized a Guest Lecture on "Digital Signal Processing Applications in Medical and Allied Fields" on 24th December 2024.

The session was delivered by Dr. Kota Srinivas, Assistant Professor, Division of Neonatal-Perinatal Medicine, Department of Pediatrics, University of Texas Southwestern Medical Center, USA.

Dr. Srinivas shared his expertise on the innovative applications of digital signal processing in medical and allied domains, offering valuable insights into advanced research and technologies. The session was highly engaging and inspired students and faculty to explore the intersection of engineering and healthcare.



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

- Dr S P Mishra attended at IEEE Conference in SOA University as a session chair on 08.11.2024

Student-Centric Events and Engagement

➤ Story Writing Event (IEEE)

The Story Writing event was successfully conducted on November 4, 2024, coordinated by K. Vinay Kumar and L. Nirupama. The event provided an open platform for students to unleash their creativity and storytelling abilities.

Each participant had the opportunity to craft and narrate their own original story without any specific prompts or restrictions, allowing for a diverse range of themes and imaginative storytelling. The stories were evaluated based on: Creativity, Originality & Coherence and Narrative Flow.

The event saw enthusiastic participation, with 14 students from the EEE department showcasing their storytelling skills. The participants captivated the audience with their unique narratives, demonstrating remarkable imagination and clarity of expression.

Duration: The event lasted two hours, during which participants were judged on their overall performance, including the uniqueness of their narrative, clarity of expression, and the depth of their storytelling.

Winner: U. Triveni

GMRIT
Training Tomorrow's
Engineers Today

IEEE SYSTEMS COUNCIL

**IEEE STUDENT
CHAPTER PRESENTS**
DEPT OF EEE

STORY WRITING

04-NOVEMBER 2024
START FROM 2 - 4 PM
EEE- SEC(B)

WHAT YOU'LL LEARN:

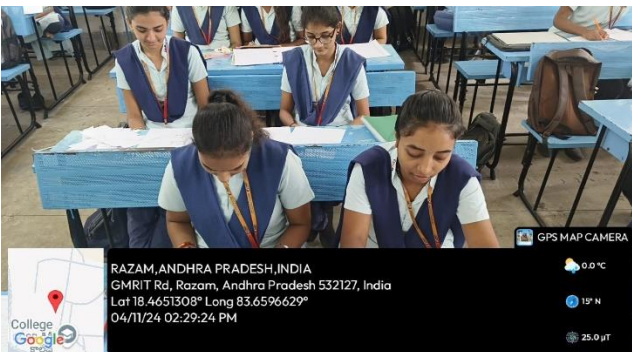
- ESSENTIAL WRITING TECHNIQUES
- WRITING EXERCISES AND PROMPTS
- CRAFTING COMPELLING DIALOGUES
- EDITING AND REVISING

2 TO 4 PM

EEE-BSEC

CO-ORDINATORS
K.VINAY KUMAR
L. NIRUPAMA

**FACULTY
CO-ORDINATOR** **HoD-EEE** **ASSOCIATIVE DEAN
STUDENT AFFAIRS**



➤ Public Speaking (IEEE Event)

The Department of EEE, under the aegis of the IEEE Transportation Electrification Council (TEC) Student Branch Chapter, successfully organized an engaging Public Speaking session on 11th November 2024. The event was coordinated by K. Vinay Kumar and L. Nirupama, with the primary objective of enhancing students' communication and critical thinking skills.

A total of 12 participants showcased their exceptional oratory talents, discussing the thought-provoking theme:

“The Future of Electric Vehicles: Challenges and Opportunities”

The session was expertly moderated, ensuring a respectful and inclusive exchange of ideas. Participants effectively expressed their viewpoints, highlighting key aspects of the challenges and potential advancements in electric vehicle technology.

Evaluation Criteria:

- ✓ Clarity of Thought
- ✓ Engagement with the Audience
- ✓ Overall Presentation Skills

Duration: The event lasted two hours, allowing participants to deliver compelling speeches while demonstrating confidence and depth of knowledge.

Winner:

V. Syamala (22341A02C7)

The Public Speaking event was a resounding success, providing students with a valuable platform to develop their public speaking, critical thinking, and persuasive communication skills. The department looks forward to organizing more such intellectually stimulating events in the future.

GMRIT
Training Tomorrow's
Engineers Today

**IEEE STUDENT
CHAPTER PRESENTS**

DEPT OF EEE

Public Speaking

Don't Compare Yourself To Others

Make It Simple As Possible

Utilize Positive Body Language.

Know Your Audience

Know Where You Have To Look

2 TO 4 PM
11-11-24
EEE-BSEC

CO-ORDINATORS
K.VINAY KUMAR
L. NIRUPAMA

FACULTY CO-ORDINATOR **HoD-EEE** **ASSOCIATIVE DEAN STUDENT AFFAIRS**

➤ Coding Challenge Event

The ISTE Student Chapter of the Department of EEE organized an exciting Coding Challenge on November 18, 2024. The event was coordinated by V. Hari and K. Harika, aimed at enhancing students' algorithmic thinking and problem-solving skills through competitive programming.

A total of 42 participants took part in this highly engaging competition, showcasing their expertise in languages such as Python, Java, and C++. The challenge was structured into three rounds, focusing on:

- ✓ Algorithm Optimization
- ✓ Debugging
- ✓ Problem-Solving

Event Highlights:

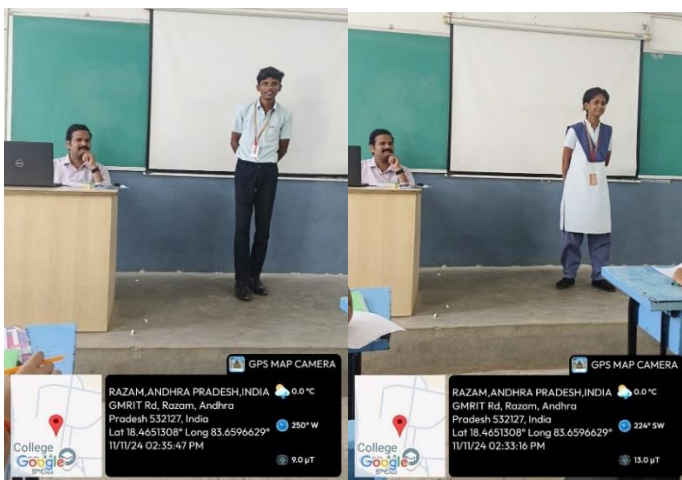
The competition lasted two hours, during which students tackled a variety of coding problems, ranging from basic syntax errors to complex data structures and algorithms.

Participants were evaluated based on their accuracy, efficiency, and problem-solving approach.

The event fostered a competitive yet collaborative atmosphere, encouraging participants to think critically and code efficiently.

Winner:

🏆 M. Saikumar (22341A0282)



The Coding Challenge successfully motivated students to further develop their programming proficiency and technical acumen. The Department looks forward to hosting more such challenging and enriching competitions in the future.




ISTE STUDENT CHAPTER PRESENTS

DEPT OF EEE

CODING BOOTCAMP

CODING CHALLENGE



 2 TO 4 PM

 18-11-24

 EEE-BSEC

CO-ORDINATORS

V.HARI
K.HARIKA

**FACULTY
CO-ORDINATOR**

HoD-EEE

**ASSOCIATIVE DEAN
STUDENT AFFAIRS**



Editorial Borad Members

Chief Editors

Dr.Ramana Pilla

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)