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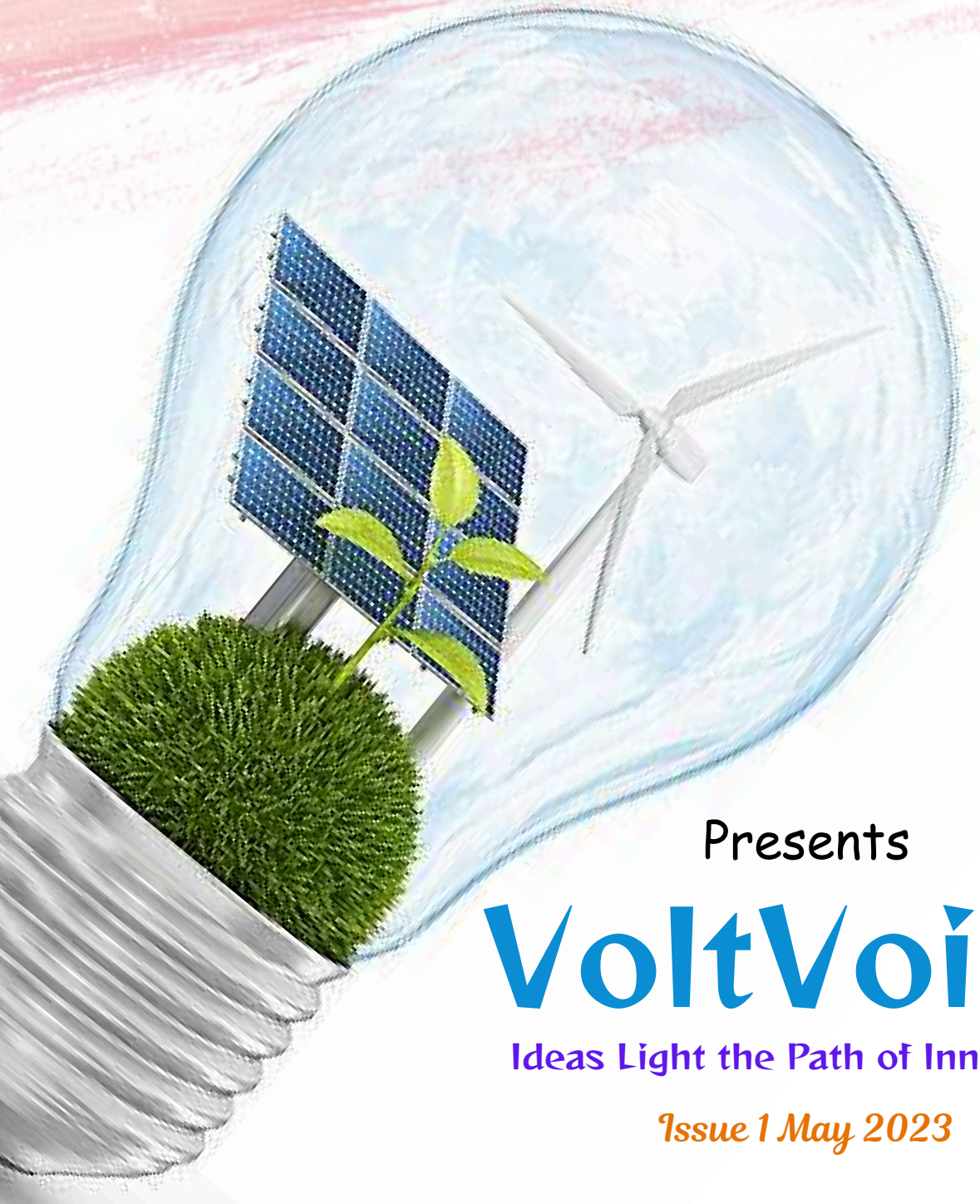
Hope Foundation's

Finolex Academy of Management and Technology, Ratnagiri

ELECTRICAL ENGINEERING DEPARTMENT



Presents

VoltVoice

Ideas Light the Path of Innovation

Issue 1 May 2023

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About Department

This new age, the age of Technology, dawned with the discovery of Electricity and the subsequent development of Electrical Engineering. Equipped with modern infrastructure and supported by a team of competent faculty members, the Electrical Department at FAMT was set up in 1997. FAMT understands the importance of Electrical Engineering and is fully capable of meeting the expectations of young aspiring Engineers.

The Electrical Engineering Department emphasizes rigorous training in analytical and experimental techniques, effectively giving students an integrated approach and a thorough understanding of how to solve problems and, more importantly, equipping them to face the challenges in Industry. These laboratories host a wide range of modern equipment. The Department is also equipped with an advanced computer centre apart from the centralized one, which houses 32 PIV PCs. Modern Engineering simulation software like MATLAB® is used to aid experiments and illustrate the theory.

The Departmental library is an additional academic resource available to students. A separate reading room is also available in the Department for students who wish to access the Departmental library. The success of the Department is reflected in the projects carried out by the students. Some of them, especially the Green House Automation, have received many national awards. Our commitment to holistic development has seen our students perform exceptionally well in many national-level and university examinations and be awarded prizes in various co-curricular activities.

HoD's Desk

It gives me immense pleasure to present this year's edition of VoltVoice, the official magazine of the Department of Electrical Engineering. VoltVoice continues to be a vibrant platform that captures the essence of our academic journey, technological growth, and creative spirit. This past year has been one of progress and innovation. Our department has embraced advancements in Smart Grid Systems, Electric Vehicles, and AI applications in Electrical Engineering.

The inauguration of the IoT-enabled Energy Systems Lab marks a significant milestone in our pursuit of practical, future-ready education. Our faculty members have achieved notable success through research publications, technical consultancy, and funded initiatives. Our students have excelled in technical symposiums, workshops, and national competitions, showcasing their talent and preparedness for real-world challenges.

We also deepened our industry engagements through collaborative training programs, expert lectures, and internships. Events like the Industry-Academia Conclave and alumni mentoring sessions have greatly enhanced the practical orientation of our curriculum.

VoltVoice is not only a reflection of our technical achievements but also a celebration of the creativity and dedication of our students and faculty. I congratulate the editorial team for their thoughtful curation and hard work in compiling this edition.
Wishing the entire Electrical Engineering family continued success and excellence.

Warm Regards,

Dr. Jayant J. Mane
Head of Department

Editorial Board

Greetings from the Editorial Board !!

It gives me great pleasure to present the May 2023 issue of the Departmental Magazine – VoltVoice. This year's edition continues our tradition of capturing the academic vibrancy, technological insights, and creative expressions that define the Department of Electrical Engineering. VoltVoice showcases a rich collection of articles, artwork, technical reflections, and innovative ideas contributed by our students.

Each page reflects the spirit of inquiry, collaboration, and excellence that we strive to nurture within our department. This magazine is not only a platform to highlight achievements but also a space to encourage diverse perspectives and continuous learning.

We hope VoltVoice continues to inspire curiosity, creativity, and a deeper connection to the field of Electrical Engineering. Your feedback and suggestions are always welcome as we strive to make each edition better than the last.

Sincerely,
Prof. Sudhir Wamane
Assistant Professor
Department of Electrical Engineering

Student Editorial Team

Suchitra Dhere

Hari Changan

Pooja Nivalkar

Institute Vision-Mission

Vision:

The academy aspires to nurture students as leaders who are in tune with global trends, equipped with engineering knowledge and practical skills, to excel in creativity and innovation in order to play their part in technological advancement of the nation.

Mission:

M1: To become foremost seat of advanced technical learning as a center of excellence in the region.

M2: To offer state of the art facilities and quality education at affordable cost.

M3: To inculcate in students the culture of 'Play Hard and Play Fair'.

M4: To advance sustainable development in the region through opportunities for entrepreneurship and industry-institute interaction.

M5: To create a generation of young professionals who appreciate in all its aspects the necessity of balance between technological advances and traditional values.

Department Vision, Mission, PEO & PSO

Vision:

The department shall become foremost seat by imparting advanced and progressive education in Electrical Engineering along with excellent professional skills and character to meet industrial and social challenges.

Mission:

M1: To ascertain qualitative teaching-learning process through the art of teaching pedagogy and meticulous continual assessment.

M2: To provide a supportive environment that facilitates industrial exposure to produce quality engineers who will excel globally.

M3: To promote the versatile development of students through training of soft skills.

M4: To imbibe moral, ethical and social values among students.

Program Educational Objectives (PEOs):

PEO1: Students should be able to have successful career or pursue higher studies to meet future challenges of technological development.

PEO2: Students should be able to pursue analytical and logical skills that will enable them to analyse and design Electrical Systems and its Controls.

PEO3: Students should be able to undertake research and development activities in emerging multidisciplinary fields.

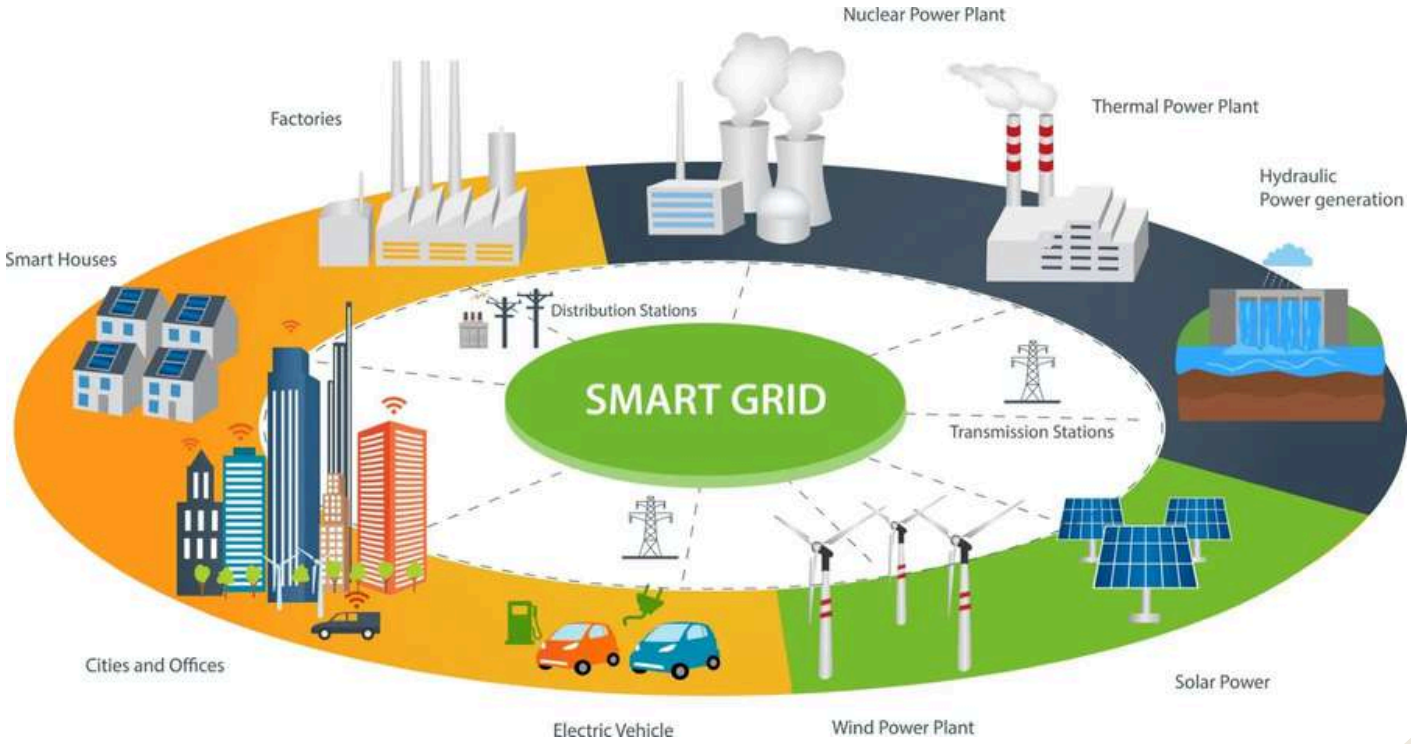
PEO4: Students should be able to achieve professional and interpersonal skills by giving an opportunity as an individual as well as a team.

Program Specific Outcomes (PSOs):

PSO1: Students will be able to design, simulate and analyze electrical systems using software tools.

PSO2: Students will be able to understand, implement concepts of electrical systems through experiments and apply it to solve industry specific problems.

Revolutionizing Power Distribution with Smart Grids



The power sector is undergoing a major transformation with the rise of Smart Grids. Unlike traditional grids, which follow a one-way electricity flow, smart grids are intelligent, adaptive, and responsive. They integrate communication technology with electrical infrastructure to enable real-time monitoring, automated fault correction, and optimized energy usage.

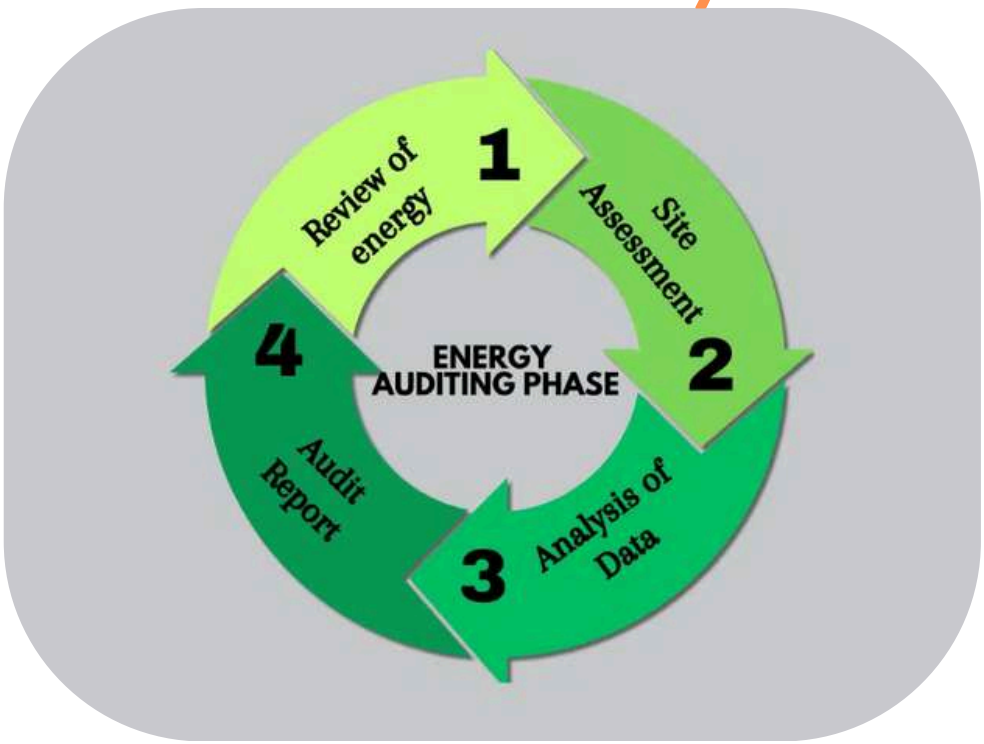
In our final-year course on Power Systems, we studied how smart meters and data analytics help utilities monitor consumer demand patterns and ensure efficient energy delivery. During our industrial visit to the Maharashtra State Load Dispatch Centre, we observed how SCADA systems play a key role in modern grid management.

Smart grids also pave the way for renewable energy integration. Solar and wind energy, being intermittent, can disrupt the conventional supply-demand balance. Smart grids use AI and machine learning to predict loads and manage energy storage systems effectively.

As future engineers, it's exciting to be a part of this shift. The demand for intelligent infrastructure, sustainability, and digital energy management offers vast career opportunities. The smart grid is not just a technology upgrade—it's the foundation of our energy future.

Prachi Jikmade - BE Electrical Engg.

Energy Audit: A Practical Step Toward Sustainability



Energy conservation is one of the simplest and most effective ways to fight climate change—and it starts with awareness. This year, I had the opportunity to lead an energy audit project for our campus canteen as part of our Industrial Energy Management coursework.

Using a digital power meter and data logger, we measured the energy consumption of different appliances, including refrigerators, ovens, and lighting systems. We discovered that older tube lights were contributing significantly to daily energy costs. Replacing them with LED lights and installing motion sensors in low-use areas could save up to ₹3,000 per month.

The process taught us more than numbers—it showed how small actions can make a big impact. We also calculated payback periods and suggested an energy-efficient layout design. This project not only met academic requirements but also motivated real change.

Energy auditing is no longer confined to industries. Residential complexes, schools, and hospitals are increasingly hiring auditors to reduce bills and carbon footprints. Our department's emphasis on practical learning is equipping us with valuable skills that will serve both industry and the environment.

Parag Prabhu - BE Electrical Engg.

PLC-Based Automation: From Labs to Real Life

Automation is transforming every aspect of modern industry—from packaging to assembly lines—and at the core of this revolution is the Programmable Logic Controller (PLC). What once seemed like a set of abstract diagrams now makes complete sense thanks to our practical sessions in the PLC lab.

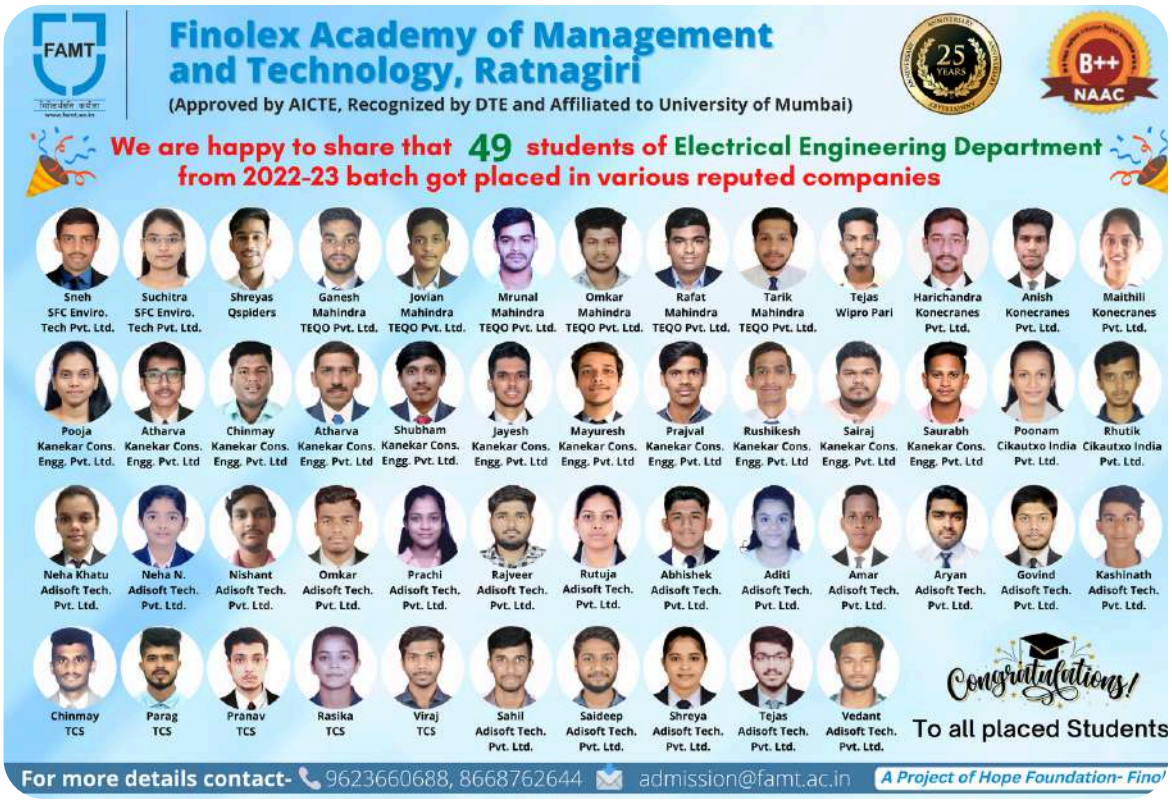
We were introduced to ladder logic programming, timers, counters, and digital I/O systems. My favorite part was building a mini-project that simulated a bottle-filling plant. Sensors detected the presence of bottles, and actuators controlled valves and conveyor belts—all driven by a well-written ladder program.

Our department also organized a hands-on PLC workshop in collaboration with an industry partner. We used Allen Bradley controllers, which is widely used in the field. The workshop highlighted real-time problem-solving scenarios that industries face and how automation reduces human error and enhances productivity.

As India moves toward Industry 4.0, PLCs will play a crucial role in integrating sensors, data systems, and robotics. Mastering PLCs is not just a lab requirement—it's a gateway to a career in industrial automation, smart manufacturing, and process control.

Chinmay Chavan - TE Electrical Engg.

Breaking Barriers: Girls in Electrical Engineering



Electrical Engineering has often been viewed as a male-dominated field, especially in core sectors like power generation, control systems, and heavy equipment industries. But change is happening—and it's both encouraging and inspiring.

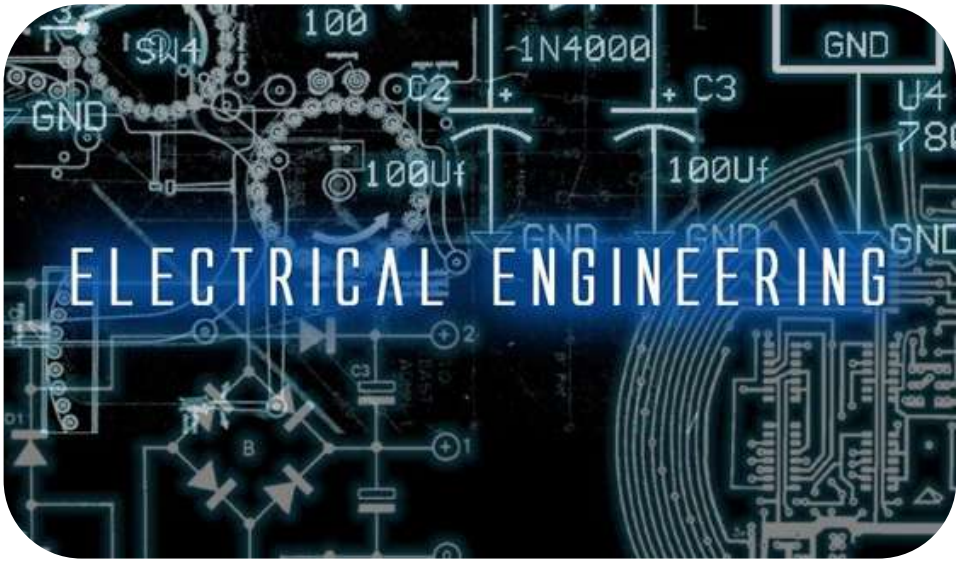
At FAMT, our department has made great strides in supporting women through inclusive learning, mentorship programs, and leadership opportunities. Many of our faculty members are pioneers in their fields, guiding us with both technical knowledge and personal strength.

I've learned that success in engineering isn't about gender—it's about passion, persistence, and practice. With more female students joining and excelling, it's clear that diversity brings new perspectives and solutions. Over the past few years, many of our senior girls have secured placements in reputed companies such as SFC, TCS, Adisoft and Konecranes. These achievements prove that core companies are not out of reach, and our potential is being recognized across industries.
These placements are not just numbers—they are success stories that reflect confidence, competence, and capability.

Let's continue to break stereotypes—not just by words, but through our work, our projects, and our circuits.

Neha Nachankar - BE Electrical Engg.

Electrical Engineering: The Pulse of Modern Technology



Electrical Engineering is often called the heart of all modern innovations—and rightly so. From the moment we switch on a light in the morning to charging our smartphones at night, we are surrounded by the magic of electricity made real by engineers. This branch of engineering deals with the study and application of electricity, electronics, and electromagnetism. It's not limited to wiring buildings or repairing fans; it's a field that powers entire cities, runs industries, and connects the world through communication networks.

Electrical Engineers work behind the scenes designing power systems, developing control circuits, creating hardware for smartphones, building automation in industries, and much more. During our lectures and labs, we are trained not just in theory but also in using simulation tools like MATLAB and Proteus etc. These tools help us visualize how systems behave and allow us to optimize their performance.

Our department often organizes workshops, seminars, and industrial visits that help us connect classroom learning to real-world applications.
As students, we are also encouraged to participate in competitions, technical events, and paper presentations. These platforms not only build our confidence but also nurture teamwork and innovation.

In conclusion, Electrical Engineering is more than a subject—it's a way to understand and shape the world.

Tarik Mulla - BE Electrical Engg.

Renewable Energy Integration and Microgrids

With the global push towards decarbonization, renewable energy sources like solar, wind, and hydro are playing a dominant role in power generation. However, their intermittent nature presents technical challenges, leading to a rise in microgrids as a localized solution.

A microgrid is a self-contained energy system that can operate independently or in conjunction with the main grid. It typically integrates photovoltaic panels, wind turbines, battery storage systems, and control electronics. Microgrids are being deployed in remote areas, campuses, military bases, and industrial parks.

Smart controllers and energy management systems (EMS) balance load demand with renewable input, optimizing energy use and ensuring continuity during outages. In urban applications, microgrids support peak load management and increase grid resilience.

As the cost of batteries and solar panels continues to fall, microgrids are expected to be key players in the decentralized energy future—offering sustainability, reliability, and efficiency.

Rafat Alji - BE Electrical Engg.

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