VIDYUT

Voyage with Youth...

2025 Edition

Council of Electrical Engineers

WORDS OF WISDOM

I am happy & excited to see the magazine of the Electrical Engineering department. I congratulate the whole team of students for this achievement. Also, I give best wishes to all faculty & employees of EED for their contribution.

The magazine is a mirror of any department which reflects to the reader the quality & in-depth learning & the students in their branch with extra beyond syllabus learning. This also motivates the teachers to do more on academics & research with their students.

The facilities & infrastructure of the department also attract outsiders to interact with departmental students & staff in terms of collaborative research & consultancy.

I wish for a great successful publication of the departmental magazine.

Prof. Neetesh Purohit
Director
SGSITS Indore

FROM THE EDITOR'S DESK

Greetings Readers,

I would like to extend my gratitude to all the editors, Authors, Mentors, Committee members, and the Department of EE for their contribution to the 3rd issue of Vidyut. The Magazine Committee (CEE) is thrilled and eager to publish the 2025 edition of **Vidyut** *Voyage with Youth*. With the first & second edition of Vidyut, we received a resounding response.

We improved the previous format and included some fresh material in this edition. Through the recently added Student area, we hope to give you a platform to showcase your artistic, literary, and educational abilities in addition to keeping you informed about the latest trends and advancements in the electrical world.

Electrical engineering is a constantly evolving and pervasive subject that offers a wealth of options and fuels the passion in many engineers. We strive to provide a glimpse of this flame and transmit it to the upcoming generation of engineers.

Respected alumni, we work to create a connection between you and your heyday in the department and humbly ask for your guidance.

The goal of CEE is to give students the abilities and characteristics they need to reach their maximum potential and overcome obstacles. We aspire to provide you with opportunities to shine and most importantly make your college years memorable.

We encourage everyone with criticism to offer suggestions so we can improve and give you all better content.

Please get in touch with us at *magazineclubeedept@gmail.com* and provide us your valuable feedback by scanning the QR code mentioned below.

Rajswi Manjri
Editor in-Chief (CEE)

WARM REGARDS FROM THE HEAD OF DEPARTMENT...

It gives me immense pleasure to express my views on the release of departmental magazine. As you go through the pages, you will find the important milestones that department has achieved this year. Besides, our young engineers have expressed their thoughts, ideas, hopes, feelings, aspirations and convictions in a creative way. This magazine should be a good source of guidance for faculty and coming batches of students in choosing activities of their choice in their future for building their carrier. It provide an abstract view of the department at glance. Reader will able to know about the interaction and vision of alumni about the department. Coverage on the various achievements of the faculty members, students and staff encouraged the stockholder to enhance the participation towards the department growth. One of the purpose of the magazine is to give a brief overview of the cutting edge technology to show the future of the branch and requirements of the interdisciplinary collaborations.

Dr. Sandeep Bhongade
Prof & Head,
EED, SGSITS

CONTENTS

EV SERIES 3.0

Electrifying the Future: Global Breakthroughs in Electric Mobility

The field of electrical engineering is witnessing revolutionary changes with direct implications on transportation, energy efficiency, and sustainability. Below are three global breakthroughs that are redefining the possibilities of electric vehicles (EVs) and smart energy systems.

1. Inductive Charging Lanes: The Future of In-Transit Power

Innovation Type: Wireless Power Transfer for Electric Vehicles
Implemented in: Sweden, USA, Israel, and South Korea

Abstract

One of the biggest limitations of electric vehicles (EVs) is their range and the availability of charging infrastructure. To overcome this, several countries have piloted roads embedded with inductive charging coils, which allow EVs to charge wirelessly while driving. This concept, known as dynamic wireless charging, relies on electromagnetic induction to transfer power from coils beneath the road surface to a receiver in the EV. Projects such as Electreon in Israel and Sweden, and Michigan's Inductive Vehicle Charging pilot, have demonstrated that vehicles can draw power on-the-go, reducing the need for frequent, time-consuming stops at charging stations.

Impact

- Reduces range anxiety and charging downtime.
- Supports public transportation like buses and taxis with continuous charging.
- Helps balance power draw on the grid by enabling smart, on-demand charging
- Paves the way for smaller batteries, reducing EV costs and environmental impact.

2. Driving on Sunshine: Solar EVs become a reality

Developed by: Aptera Motors, Lightyear, Sono Motors
Launched In: USA, Netherlands, Germany

Abstract
While electric vehicles are already transforming mobility, their true sustainability depends on how they are powered. Companies like Aptera (USA) and Lightyear (Netherlands) are leading the race in developing solar electric vehicles (SEVs) — cars that come equipped with solar panels integrated into their body. These panels can generate 30–70 km of daily range using just sunlight, which can meet the average daily driving needs of many users.
For example, Aptera's SEV is built with a highly aerodynamic, ultra-lightweight frame and embedded solar arrays. In ideal sunny conditions, it can drive up to 40 miles/day on solar energy alone, reducing reliance on grid-based charging.

Impact

- Eliminates daily charging for users with moderate commute.
- Reduces load on electric grids and energy demand.
- Offers sustainable mobility even in off-grid areas.
- Highlights the integration of photovoltaic and power electronics in vehicle design.

3. Powering the Future: SiC and GaN in Electric Mobility

Innovation Type: Use of Wide Bandgap Semiconductors in Power Electronics
Key Technologies: Silicon Carbide (SiC), Gallium Nitride (GaN)

Abstract

Electric vehicles demand high-efficiency, compact, and heat-resistant power electronics — a requirement that traditional silicon semiconductors struggle to meet. Enter wide bandgap (WBG) semiconductors like Silicon Carbide (SiC) and Gallium Nitride (GaN). These materials offer faster switching, higher voltage handling, and lower energy loss, making them ideal for inverters, converters, and onboard chargers in modern EVs. Automakers such as Tesla, Hyundai, and Lucid Motors have already started integrating SiC-based MOSFETs into their drive systems, resulting in improved acceleration, faster charging, and greater driving range.

Insight

- Reduces size and weight of EV power modules.
- Increases energy efficiency and thermal performance.
- Enables faster DC fast-charging systems.
- Crucial for next-gen EVs, renewable inverters, and smart grid applications.

These innovations are not just technical marvels; they reflect a larger global commitment to electrification, sustainability, and smarter energy solutions. As students and practitioners of electrical engineering, staying updated with such breakthroughs inspires innovation, fuels research, and shapes a greener future.

RENEWABLE INTEGRATION SERIES

"As India embraces clean energy, the power grid must evolve to stay stable, smart, and resilient."

GRID-FORMING INVERTER FOR RENEWABLE ENERGY RESOURCE INTEGRATION

Speaker: **Dr. Samir Hazra**
Assistant Professor, Department of Electrical Engineering, IISc Bangalore

Introduction

India is rapidly increasing its solar energy production to reduce dependence on coal and oil. While this transition supports sustainability, it introduces challenges due to the intermittent nature of renewable power sources like solar and wind.

To balance energy supply, Battery Energy Storage Systems (BESS) are used. However, when renewable energy penetration becomes significant (beyond 30% of the grid), traditional inverters and storage solutions may no longer ensure power grid stability.

Problem at Scale:

- Traditional current-controlled inverters work well when synchronous generators (SGs) still dominate grid dynamics.
- SGs contribute inertia, helping stabilise the system during fluctuations.
- As the share of RES increases, grid inertia declines, and network impedance rises due to distributed energy systems.
- These changes can severely compromise grid stability.

Solution: GRID-FORMING INVERTER (GFM)

A Grid-Forming Inverter (GFM), unlike traditional inverters, controls terminal voltage directly—mimicking synchronous generators.

Benefits of GFM:

- Emulates inertia of large generators.
- Enables stable integration of high RES percentages.
- Functions reliably even with high Point of Common Coupling (PCC) impedance.

KNOW YOUR MENTORS

Prof. Sandeep Bhongade
HOD, EED

Prof. Sandeep Bhongade received M.E. degree in Electrical Engineering from V.J.T.I. Mumbai, Mumbai University (India) in 2003 and Ph. D degree from Indian Institute of Technology, Roorkee in 2012. He has more than 18 years of experience in teaching and research. Presently, he is Professor in the Electrical Engineering Department at Shri G.S. Institute of Technology & Science, Indore (M.P)-India. His research interests include Smart microgrids, Power System Restructuring, Power System Operations, and Control, Energy management system, Distributed Generation, Renewable Energy Sources. He has published several papers on diverse topics in refereed journals. He is a senior member of the IEEE Society.

BOOK PUBLICATION

- N.K. Soni,Sandeep Bhongade, R.S. Gamad," Recent Developments in Electrical and Electronics Engineering",Design and Implementation of Fractional-Order PID Controller for Magnetic Levitation System Using Genetic Algorithm-Based Optimization, ISBN number 9789811979958,Springer

- Sandeep Bhongade, Gaurav Pandey “DFIG Based Wind Turbine in Frequency Regulation Services”, Lambert Academic Publishing Ltd., Germany, ISBN-978-3-659-93438-4.

- Sandeep Bhongade and Ritu Verma, "Optimized Hybrid Power System Using Superconducting Magnetic Energy Storage System: Hybrid Power System Using SMES", Chapter 2 in a book titled "Novel Advancements in Electrical Power Planning and Performance,", IGI International: Publisher of Peer-Reviewed, Timely, and Innovative Research, 701 E. Chocolate Avenue, Hershey, Pennsylvania 17033-1240, USA. DOI: 10.4018/978-1-5225-8551-0.ch002
- Bhongade S., Verma R. (2020) Grey Wolf Optimized PI Controller for Hybrid Power System Using SMES. In: Kalam A., Niazi K., Soni A., Siddiqui S., Mundra A. (eds) Intelligent Computing Techniques for Smart Energy Systems. Lecture Notes in Electrical Engineering, vol 607. Springer, Singapore.

IEEE

The **Institute of Electrical and Electronics Engineers (IEEE)** is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. Founded in 1963, IEEE brings together engineers, scientists, researchers, and students from across the globe to foster innovation and excellence in fields such as electrical engineering, electronics, computer science, and allied disciplines.

With more than 400,000 members in over 160 countries, IEEE serves as a hub for knowledge sharing through its research publications, conferences, standards development, and professional networking opportunities. Its mission is to inspire technological innovation, encourage collaboration, and promote the highest standards of professional and ethical practices.

IEEE also provides a platform for students and young professionals to explore new ideas, participate in competitions, and connect with global experts. Through its activities, IEEE empowers the next generation of engineers to contribute meaningfully to society by developing sustainable and impactful technological solutions.

Joining **IEEE** as a student is a simple process. Interested students can visit the official IEEE website and register under the "Student Membership" option by filling in basic details like name, email, country, and university information. The annual fee for student membership in India is affordable, usually between **₹1,200** to **₹1,800**, with discounts available for first-time members. After successful registration and payment, students receive a digital membership card and gain access to IEEE resources such as research papers, technical webinars, scholarships, and global networking opportunities. Being a member not only enhances technical knowledge but also provides a platform to participate in competitions, conferences, and professional events, thereby boosting career growth.

IEEE EVENTS

IEEE STUDENT BRANCH SGSITS INDORE, SBC: STB88701

DEPATMENT OF ELECTRICAL ENGINEERING, SGSITS INDORE (M.P.)-452003

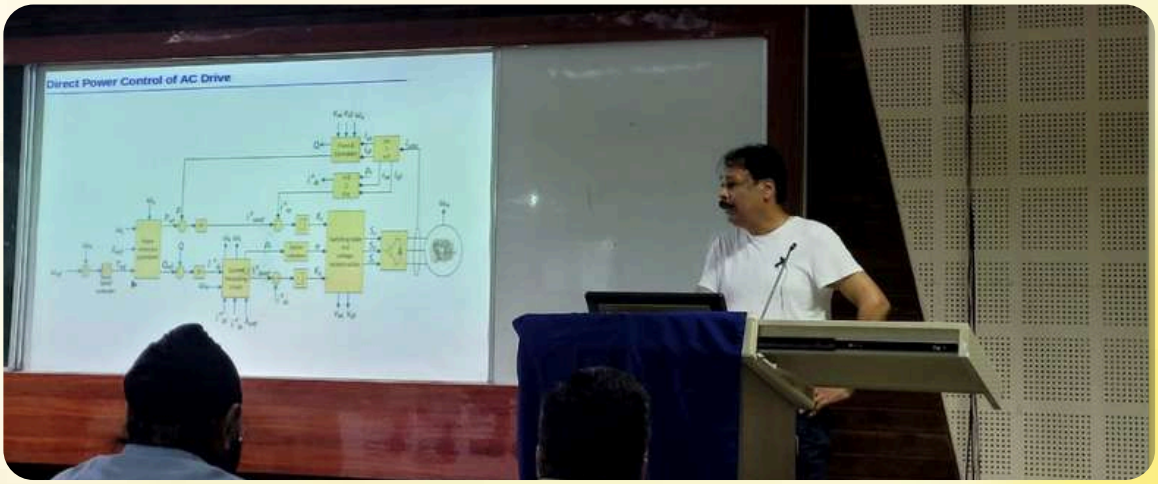
S.no.	Session	Event title	Types of event	Organized by
1	2024-25	One Week Short term faculty Development Program on Hands -on Practices on cutting edge technology of power electronics	Technical	IEEE SBC
2	2023-24	IEEE day celebration	Technical	IEEE SBC
3	2023-24	Engineers day celebrations	Technical	IEEE SBC
4	2023-24	Three days workshop on application of microcontroller in the field of power electronics	Technical	IEEE SBC
5	2023-24	Industrial awareness in the field of wind energy conversion system	Technical	IEEE SBC
6	2023-24	National energy conservation day celebration	Technical	IEEE SBC
7	2022-23	Wide Band gap (WBG) Power Electronics Systems for Heavy-Duty Vehicles	Technical	IEEE SBC
8	2022-23	2 Days workshop on application of ansys in electric vehicles	Technical	IEEE SBC
9	2022-23	Power electronics product development process and challenges	Technical	IEEE SBC
10	2022-23	IEEE Membership: Awareness and benefits	Technical	IEEE SBC
11	2021-22	Power electronic converters and control techniques for wind energy conversion systems	Technical	IEEE SBC
12	2021-22	Opportunities in space sector and making of satellites	Technical	IEEE SBC
13	2022-22	Industry visit M/s. Dawn Electricals Indore	Technical	IEEE SBC

IEEE EVENTS

IEEE Awareness Camp

Under **IEEE Awareness Week**, the SGSITS IEEE Student branch organized an **IEEE Awareness Camp** throughout the college on 3rd October 2023. In this camp, EED faculties Asst. Prof. Harshit Choubey and Mr. Chandrakant encouraged the students to take the IEEE membership as being a member of IEEE, one gets access to its highly cited publications, conferences, technology standards, magazines, and professional and educational activities.

Expert lecture by Dr. Sanjeet Kumar Dwivedi



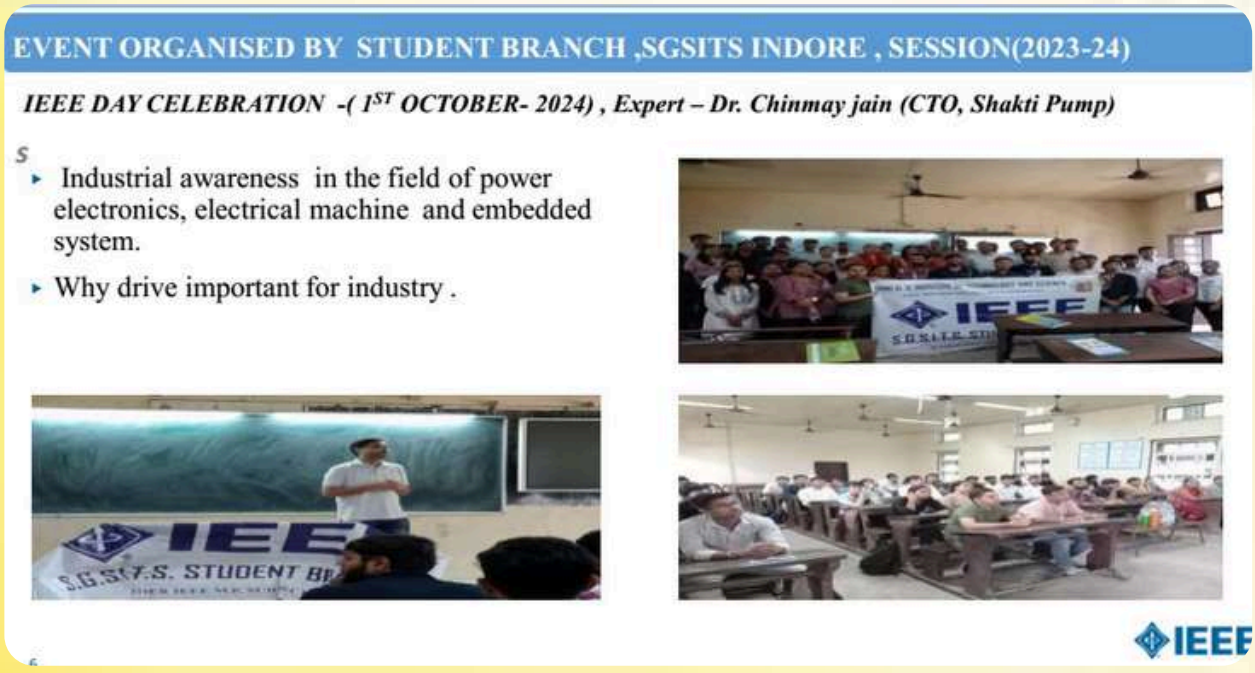
The Department of Electrical Engineering at SGSITS, Indore, in collaboration with the IEEE-PELS Student Branch Chapter successfully organized an expert lecture on "**Simple and Robust Methods for Estimation of Induction Motor and Permanent Magnet Synchronous Motor Parameters**" on 14th August,2024. The session was graced by Dr. Sanjeet Kumar Dwivedi, a senior consultant at Wind Energy Business, RDT Engineers, Denmark, who shared his extensive expertise in motor parameters estimation techniques. The lecture delved into efficient and robust methods for parameters estimation of Induction Motors and Permanent Magnet performance, energy efficiency, and reliability.

Engineer's Day Celebration

A Plantation Program for Environmental Protection was conducted with Dr. R. S. Tare, Retired Professor at SGSITS, as the guest expert. The event emphasized the role of engineers in sustainability and environmental conservation on 15th Septemeber,2024.

IEEE Day Celebration

An expert session was conducted with Dr. Chinmay Jain, Chief Technical Officer at Shakti Pump, on "Industrial Awareness in Power Electronics, Electrical Machines, and Embedded Systems." He highlighted the significance of drives in the industry and their impact on modern engineering applications.



INDUSTRIAL VISITS

An Advent towards Academic Excellence

- On September 23, 2023, electrical engineering students visited **Arihant Transformers**, a leading manufacturer. The insightful trip bridged theory and practical, showcasing the entire transformer manufacturing process. Students observed raw material inspection, assembly, and testing, gaining insights into design, winding, insulation, and core assembly. Quality control and safety measures were emphasized. The visit deepened understanding of transformer technology, its role in the power industry, and the precision required in electrical engineering. It sparked interest in power systems and electrical manufacturing careers, adding practical aspect to their academic journey.

- The industrial training for electrical engineering students, conducted from 19th to 23rd October 2023 aimed to provide students with hands-on experience in real-world applications of their academic knowledge. The training, a vital component of the curriculum, organized in collaboration with **National Power Training Institute (NPTI)** CoE-PERE, UIT-RGPV, Shivpuri. This program encompassed a variety of activities, students participated in workshops covering topics such as power plants, their types & operation and smart grids. Interaction with Industry Professionals gave them insights on Practical engineering.

- The Department of Electrical Engineering at Shri Govindram Seksaria Institute of Technology and Science (S.G.S.I.T.S.), Indore, organized an enriching industrial visit to the **Locomotive Care Center, Ratlam** on 1st February 2025. The visit aimed to provide students with firsthand exposure to real-time railway electrical systems and maintenance operations, bridging the gap between theoretical concepts and industrial practices.A group of 40, second-year students, accompanied by faculty members, explored various sections of the care center, which is a vital facility under the Western Railway Zone responsible for the servicing and maintenance of electric locomotives. The visit commenced with an introductory session conducted by senior engineers and technical staff, who briefed the students on the structure, operation, and safety protocols followed in the care cente. Students observed the detailed maintenance procedures of WAP-7 and WAG-9 class electric locomotives, focusing on critical systems such as traction motors, circuit breakers, control systems, and pantographs.

FACULTY DEVELOPMENT PROGRAM

The One-Week Short-Term Faculty Development Program (FDP) on "Hands-on Practices on Cutting-Edge Technologies of Power Electronics" was successfully held from 13th to 19th January 2025, aimed at equipping educators and researchers with advanced skills in one of the most transformative domains of modern electrical engineering.

Jointly organized by the IEEE Student Branch and PELS Student Chapter of SGSITS, in collaboration with the Departments of Electrical Engineering at SGSITS, Indore and O.P. Jindal University, Raigarh (C.G.), the program was held under the patronage of Prof. Neetesh Purohit, Director, SGSITS, and Dr. R.D. Patidar, Vice Chancellor, O.P. Jindal University. The convenor for the event was Prof. Shailendra Sharma, with Prof. R.S. Mandloi and Mr. Harshit Choubey coordinating the sessions.

The importance of this FDP stems from the rapidly evolving landscape of power electronics, which forms the backbone of energy conversion systems across industries. With the global push towards clean energy, electric mobility, and smart grids, there is a growing demand for professionals who are skilled in modern power conversion techniques, digital control, and system-level integration.

The program featured interactive lectures, lab sessions, and simulations focusing on key areas such as:

- Wide bandgap semiconductor devices (SiC/GaN)
- High-efficiency power converters
- Control of electric drives
- Grid-connected inverters for renewable energy systems
- Power electronics in electric vehicles (EVs)
- Embedded systems and real-time control (e.g., using DSPs/FPGAs)

These technologies are currently shaping global trends in sustainable development, making them highly relevant in both academic research and industrial application

By providing hands-on training using advanced tools and platforms, the FDP empowered participants to incorporate these concepts into their teaching and research, thus enhancing the technical competency of engineering education.

The sessions also fostered collaboration among faculty members from different institutions, promoting knowledge-sharing and the development of future joint research initiatives.

In conclusion, the FDP marked a significant step toward strengthening academic-industry synergy, updating faculty with cutting-edge practices, and preparing a generation of engineers capable of driving innovation in power electronics.

IIC EVENTS

IIC Ideathon 2.0

Shri G S Institute of Technology & Science (SGSITS) held its **Ideathon 2.0 Poster Competition**, inviting students from all departments to showcase their innovative ideas. The event, held on February 23, 2024, was organized by the Institution's Innovation Council, with participants presenting posters on the theme of Millennium Sustainable Development Goals (MSDGs).

The Poster Exhibition highlighted a variety of groundbreaking ideas, with the top three posters receiving awards for the most innovative idea, best design, and most impactful project. Participants praised the competition for fostering creativity and providing valuable feedback. The event successfully encouraged students to think creatively and contribute to sustainable development initiatives

IIC Distinguished lecture: WBG Power electronics

IEEE PELS SBC and IEEE student branch, SGSITS Indore organized a lecture on **Wide Bandgap (WBG) Power Electronics Systems** for Heavy-Duty Vehicles on December 30th, 2023. The event featured **Dr. B.N. Singh**, a John Deere Technical Fellow and an IEEE Power Electronics Distinguished Lecturer (PELS DEL), as the keynote speaker. Dr. Singh's presentation covered various aspects of the development of a 200kW 1050 VDC silicon carbide (SiC) dual inverter for heavy-duty vehicles and accelerated SiC inverter technology development, providing attendees with profound insights.

BIS EVENTS

Quiz Competition

An intellectually stimulating national level quiz competition was organized at SGSITS Indore on 15th March 2024 by the EED in collaboration with BIS (Bureau of Indian Standards), which is a national standard body of India, responsible for the harmonious development of the activities of standardization of goods. The students of EED participated in the quiz under the invigilation of Prof. R.S Mandloi. The quiz competition was titled as **"Quality and Standards - 2"**. After a great competitive battle, the winners of the quiz competition were **Rishabh Tiwari, Abhigyan Purohit and Mayank Singh.**

Writing Competition

On February 2nd 2024 a **writing competition** was held at Shri G S Institute of Technology & Science (SGSITS) in collaboration with the Bureau of Indian Standards. A standard writing competition featuring a variety of engineering-related topics was developed to promote active involvement throughout the competition. Students were allowed to develop their own standards on a particular subject related to their career. Individuals competed against one another in groups. The winners of this writing competition were **Abhigyan Purohit, Nishi Raghuwanshi, Deepika Mangrol, Dheeraj Rathod, Gaurav Pandey, Akshat Jain**.

Workshops ,Webinars & Seminars

Power Electronics Webinar

IEEE PELS SBC and IEEE student branch, SGSITS Indore organized an insightful webinar on power electronics product development process and challenges,which was held on July 16th 2023. **Mr. Manoj Modi**, an esteemed professional in the field, served as the speaker for the event.As the Chief Technology Officer at CastNX Pvt. Ltd. Dewas, he brought practical industry experience and expertise to the webinar. The event was centered on the product development process and challenges in this domain, and the attendees gained insights into the practical aspects of creating power electronics products.

ANSYS Webinar

The IEEE Student Branch at SGSITS Indore organized a two-day ANSYS webinar on August 3rd and 4th, 2023, aimed at students, researchers, and industry professionals. On first day Keynote speaker **Mr. Ajay Sekhar Reddy Agarala**, an Application Engineer at ARK Infosolutions Pvt. Ltd., covered ANSYS fundamentals, electrical machine design, battery and BMS challenges, and 2D and 3D Maxwell processes. The second day focused on fluid dynamics and ANSYS applications in electric vehicles, providing valuable insights.

MATLAB Workshop

On October 7th, 2023, the IEEE PELS and the IEEE Student Branch at SGSITS organized a one-day technical workshop on the topic of **'Fundamentals of MATLAB and its Applications'**. The event featured Mr. Pemendra Kumar Pardhi, a Senior Design Engineer specializing in Power Electronics (CastNX Pvt. Ltd.), as the expert. During the workshop, students were instructed on how to successfully run MATLAB applications and utilize it for simulating, analyzing, and designing electrical circuits.

On 16/ 01 /24, A Seminar on **renewable energy integration** and sources was conducted under the guidance of renowned industry expert **Mr. Sankalp Ved**. This insightful seminar taught us the concepts of power trading, grid connections, frequency adjustments, Energy tariffs, Policies and regulations, Project funding, contract negotiations, and discussed future trends in renewable energy. The seminar highlighted the critical role of renewable energy in tackling climate change. All faculty members of the Electrical Department and students of 3rd year were present at the seminar. Students were highly benefitted from this seminar.

Experts Talk By Mr. Nilesh Vyas

Electrical Engineering Department, SGSITS Indore organized an expert talk session on **Research opportunities in Automobile Industry with Artificial Intelligence (AI)**,which was held on February 19th 2024. Mr. Nilesh Vyas, founder and CEO of Ascentt System Inc. USA, served as the speaker for the event. He brought practical industry experience and expertise in the session. The session was centered on the research work we can do in the automobile industry with the help of AI, which can increased the efficiency of the automobile industry, which was attended by the teachers of SGSITS.

ANSYS Workshop

The Department of Electrical Engineering successfully hosted a two-day workshop on "ANSYS Multiphysics Simulation Solutions for Electric Vehicles" on July 25th and 26th, 2024, at the Golden Jubilee Auditorium, SGSITS Campus. This workshop was designed for 3rd and 4th-year students of EE, EC, ME, IPE, and EI, covering essential topics such as ANSYS Solutions to EV and Motor Design using Maxwell, Power Electronic Converter Design using ANSYS Twin Builder, Battery Modelling using ANSYS Fluent, and EV Powertrain Model using ANSYS Twin Builder. Faculty members were present to guide and facilitate the sessions.

PLC and SCADA Workshop

The Electrical Engineering Department of SGSITS, in collaboration with ANKR, organized a one-day workshop on Industrial Automation, PLC and SCADA on September 28, 2024. Designed exclusively for 2nd and 3rd-year Electrical Engineering students, the workshop provided valuable insights into modern industrial automation. Industry professionals from ANKR conducted hands-on sessions on Programmable Logic Controllers (PLC) and Supervisory Control and Data Acquisition (SCADA), helping students understand real-world applications.

MATLAB & Simulink Workshop on Inductor Design

The Department of Electrical Engineering at SGSITS organized a one-day workshop on "Inductor Design and Simulation with MATLAB & Simulink" on October 14th, 2024. The workshop featured Mr. Anshuman Prakash, Senior Application Engineer at MATLAB, ARK Info Solutions, as the keynote speaker. He explained the simulation of inductor design in an accessible manner and shared practical approaches. The workshop was coordinated by Dr. Sandeep Bhongade, along with Professors Deepti Rai and Ankit Singh. Additionally, the Department Head Dr. Arun Parakh and faculty members Prof. MPS Chawla, Prof. S L Sisodia, and Prof. R. S. Mandloi were present to support the event.

Poster Exhibition 23'

The Technical Poster Exhibition held on 27th Oct 2023 under Microprocessor lab at EED lobby was a resounding success, providing a platform for students to showcase their technical prowess and fostering a culture of innovation under the theme **"Advancement in Electrical Engineering & Modern technology"**. The event highlighted the impressive work done by 3rd year students done under the guidance of Prof. Arun Parakh and Mrs. Rinki Keshwani and encouraged collaboration and knowledge sharing within the academic community. A panel of judges, comprised of faculty members and industry experts, evaluated the projects based on criteria such as innovation, technical merit and presentation quality, contributing to the overall academic vibrancy of the institution.

Poster Exhibition 24'

On December 11, 2024, the Electrical Engineering Department of SGSITS hosted a Poster Exhibition exclusively for 3rd-year students. With enthusiastic participation and expert guidance, the event highlighted the creativity and technical acumen of the students, reflecting the department's commitment to academic excellence. External judges were Prof. Lalit Purohit & Prof. Manish Panchal. Internal judges were Dr. Shailendra Sharma and Dr. Sandeep Bhongade. Faculty coordinators were Dr. Arun Parakh, Prof. R S Mandloi, Prof. Rinki Rajpal and Prof. Purva Trivedi.

Council of Electrical Engineers Events

CEE's Annual General Meet 23'

The 2023 Annual General Meeting of the Council of Electrical Engineers (CEE) began with a warm welcome, offering a platform to reflect on past achievements, discuss the department's current state, and chart a future course. A dynamic video showcased the department's innovative spirit, featuring glimpses of past events, and the upcoming annual calendar was presented. In the end, 4th-year position holders transferred their positions to 3rd year and got promoted to the Advisory board along with a secretary position, concluding with heartfelt sentiments reinforcing the commitment to excellence in producing engineers poised for real-world impact.

Teacher's Day Celebration 23'

The Electrical Engineering Department came together to celebrate Teachers Day on 5th September 2023 with a warm welcome for all attendees, especially to the dedicated teachers. The event served as a heartfelt tribute to the educators who have guided students over the years. The celebration featured a variety of activities, including dance, singing, stand-up comedy, and to add some fun there were games conducted by students and played by teachers, all supported by inspirational words from the teachers. Students were fortunate to receive motivating speeches from the dean and the teachers, who shared their experiences and offered guidance for bright future. The celebration concluded with a special cake cutting to mark the occasion, ending up strengthening the bond between teachers and students.

Breaking the Barrier : A Session on Mental Wellbeing

On October 11, 2023, the Council of Electrical Engineers organized a mental well-being session for first-year students, themed "Breaking the Barriers." Led by psychologist Shruti Seth, the session included interactive exercises to break stagnant thinking and encourage broader perspectives. Group activities identified leaders, and a game underscored the risks of misinterpretation. The session concluded with a powerful blindfolded "sheep and shepherds" activity, emphasizing unity and reliance on peers. The session inspired students to embrace diversity, trust, and collaborate for a more open-minded and empathetic future.

CEE Recruitment Orientation

The Orientation session on club recruitment and prospects in electrical engineering conducted by the Council of Electrical Engineers (CEE) began with a warm welcome. A dynamic video showcased the department's innovative spirit, featuring glimpses of past events, The video provided an overview of the department's mission and its goals, emphasizing the importance of teamwork, innovation, and professional growth.R.S. Mandloi Sir, a respected faculty member and advisor to the council, took the stage to introduce the various responsibilities of council members Senior club members shared their personal experiences and the perks of being a part of the Council of Electrical Engineers.

CEE Sparktacular 24'

The recent techno-cultural fest also know as Aayam held at our college on February 22nd and 23rd, 2024, was a thrilling event that left an indelible mark on our department. Spearheaded by the Electrical Engineering Club, one of the festival's highlights was Sparktacular, a series of captivating games themed around electrical concepts. From the adrenaline-pumping challenges of Turbulent Rows and Neon Strike to the brain-teasing puzzles of Clue Quest and the precision required in the Buzz Wire, every game tested both intellect and skill. The atmosphere was electrifying as students not only showcased their technical prowess but also bonded over shared enthusiasm for innovation. Apart from the games aspect, freshers who involved, also had good opportunities to interact and network with seniors to gain and absorb their valuable wisdom. Sparktacular also included showcasing the departmental students latest innovations and projects to higher authorities. The projects varied from "eye number detector" , "automatic obstacle avoider car to anti sleep alarm for drivers. Sparktacular not only enriched our understanding of electrical engineering principles but also fostered a sense of mutual trust and fun among participants. It was an unforgettable experience that emphasized the vibrancy and talent within our department, making the fest an overall success and a cherished memory for everyone involved.

Teachers Day Celebration 24'

On 5th September 2024, the Council of Electrical Engineering (CEE) at SGSITS, Indore, organized a heartfelt celebration to honor the teachers and mentors who have played a pivotal role in shaping the future of students. The event, held in the lecture hall, was a beautiful tribute to the invaluable contributions of educators in the field of Electrical Engineering. The faculty members were also presented with tokens of appreciation as plants were distributed to teachers by the students of CEE, symbolizing the respect and admiration students have for their teachers. In addition, the event highlighted the achievements and milestones of the Electrical Engineering department, reflecting the collective efforts of both teachers and students. The event also acted as a platform for a number of tributes the students had for the teachers, involving dance performances, heartwhelming recitations and some fun activities for the teachers to share a laugh. The atmosphere was filled with a sense of gratitude, camaraderie, and respect as everyone acknowledged the commitment and passion of the teachers. The event concluded with a vote of thanks from the CEE Joint Secretary, who expressed sincere appreciation for the dedication shown by the faculty members in nurturing the minds of future engineers.

EED Induction Program 24'

The Department of Electrical Engineering at SGSITS, Indore, successfully organized the EED Induction Program on September 12th and 13th, 2024. The program aimed at welcoming the new batch of students into the world of Electrical Engineering and was a grand success, filled with engaging and thought-provoking sessions.The students were inspired by talks from distinguished alumni – Ms. Anshika Singh, Mr. Ashish Jain, and Mr. Sankalp Ved – who shared their success stories and provided guidance to the budding engineers. A significant highlight of the program was the introduction to the **COUNCIL OF ELECTRICAL ENGINEERING (CEE)** wherein the students dived into the work of CEE and their events. CEE members carried out several fun activities ,which ignited a sense of attachment in students for their departments club & helped them to know their peers following with smiles all around .The program concluded with a heartfelt vote of thanks by the Head of the Department, Prof. Arun Parakh, who expressed his appreciation for the students' enthusiasm and commitment. The program was expertly coordinated by Ms. Mayuri Sunhare.

IGNISIA 25'

The Department of Electrical Engineering came alive with colors, rhythms, and celebration during AAYAM 2025 – IGNISIA, a vibrant cultural fest organized by the Council of Electrical Engineers (CEE). Held on 28th February and 1st March 2025, the two-day festival transformed the department into a buzzing hub of talent, joy, and youthful energy.

IGNISIA stood true to its name – igniting a spark of creativity, passion, and togetherness among students.

The fest featured an exciting blend of exhilarating games, fun competitions, and interactive sessions. From electrifying games like 'The Electric Nerve', 'Syncblitz', 'Illumination Station' to pulse pounding thrilling game like 'Tactix-4' – IGNISIA offered a perfect platform for students to showcase their flair beyond academics.

The Electrical Engineering Department courtyard turned into a canvas of celebration. IGNISIA wasn't just a fest—it was a celebration of expression, connection, and joy. With boundless enthusiasm and spirited participation, AAYAAM 25'proved to be a memorable chapter in the cultural journey of SGSITS.

Teacher's Achievements



❖ Ms. Ritu Saxena , Dr H.K. Verma and Ms. Rinki Rajpal , **"Selective Harmonic elimination of an inverter output using using Enhanced salp swarm-sine cosine Algorithm"**. International Journal of Research & Analytical Reviews. Published in IJRAR, Aug-2023.


❖ Ms. Khushboo Nagar and Mr M. P. S. Chawla, **"A survey on various approaches for support vector machine based engineering applications"**, International Journal of Emerging Science & Engineering. Published in IJESE, Oct-2023.



❖ Dr. Sandeep Bhongade, Prof. Ankit Singh, and Prof. R. S. Mandloi, **"Optimizing Load Frequency Control of Micro-grid using Black Widow Optimization Algorithm"**, in IJSMARTGRID, 2024.

❖ Prof. Anju Dwivedi, **"Stroke Disease Detection and Prediction using Decision Tree and Deep Neural Network", in** IJRAR, June 2024.

❖ Dr. Sandeep Bhongade, **"Intelligent Demand Side Management for Residential Consumer Comprise of Electric Vehicle, Energy Storage System and Renewable Energy Source"** in SPRINGER, May 2024.

❖ Dr. S L Sisodiya, published a book **"Sparks of change: Revolutionizing transportation with EVs"** in August, 2024.

❖ Dr. Arun Parakh, language reviewed **"Microcontrollers and Applications"** which is the first hindi translated book in microcontroller field by AICTE in September,2024.

❖ Prof. M P S Chawla, SCIE'JOURNAL' **"SPringer nature Microsystem Technologies - An Accurate Parameters Identification of Solar PV Models"**, October 2024.

❖ A. Singh and Dr. S. Bhongade, **"Enhancing Electric Vehicle Charging Stations with Renewable Energy Integration through Advanced Control Algorithms",** 2024 IEEE Third International Conference on Power Electronics, Intelligent Control and Energy Systems (ICPEICES), Delhi, India.

❖ Prof. R S Mandloi, **"A Performance Based Comparative Analysis of Isolated DC to DC Converters"**, published by IJRAR in September, 2024.

❖ Prof. Vineet Mishra, was **certified** for his successful participation in the Training of Trainers (ToT) Program on **"Grid Connected Rooftop Solar System"**, organised by National Power Training Institute in October, 2024.

❖ Prof. Mayuri Sunhare, sucessfully completed the **TechBridge-Skill Development for Semiconductor Excellence program**. This initiative was launched by MSDE under the SANKALP Scheme and implemented by the National Skill Development Corporation on 11 December, 2024.

❖ Prof. Deepti Rai, Assistant Professor in Electrical Engineering, has co-authored several impactful papers in 2025, including "Lightweight Machine Learning for Anomaly Detection: A TinyML Perspective" in IJRAR (June 2025), "Predictive Battery Health Monitoring Using Random Forest Models and IoT Integration" in IRJET (June 2025), and "Intelligent Home Security with Advancing Automation and Protection" in IRJET (August 2025).

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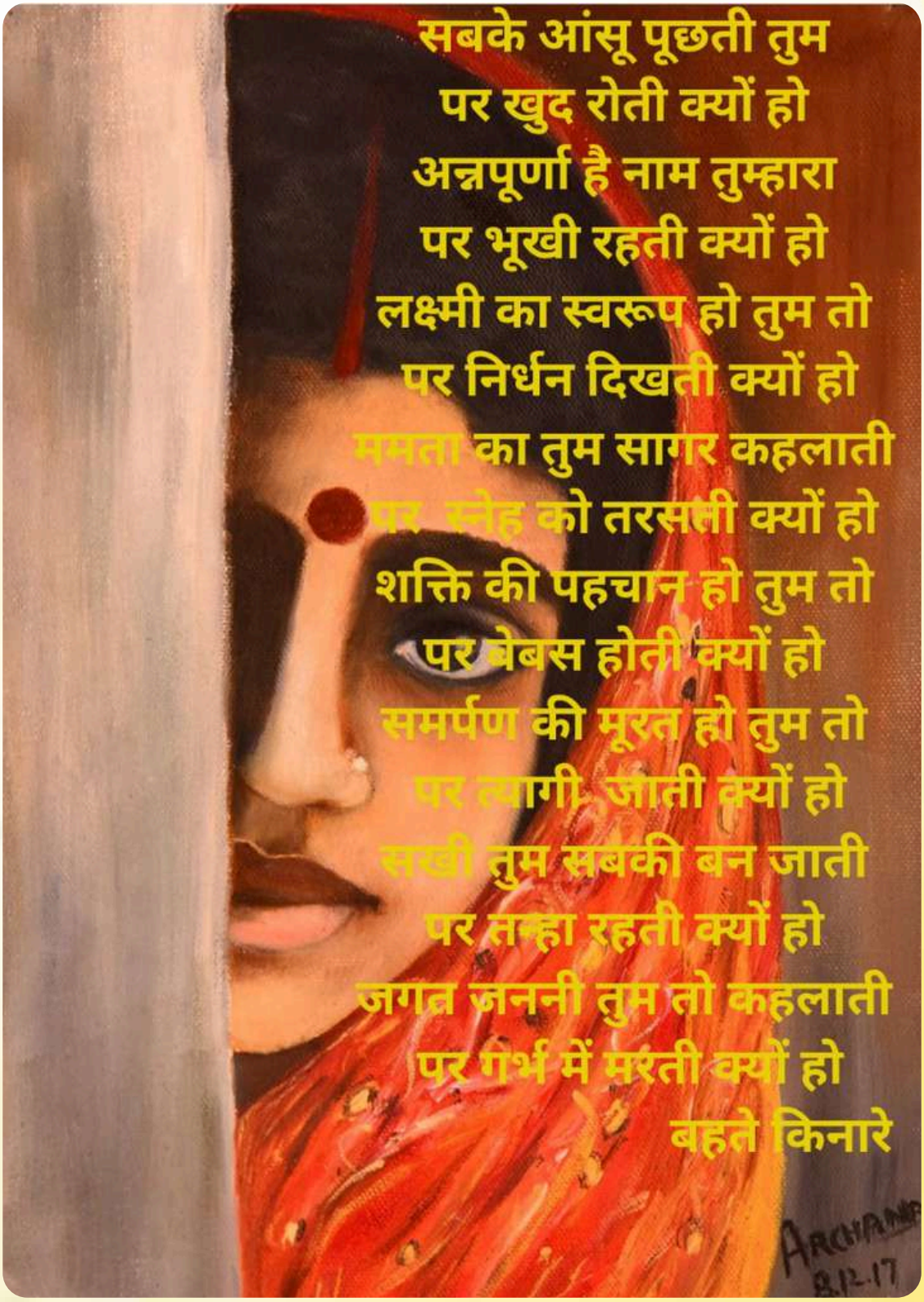
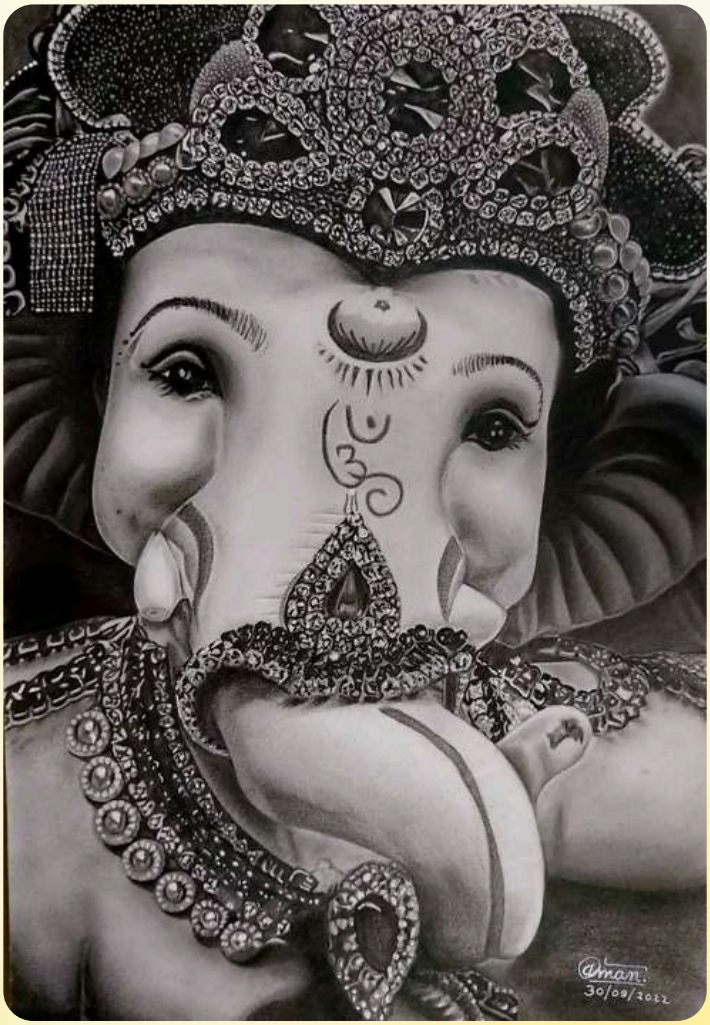
STUDENTS' CORNER



YASH PRATAP SINGH
IV Year, EED

The artist breathes life into silence, crafting visions from imagination.
Each creation is a window to their soul, raw, bold, and unapologetically true.
Their hands shape the invisible, turning thoughts into tangible beauty.
With colors, lines, and textures, they challenge how we see the world.
In their art, we find pieces of ourselves we didn't know were missing.

RAJSWI MANJRI
IV Year, EED



An artist sees what others overlook — beauty in chaos, meaning in the mundane.

Their brush speaks louder than words, painting emotions into form and color.

With every stroke, they tell stories untold, capturing moments that escape time.

Through their work, they invite us to feel, to question, and to dream.

The canvas becomes a mirror, reflecting both the world and the soul behind it.

AMAN AGARWAL
IV Year, EED

STUDENTS' ACHIEVEMENTS

E-Yantra

Our SGSITS team made it to the top 10 in the E-Yantra Innovation Challenge 2023-24 with their groundbreaking project, called Navi Guide. Navi Guide is a revolutionary mobility cane designed to empower visually impaired individuals with advanced navigation capabilities. Utilizing a **unique 8D sound driver**, it offers precise feedback on obstacles, transforming how users perceive and interact with their surroundings.

Throughout the competition phase, they were fortunate to receive the valuable mentorship of Mrs. Deepa Avudiappan and Mr. Archit Jain. The team consisted of **Paarth Parikh and Rajswi Manjri** of Electrical Engineering Department who collaborated to develop Navi Guide. After showcasing their project in Pune, they were invited in **IIT Bombay** being selected in national finals. The project not only shows innovation but also strives to make a tangible difference in people's lives, especially those of visually impaired.

Dhoomketu

After the successful landing of Chandrayaan-3 on the lunar surface and the exploration of the southern pole of the moon, ISRO solicited innovative ideas and designs of rovers from the youth of India for future missions through the conduct of a space robotics challenge. To provide the opportunity for the students in the area of space robotics, "**ISRO Robotics Challenge-URSC 2024 (IRoC-U 2024)**" was organised with a tagline of "Let's build a space robot".

SGSITS laid its hopes upon Team Dhoomketu comprising 10 sophomores from distinct branches out of which 2 students were: **Admya Jaiswal and Shree Veer Patel** from Electrical Engineering Department.

The team was selected for quals round. Out of 1400 teams , 148 teams made it to that feat and one of them happened to be ours.

[Prototype prepared by the Team Dhoomketu]

Sports Achievements

Ayush Kushwaha, a National-Level Judge certified by the Karate Association of India (July 2024), has brought immense pride to SGSITS and the Electrical Engineering Department by winning the gold medal in the RGPV State Boxing Championship. As a National-Qualified Boxer and Mentor, he trained 35+ first-year students, with 9 of them winning Gold Medals and earning selection for the "All India University Boxing Championship" (December 18, 2024, Bhatinda ,Punjab) . Alongwith contributions in World's largest self defence workshop as a trainer certified by World book of records, London.

AICTE IdeaLab Tech Fest (07/03/2024)

A prestigious AICTE IdeaLab Tech Fest was held at the AICTE Headquarters in Delhi , bringing together Idealabs from various colleges across the country. Our college's Idealab actively participated in the event, showcasing three innovative projects:

1. Groot– A smart device designed to assist in growing plants at home using sensors to monitor environmental conditions and display plant requirements on a dedicated website.
2. Thin Layer Chromatography with UV Rays– A project utilizing ultraviolet light to enhance the chromatography process for better chemical analysis.
3. Automated Planter – A tractor-mounted planter capable of planting seven plants simultaneously in a row, improving efficiency in large-scale farming.

The tech fest served as a platform for knowledge exchange, collaboration, and the presentation of cutting-edge ideas from different Idealabs, fostering innovation and technological advancement.Additionally, three students from the Electrical Department, **Admya Jaiswal , Ronak Chopde and Shree Veer Patel**, also took part in the event.

Achievement for poetry

*__Sneha Amrodiya__, student from the Electrical Department, has been awarded the “First Prize” with a Certificate of Achievement for her outstanding performance at *The New Wave* in Indore, in recognition of her exceptional creativity and talent in poetry, shayari, and music.


Certificate of Achievement

First Prize

This is to certify that

Sneha Amrodiya

is awarded First Prize for an exceptional performance at The New Wave in Indore!

Your creativity and talent have set the bar high, making the future of poetry, shayari, and music shine even brighter. Keep leading, keep creating, and stay amazing!

Date: 25/10/2024

Nipun Merchant
Co-founder and COO,
Arré

THE NEW WAVE

Head of Department,

E-baja Hyderabad (2024).

"Students of the Electrical Department, **Aalim Khan, Urvija Pandey, and Khushi Kabra,** participated in the *E-BAJA 2024* event held at BVRIT, Hyderabad, from 6th March 2024 to 9th March 2024."

Placement record 25'

RELIANCE:
ADITYA JAIN
PRANAY PATILKAR
RISHABH TIWARI
SIDDHARTH KHERONIYA

ADANI :
ABHIGYAN PUROHIT
ADARSH GUPTA
ADITYA GUPTA
ANUJ PARDHI
ARPAN KUMAR MARSKOLE
GAURAV PANDEY
MOHIT KORI
PLAKSHA LAHAVASIA
PRANAY PATILKAR
PRANJAL SAVLA
RAJESHWAR THAKRE

HAVELLS:
ADITYA JAIN

QUANTIPHI:
DHRUVA AGRAWAL
UDIT SURVE

DELOITTE:
SAKSHI JAIN
SUSHRUT SHAH
TANAY RAIKHERE

INFOSYS:
ISHA CHAPLOD
ISHIKA AGARWAL
DEVANSH TANWAR
MAYANK SINGH
VISHAL SAHU

LARSEN & TOUBRO:
ANSHIKA SHUKLA
ISHA CHAPLOD
PLAKSHA LAHAVASIA
RAJESHWAR THAKRE
ANIRUDDH SHARMA
SAKSHAM DARIYA

SHAKTI PUMPS:
ANIRUDDH SHARMA
SIDDHARTH KHERONIYA
SAKSHAM DARIYA

APPALTO:
ADITYA JAIN
SACHIN GAREWAL
NIDHI VYAS

GENPACT:
AMRITA PANDEY
SHIV PRAKASH

Gate 2024 Qualifiers

GATE ROLL NO.	NAME OF STUDENT
EE24S83014035	ANIRUDDH SHARMA
EE24S83014022	PIYUSH MANDRE
EE24S83014034	DHRUVA AGRAWAL
EE24S83014178	UMAKANT
EE24S83014107	SUSHIL BHARTOON
EE24S83014184	SACHIN GAREWAL
EE24S83014335	ABHIGYAN PUROHIT
EE24S83014338	VARDHAN RATHORE
EE24S83015013	ANSHIKA SHUKLA
EE24S85038063	RISHABH TIWARI
EE24S83014247	ADITYA JAIN
EE24S83015068	ANSHULA PANDEY
EE24S83014248	ANUJ JAIN

Electrical Engineering Department
Pass-Out Batch 2025

About CEE

Council of Electrical Engineers provides opportunities to Electrical engineering students of the department to gain broader insight into the engineering profession by organizing professional meetings with research and engineering establishments, arranging industrial field trips and expert lectures on diverse topics, motivating them to be a part of the society to perform welfare activities.

Know Our Team

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Faculty Coordinator

Prof. R.S. Mandloi
Associate Professor
Faculty Coordinator

Prof. Deepti Rai
Assistant Professor
Faculty Coordinator

Nagendra Jatav
4th Year
Joint Secretary

Shaily Jain
4th Year
Joint Secretary

Rajswi Manjri
4th Year
Editor-in-Chief

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Admya Jaiswal, 4th year
Abhishek Sharma, 4th year

EVENT COORDINATOR:
Harshit Patel, 4th year

SPONSORSHIP HEAD:
Tanay Maheshwari, 4th year
Sujal Jain, 4th year

CREATIVE HEAD:
Sourabh Sankhla, 4th year
Kush Goyner, 4th year

EXECUTIVE BODY MEMBERS:
Yash Pratap Singh, Ayush Kumar Pandey, Bhavesh Borasi, Janish Patle, Geetansh Waldurkar

3rd Year Coordinators

Aashish Tripathi
Abhishek Chouhan
Abhishek Tomar
Aishani Vyas
Ansh Shrivastava
Dev Datt Dat
Jatin Gaur
Mudit Wankhede
Priyanshu Adme
Reshendra Pratap Singh
Samiksha Wase
Sameeksha Verma
Shikhar Kumar Saranker
Urvija Pandey
Ayush kushwah

Valuable Contributions :

Dr. H K Verma (Professor,EED), Dr. Sandeep Bhongade (HOD, EED),
Prof. R.S. Mandloi (Mentor, CEE), Prof. Deepti Rai (Professor Incharge, Publications)
Rajswi Manjri (Editor-In-Chief), Ansh Shrivastava, Jatin Gaur, Dev Datt Dat, Shikhar Kumar Saranker

Council of Electrical Engineers

Department of Electrical Engineering


DEPARTMENT OF
ELECTRICAL ENGINEERING