



DEPARTMENT OF ELECTRICAL ENGINEERING
UNIVERSITY COLLEGE OF ENGINEERING (A)
OSMANIA UNIVERSITY

TECHSONANCE 2025

Electrifying your thoughts...

25th NATIONAL LEVEL TECHNICAL SYMPOSIUM
(2024-25)



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TECHSONNANCE 2025

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BROCHURE LAUNCH

The brochure of the National Level Technical Symposium **TECHSONANCE 2025** was launched on 20th Feb, 2025 by honorable **Principal Prof. P. Chandra Sekhar**, University College of Engineering, Osmania University, providing a comprehensive overview of the Symposium, highlighting the array of events, workshops, and activities designed to ignite innovation and foster collaboration among budding engineers from across the nation.



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BROCHURE



25th National Level Technical Symposium

TECHSONANCE 2K25

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21st & 22nd MARCH 2025



Department of Electrical Engineering
University College of Engineering (A)
Osmania University
Hyderabad - 500007
Telangana, INDIA



Last Year Sponsors:



A/C Details:
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A/C No: 62024033992
Branch : SBI OU
IFSC Code: SBIN0020071

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SILVER JUBILEE CELEBRATIONS



TECHSONANCE - 2025

Techsonance is an esteemed national-level technical symposium hosted by the Department of Electrical Engineering, Osmania University College of Engineering, Osmania University. It serves as an engineering platform for budding engineers to showcase their innovative ideas and connect with like-minded individuals, offering a unique opportunity to gain exposure to emerging technologies and contemporary industry practices. The symposium's comprehensive program is thoughtfully curated to challenge participants' technical awareness and enhance their understanding of the complexities of electrical engineering. Techsonance features intense competitions, insightful lectures, a variety of informative workshops, and much more.

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DEPARTMENT OF ELECTRICAL ENGINEERING

The Department of Electrical Engineering, Osmania University, Hyderabad, India, is known for its high quality education and research. It offers undergraduate, postgraduate, and doctoral programs with experienced faculty, modern facilities, and strong industry connections. Through research, industry collaborations, and student activities, the department equips students with the skills needed for success in Electrical Engineering. With a legacy of 75 years of excellence in electrical engineering, the department has made significant contributions to innovation, academia, and societal progress. From its humble beginnings to its recognition as a center of excellence, it has played a pivotal role in shaping the future of electrical engineering students. As we progress forward, the department remains committed to technological advancements, academic excellence, and fostering a more inclusive and innovative world.



Prof. Y. Narasimhan Building

Donated by Shri Gopal T.K. Krishna (Distinguished Alumnus BE EE 1968 Batch)
Founder & CEO of Krishna Engineering Consultants, Inc., Iowa, USA

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EVENTS

PITCH PERFECT

"Pitch Perfect: An event where you can transform innovative ideas into compelling BUSINESS PITCHES!"

PATHRABHARA

"Pathrabhara: An event where you can present research papers on INNOVATIVE TOPICS!"

E-ENIGMA

"E-Enigma: A technical quiz that challenges your knowledge, problem-solving skills, AND QUICK THINKING!"

INVENTEX

"Inventex: A project expo where you can present technical projects, highlighting CREATIVITY AND RESEARCH!"

BRAIN BUSTERS

"Brain Busters: A non-technical quiz event that tests YOUR GENERAL KNOWLEDGE, logic, and quick thinking!"

PIRATES QUEST

"Pirates Quest: A treasure hunt event where participants decode clues, solve puzzles, and navigate challenges TO UNCOVER THE HIDDEN TREASURE!"

TECHSHALARTS

"TechShalArts: A mime quest where you can express ideas and technical themes through the art of SILENT ACTING, CREATIVITY AND EXPRESSIONS!"



**DEPARTMENT OF ELECTRICAL ENGINEERING
UNIVERSITY COLLEGE OF ENGINEERING (A)
OSMANIA UNIVERSITY**

CORDIALLY INVITES YOU TO THE

Inaugural Ceremony
OF

TECHSONANCE 2025

**Silver Jubilee Celebrations
On 21st March 2025 at 10:00AM**

Chief Guest

Shri Karnati Varun Reddy, I.A.S.
Chairman & Managing Director
TGNPDCL, Warangal

Guest of Honour

Shri Gopal T. K. Krishna
Founder President
Krishna Engineering Consultants
Iowa State, USA

Presided by

Prof. Gaddam Naresh Reddy
Registrar
Osmania University

Student Convener

**Mr. U. Jashwanth
Ms. K. Dakshinya**

Faculty Co-Coordinator

Dr. B. Sirisha
Associate Professor

Faculty Coordinator

Dr. N. Susheela
Associate Professor

Head, EED

Prof. E. Vidya sagar

Vice Principal

Prof. B. Mangu

Principal

Prof. P. Chandra Sekhar

V E N U E :

E-Classroom, Department of Electrical Engineering, UCE, OU



FELICITATION OF
SHRI. KARNATI VARUN REDDY
IAS, CMD, TGNPDCL

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Our Distinguished Alumni



Shri. Gopal T. K. Krishna



B. Ashok Kumar (CGM NPDCL Rtd)



K. Thirumal Rao (CGM NPDCL)



**DEPARTMENT OF ELECTRICAL ENGINEERING
UNIVERSITY COLLEGE OF ENGINEERING (A)
OSMANIA UNIVERSITY
CORDIALLY INVITES YOU TO THE**

Valedictory Ceremony

OF

TECHSONANCE 2025

Silver Jubilee Celebrations

On 22nd March 2025 at 4:00PM

Chief Guest

Shri Musharraf Ali Faruqui, I.A.S.
Chairman & Managing Director
TGSPDCL, Hyderabad

Guest of Honour

Shri Gopal T. K. Krishna
Founder President Krishna Engineering Consultants
Iowa State, USA

Presided by

Prof. Kumar Molugaram
Vice-chancellor, OU

Student Convener

**Mr. U. Jashwanth
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Associate Professor

Head, EED

Prof. E. Vidya sagar

Vice Principal

Prof. B. Mangu

Principal

Prof. P. Chandra Sekhar

VENUE :

E-Classroom, Department of Electrical Engineering, UCE, OU

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UNIVERSITY COLLEGE OF ENGINEERING (A), OSMANIA UNIVERSITY

The University College of Engineering (UCE) has the distinction of being the oldest and the biggest among the Engineering Colleges of the State of Telangana. Established in the year 1929, eleven years after the formation of Osmania University, it was the 6th Engineering College to be established in the whole of British India. The College moved to its present permanent building in the year 1947. Today it is the biggest among the campus colleges of Osmania University. The Golden Jubilee of the College was celebrated in 1979, the Diamond Jubilee in 1989 and the Platinum Jubilee in 2004.

The College was made autonomous in 1994. The College offers four-year engineering degree courses leading to the award of Bachelor of Engineering (B.E.) in Civil Engineering, Mechanical Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering, Computer Science Engineering, Biomedical Engineering and Mining Engineering. The College also offers courses leading to Master of Computer Applications, Master of Science by Research and also Ph.D., in the various branches of Engineering. Part-time courses are offered both at undergraduate and postgraduate levels.

As of today, there is an yearly intake of 320 undergraduate students (fulltime) and 140 (part-time) students and 290 postgraduate students (full-time and part-time). There are 109 teaching staff members, including 24 professors.

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DEPARTMENT OF ELECTRICAL ENGINEERING

The Department of Electrical Engineering started in 1949 to offer B.E. in Electrical Engineering. Presently, the department is offering B.E. in Electrical & Electronics Engineering. Continuing Education for employed diploma holders was started in 1963 through the four-year Part-Time Degree programme in Electrical Engineering; The Post-graduate programme in Electrical Machines was started in 1966. Later, in the year 1987, B.E. in Instrumentation was offered. With a view to provide diversity and industrial orientation to the Post Graduate programme, currently the department is offering M.E. programmes in Industrial Drives & Control (IDC) and Power Systems (PS), which were introduced in 1971. Department also offers part time M.E. programmes in IDC and PS for the working academicians and engineers. A new M.E. programme in Power Electronic Systems (PES) is introduced in the year 2008. The Part-Time Ph.D. programme in Electrical Engineering is being offered since 1972.

The department has nineteen regular faculty members who are highly experienced and actively involved in research activities. The department is also equipped with state-of-art equipment and well qualified technical staff. Apart from regular academic activities, the department faculty is involved in various professional activities like publishing their research findings in prestigious conferences and journals, delivering expert lectures at various conferences and important seminars, chairing technical sessions at conferences abroad and reviewing of papers of good quality journals. The department is accredited by NBA for 5 years from year 2013 for B.E.(EEE) programme and for 3 years from 2014 for M.E. (PS) programme.

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PLATINUM JUBILEE CELEBRATIONS

Throughout its 75-year history, the department has made significant contributions to academia, industry, and society as a whole. Its research endeavors have pushed the boundaries of knowledge in the field, leading to breakthroughs that have transformed industries and improved countless lives. From pioneering new technologies to addressing pressing societal challenges, the department has consistently demonstrated its commitment to excellence and social responsibility.

As we look to the future, the department remains dedicated to shaping a brighter, more inclusive world through its work. With rapid advancements in technology, the opportunities and challenges facing electrical engineering are greater than ever before.

As we celebrate this milestone, let us not only reflect on the past achievements of the Electrical Department but also look ahead with optimism and determination. Together, we can continue to build on the legacy of excellence that has defined Osmania University's Electrical Department for the past 75 years and beyond.



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TECHSONANCE

TECHSONANCE is the annual national level technical symposium organized by Dept. of Electrical Engineering, University College of Engineering, Osmania University. It is a celebration of Electrical Engineering field which emphasizes on the contributions made by engineering studies. It consists of plethora of technical and fun filled events in which thousands of students from engineering colleges across the country participate and showcase their knowledge. It is a two day event and the events includes workshops, paper presentations, technical, non-technical quizzes, project expo, hardware hackathon and many more spot events. From the year 2019, the IEEE OUCE PES Student Chapter has collaborated with the department in organizing the fest. The chief sponsors for the event include the TGNPDCL, TGSPDCL, IBI, TGTRANSCO, NTPC, POWERGRID and many more.

Since its inception, TECHSONANCE has been hosting a huge array of innovating events. From research papers to intellectual designing events, innovative workshops to inspiring guest lectures. This time, TECHSONANCE 2025 has also geared up with some objectives, providing a platform for enthusiastic engineers to help them reach the pinnacle in the realm of ELECTRICAL TECHNOLOGY.

So the team of TECHSONANCE 2025 warmly welcomes you and extends its support in unveiling the thoughts and bringing out the ideas of all young and innovative minds across the country.

"The best play is enlightened when performed on the best stage"

Here's the best stage to enlighten the creativity. A good anchor to land the talents on the right shore...

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Shri Karnati Varun Reddy, IAS **Chairman & Managing Director** **TGNPDCL, Hyderabad**

I am happy to know that the Department of Electrical Engineering, University College of Engineering (A), Osmania University, Hyderabad is organizing a National Level Technical Symposium on 21st & 22nd March, 2025. I thank the entire department for inviting me as the chief guest for this prestigious event.

I take great pride to come here and talk to the younger generation present over here who are working towards the future of our Energy department. You and I can relate more because we are working towards the same field. It makes me so happy to see so many students take active part in this technical fest and being enthusiastic throughout about this. And I would be always happy to give my time for the students of college.

To see such young generation with high caliber participate in national events like these , makes me proud of our students . I further urge more students to create innovations and make the university's name soar high in the sky.

Finally I congratulate the faculty, organizers, students and all the key personnel in organizing the TECHSONANCE 2025 and wish them to make it a success.

TECHSONANCE 2025

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Shri Musharraf Ali Faruqui, IAS
Chairman & Managing Director
TGSPDCL, Hyderabad

I am delighted to learn that the Department of Electrical Engineering at University College of Engineering (A), Osmania University, Hyderabad is organizing a National Level Technical Symposium on the 21st & 22nd of March, 2025. I am honored to be invited as the chief guest for this prestigious event and extend my heartfelt thanks to the entire department.

It gives me immense pride to be here and speak to the younger generation who are diligently working towards the future of our energy sector. Our shared dedication to this field creates a special connection between us. Witnessing the enthusiasm and active participation of so many students in this technical fest is truly inspiring. I am always eager to dedicate my time to support and encourage the students of this esteemed college.

Seeing such talented young individuals participate in national events like this fills me with pride for our students. I strongly encourage even more students to innovate and elevate the university's reputation to greater heights.

In conclusion, I congratulate the faculty, organizers, students, and all the key personnel involved in organizing TECHSONANCE 2025, and I wish them tremendous success.

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Shri Gopal T K Krishna
President (Krishna Engineering Consultants)
Iowa State, USA

I am happy to know that the Department of Electrical Engineering, University College of Engineering (A), Osmania University, Hyderabad is organizing a National Level Technical Symposium on 21st & 22nd March, 2025. I thank the entire department for inviting me as the chief guest for this prestigious event.

I am the alumnus of the department and it gives me immense pleasure to visit my very own college and talk to the youngsters and interact with them. It feels as if I'm one of them again. I'm very happy to come and address the students and guide them in a good way.

To see such young generation with high caliber participate in national events like these , makes me proud of our students . I further urge more students to create innovations and make the university's name soar high in the sky.

Finally I congratulate the faculty, organizers, students and all the key personnel in organizing the TECHSONANCE 2025 and wish them to make it a success.

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Prof. Kumar Molugaram
Vice - Chancellor
Osmania University

ON THE OCCASION OF 25th NATIONAL LEVEL TECHNICAL SYMPOSIUM "TECHSONANCE 2025"

I am delighted to note that Electrical Engineering Department, University College of Engineering, Osmania University is organizing TECHSONANCE 2025, a National Level Technical Symposium which aims at providing the students across the country a platform for showcasing innovative ideas and skills. I applaud the works done by the students of EEE and also thank the faculty for inviting me.

This kind of opportunity provides a way to keep up with the latest trends and developments in the field. These Technical Symposiums not only bring fame to the respective departments but they also enhance the reputation of our University. Our reach broadens and new gates will open for our students.

I compliment the Faculty, Staff and Students of the Department of Electrical Engineering for making this Symposium a successful one and congratulate all the participants.

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Prof. Gaddam Naresh Reddy

Registrar

**University College of Engineering(A)
Osmania University**

It gives me immense pleasure to learn that the students of the Department of Electrical Engineering, University College of Engineering (Autonomous), Osmania University are organizing a National Level Technical Symposium - TECHSONANCE 2025.

In the present era of rapid technological advancements and global competition, academic excellence must go hand in hand with innovation, creativity, and professional competence. Platforms such as technical symposia play a vital role in nurturing analytical thinking, teamwork, leadership qualities, and practical exposure among students. Activities like paper presentations, project and prototype exhibitions, technical quizzes, workshops, and expert talks provide an excellent opportunity for students to update their knowledge and showcase their technical skills.

I appreciate the efforts and initiative taken by the Faculty, Research Scholars, Staff, and Students of the Department of Electrical Engineering in organizing this event. Such student-centric technical activities foster a vibrant academic environment and contribute significantly to the overall development of budding engineers. I am confident that TECHSONANCE 2025 will be a great success and serve as a valuable learning experience for all participants. I wish the organizing team very success in their endeavour.

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Prof. P. Chandra Sekhar
Principal
University College of Engineering (A)
Osmania University

It gives me a great pleasure to know that the students of Department of Electrical Engineering, University College of Engineering (Autonomous), Osmania University are organizing a National Level Technical Symposium TECHSONANCE 2025.

Dear students, it is the age of globalization and cut-throat competition. Innovation and creativity are the keys to success. Apart from being adept in the field of studies, one needs to have the holistic development of personality. Varied knowledge enhancing activities like project presentations, prototype and model presentations, quizzes, seminars, workshops and expert lectures will keep the students abreast with the latest in the field and bring out the innate talents of students.

I compliment the Faculty, Research Scholars, Staff and Students of the Department of Electrical Engineering for their initiative in this regard. I highly value such student centric events such as Workshop on Electric Vehicles, Paper Presentations and display of Live Projects on the campus, which promote healthy interaction and proactive academic culture in the University.

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Prof. E. Vidyasagar

**Head of the Department
Electrical Engineering
UCE (A), OU**

I am extremely pleased to note that the Department of Electrical Engineering, University College of Engineering (A), Osmania University is organizing a National Level Technical Symposium and bringing out a souvenir in connection with this prestigious event. Such initiatives reflect the department's strong commitment towards academic excellence, innovation, and overall student development.

The Technical Symposium provides a valuable platform for students from various parts of the country to demonstrate their technical knowledge, present innovative ideas, and engage in healthy academic competition. It also offers opportunities to interact with experienced academicians, industry professionals, and researchers, thereby broadening their professional outlook. Events of this nature play a crucial role in keeping students abreast of the latest technological trends, research advancements, and emerging challenges in the field of Electrical Engineering.

I deeply appreciate the sincere efforts, dedication, and teamwork of the students and faculty members who have taken the initiative to organize this symposium successfully. Their enthusiasm and commitment are truly commendable. I am confident that TECHSONANCE 2025 will serve as an inspiring and enriching experience for all participants. I wish the entire team a grand success in all their endeavors.

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Dr. N. Susheela
Assoc. Professor

Coordinator of Techsonance 2025
University College of Engineering (A)
Osmania University

As a coordinator, it gives me immense pleasure and pride to see TECHSONANCE 2025 being organized with great enthusiasm and a strong focus on innovation.

This event creates a meaningful platform for young minds to express their creativity, develop technical competence, and expand their professional networks. Events such as paper presentations and live projects help enhance students' competitive skills, while expert talks and interactions with professionals inspire them to strive for excellence with dedication and passion.

Such initiatives not only strengthen technical knowledge but also foster teamwork, leadership qualities, and confidence among students, preparing them to meet future professional challenges.

As faculty members, we always encourage students to actively participate in organizing and managing such skill-oriented and enriching events, as they play a vital role in holistic student development.

I extend my best wishes to the entire TECHSONANCE 2025 team and wish them every success in making the event a grand and memorable one.

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Dr. B. Sirisha

Assoc. Professor

**Co-Coordinator of Techsonance 2025
University College of Engineering (A)
Osmania University**

It is a matter of great pride and satisfaction for me, as a co-coordinator, to be associated with TECHSONANCE 2025, which is being conducted with remarkable enthusiasm and innovative spirit.

The event creates an excellent opportunity for students to bring out their creative potential while also strengthening their professional connections. Technical activities such as paper presentations and live projects contribute significantly to developing their competitive and practical skills. Sessions by experts and interactions with professionals motivate students to work with greater focus, dedication, and passion.

As faculty members, we continuously support and motivate students to organize and participate in such skill-oriented and knowledge-enriching events. I wish the entire TECHSONANCE 2025 team every success and a memorable event

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Vice Chancellor
Osmania University

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Head of the Department
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Southern Power

Distribution Company of Telangana Limited

(A Government of Telangana Undertaking)

దక్షిణ తెలంగాణ విద్యుత్ పంపిణీ సంస్థ (తెలంగాణ రాష్ట్ర ప్రభుత్వ రంగ సంస్థ)



With a vision to fulfill the expectations of the Government, the Telangana Southern Power Distribution Company Limited, which came into being on 2nd June 2014, with an objective of electricity to the people at an affordable price.

With its headquarters at Hyderabad, the TSSPDCL encompasses an area of 15 districts viz., Mahabubnagar, Narayanpet, Nalgonda, Yadadri Bhuvanagiri, Suryapet, Siddipet, Medchal, Wanaparthy, Nagarkurnool, Jogulamba Gadwal, SangaReddy, Medak, Hyderabad, Vikarabad and Rangareddy Catering to the power requirements of 9.75 million consumers.

TSSPDCL has a vast infrastructure facility in its operating area with 1,660 Nos. of 33/11 KV substations 3,134 Nos. of power transformers, 1,243 Nos. of 33 KV feeders 7,478 Nos. of 11 KV feeders and around 4,49,216 Nos. of distribution transformers of various capacities.



TG-NPDCL

Telangana Northern Power
Distribution Company Limited

Powering the North

The Telangana Northern Power Distribution Company Limited (TG-NPDCL) is a Government of Telangana Undertaking established on 2nd June 2014 to cater to the **electricity** distribution needs of the Northern region of Telangana. With its headquarters in Warangal, TG-NPDCL is dedicated to providing reliable and affordable electricity to the districts of Nizamabad, Karimnagar, Khammam, Warangal, Mancherial, Peddapalli, Sircilla & Komaram Bheem Asifabad.

Committed to empowering the Northern region of Telangana with quality and affordable power for sustainable development.

KEY HIGHLIGHTS



Operating Area:
7 Districts



>1,000

33/11 KV Substations



>1,600

Power Transformers



>680

33 KV Feeder Lines



Number of Consumers:

10.2 Million+





Telangana 
Tourism *It's all in it.*


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Discover the Magic of *Telangana*

Telangana, the youngest state of India, is a land of rich cultural heritage and diverse attractions. From the iconic Charminar in Hyderabad to the ancient Ramappa Temple, a UNESCO World Heritage Site, Telangana boasts stunning landscapes, majestic forts, pristine waterfalls, fascinating wildlife sanctuaries, and vibrant festivals that offer something for every traveler.

Hyderabad - City of Pearls & Nizams

Charminar, Golconda Fort, Hussain Sagar Lake, Chowmahalla Palace

Warangal - Kakatiya Heritage Hub

Ramappa Temple, Warangal Fort, Thousand Pillar Temple, Pakhal Lake

Spiritual & Pilgrimage Sites

Yadagirigutta, Bhadrachalam Temple, Jogulamba Temple, Alampur Jogulamba Temple

Spiritual & Pilgrimage Sites

Yadagirigutta, Bhadrachalam Temple, Jogulamba Temple, Alampur Jogulamba Temple

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Powering Heights

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Transformation capacity of 493,863 MVA

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)

Corp. Office : 'Saudamini', Plot No. - 2, Sector-29, Gurugram, Haryana - 122001

Regd. Office : B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110016

CIN : L40101DL1989GOI038121





TRANSMISSION CORPORATION OF TELANGANA LIMITED

VIDYUT SOUDHA : HYDERABAD-500 082 : TELANGANA STATE : INDIA



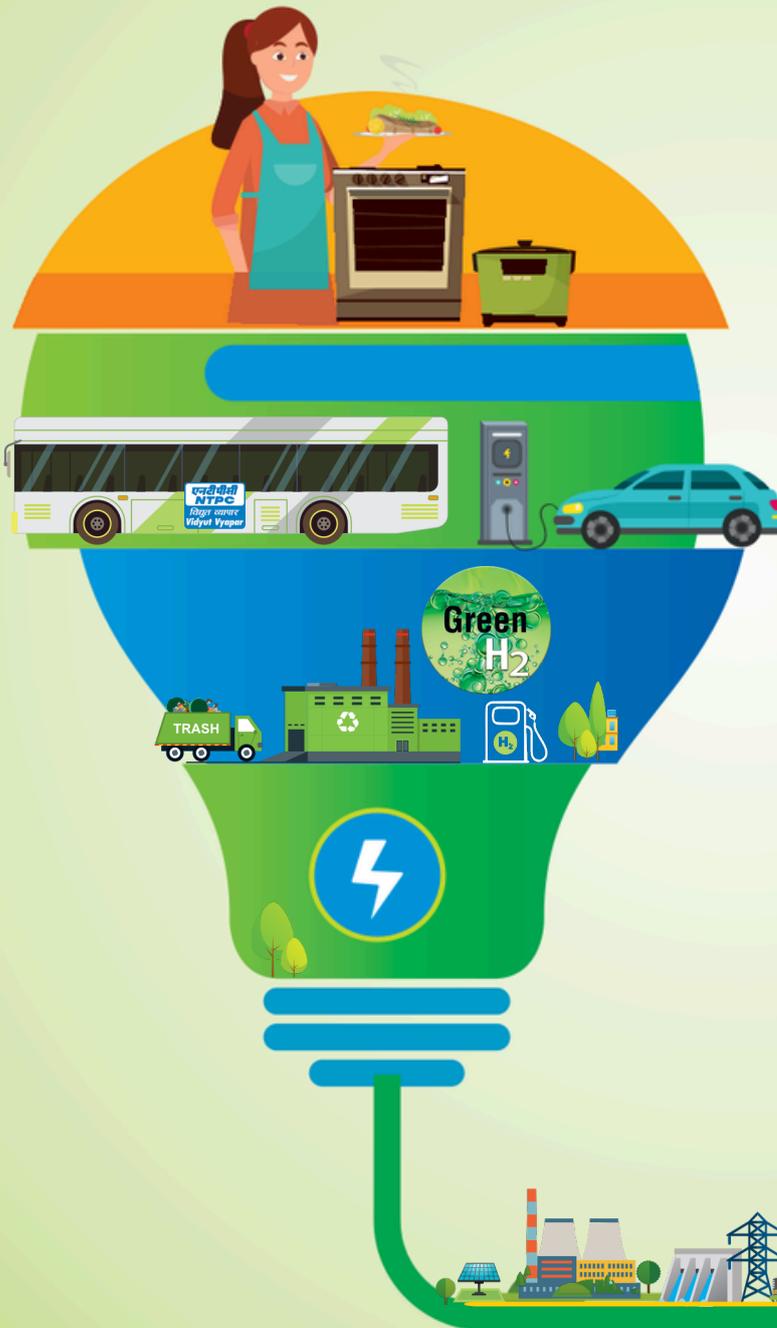
Vision:

Plan, Construct and Maintain the Transmission Network in line with growing Demand and increasing Generation using World Class Technology to ensure highest Availability, lowest Operational Costs, Reliability & Safety

Mission:

Achieve Recognition & Respect as one of the best Transmission Utilities in the World, setting up the bench-marks in every parameter of operation for others to follow.

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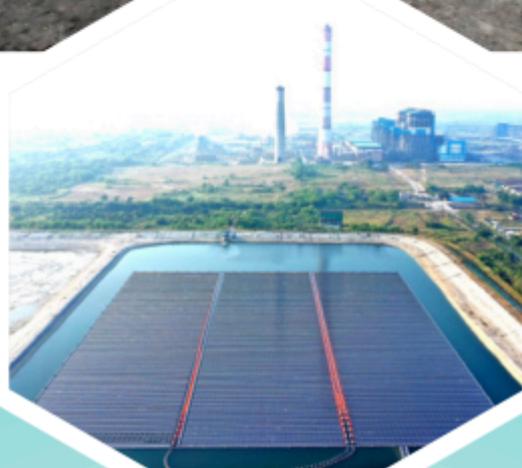
70 MT of Coal Production, 1200 MW Thermal Power,
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Thermal Power Plant



Floating Solar



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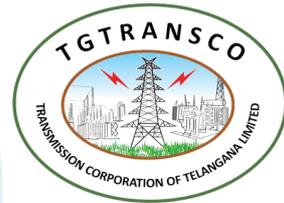




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PRESENTS

Workshop on

POWER SYSTEM SCENARIO IN INDIA

Powering Tomorrow: Scenarios for a Sustainable Grid

By Expert Faculty

Prof. E. Vidyasagar
EED, UCEOU

CONTACT :

Jaswanth: 9908058118

Nikhitha: 9618625266



20/03/2025



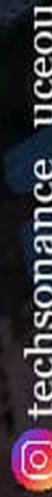
10:00 am-1:00 pm



E-classroom EED, UCEOU



REGISTRATION FEE : ₹149/-



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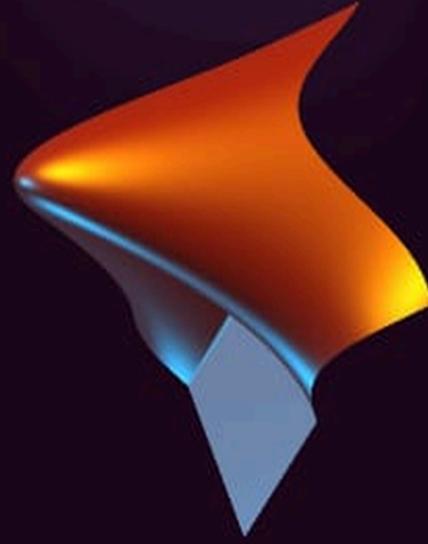
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PRESENTS



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By Expert Faculty

Dr. P. Lokender Reddy
EED, UCEOU



19/03/2025



10:00 am-1:00 pm



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25th NATIONAL TECHNICAL SYMPOSIUM TECHSONANCE 2025

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Inventex



Pirates Quest



Pitch Perfect

E-Enigma



EVENTS



Techshalarts

Pathrabhara



Brain Busters



Electric Frenzy

21st and 22nd March 2025

Electrical Engineering Dept, UCEOU

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Contact:

Jashwanth : 9908058118

Nikhitha : 9618625266

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PATHRABHARA:

The first of the two staple events in the fest, Pathrabhara is a paper presentation competition which always receives immense number of registrations. Students from various institutions sign up to give a presentations on the topic of their choice. This event provides a platform where students can express their orating skills and technical knowledge in the topic of their interest.

INVENTEX:

“Ideas can be easy. Execution is everything. It takes a team to win”
Inventex is the live project display open to all teams willing to setup and display their creativity. Participants demonstrate their technical skills and practical experience by bringing to life their innovative ideas in the form of a live project. It is the perfect platform to showcase the creativity and effort put into making a live model to the general public. A panel of judges critiques all the projects on the display in this competition.

ELECTRIC FRENZY:

Electric Frenzy is a crossword and circuit solving competition. Students must recognize and in some cases even solve various electrical electronics circuits of devices used in their daily lives. Students are presented with the problems that required combined knowledge of the characteristics of circuits as well as knowledge of how components work and fit into circuits.

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E-ENIGMA:

One of the main events of our fest, E-Enigma is technical quiz competition. Participants are tested in core subjects related to E.E.E background. This quiz consists of MCQ's but is not for the faint hearted and should definitely not be taken lightly. Only those with true passion and know how in the electrical field can succeed in this competition.

TECHSHALARTS:

TechShalArts is not just an event, it's a celebration of the symbiotic relationship between technology and the arts. So, whether you're a seasoned artist or a tech enthusiast exploring your creative side, join us in reimagining the familiar through the lens of imagination and expression. Let's bridge the gap between bytes and brushes at TechShalArts!

PITCH PERFECT:

This is a business idea pitching event where aspiring entrepreneurs present their innovative concepts to a panel of experts. Participants are given a limited time to pitch their ideas and highlight their unique value propositions, market potential, and competitive advantage. These events provide a platform for students to showcase their creativity, passion, and business acumen.

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PIRATE'S QUEST:

'Pirate's Quest' is a treasure hunt event in which participants compete to find hidden treasures by solving clues and completing challenges. The event is held in university premises. This is a non-technical event and is designed to promote teamwork, problem-solving skills and adventure.

BRAIN BUSTERS:

Brain busters is a non-technical quiz competition where in participants are pitted against each other in teams. This fun and involving event engages general knowledge and logical thinking skills and also tests the general knowledge of the participants. The outgoing atmosphere of this event is perfect in helping people socialize with one another.

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PATHRABHARA

(PAPER PRESENTATION)

Preventing Current Transformer Saturation Using Adjustable Switched Resistor Demagnetization Method

M. Manjunath, V.Praneeth, B.Shiva Sai Krishna,

University College of Engineering, OU.

In certain conditions, the flux within the core of current transformers (CTs) increases, potentially leading to core saturation. This saturation can cause significant issues in power system protection, including relay malfunction and inaccurate current measurements. One method to prevent CT core saturation is the fixed switched resistor demagnetization technique, which has been explored in earlier studies. However, due to its dependence on CT parameters and inefficiency in cases of severe saturation, its application has been limited in practical protection schemes.

This paper introduces an improved approach to enhance the fixed switched resistor demagnetization method. Instead of a fixed resistor, the proposed method incorporates an adjustable resistor along with an auxiliary transformer, allowing greater flexibility and adaptability during fault conditions. The control mechanism is based on the second derivative of the CT's secondary current, enabling rapid detection and effective mitigation of core saturation. To validate its effectiveness, simulations were conducted using MATLAB under various fault scenarios. The results demonstrate that this method successfully prevents CT saturation during short-circuit faults. Key advantages of the proposed approach include its independence from CT parameters and its high efficiency even in severe core saturation conditions, making it suitable for modern power system protection applications.

Adaptive Protection Scheme for Grid Connected / Islanded Mode AC Microgrids

N.Sai Kumar, M.Siddhartha, B.Madhu, E.Paul Thomas

University College of Engineering, OU.

Micro-grids comprise Distributed Energy Resources (DER's) with low voltage distribution networks having controllable loads. These systems can operate at different voltage levels and are connected to the micro-grid, operating either in grid-connected mode or islanding mode through a coordinated control strategy. DER's provide clear environmental and economic benefits for both society and consumer utilities by improving efficiency and reliability. However, their development poses significant technical challenges, particularly in the protection of both the main grid and the micro-grid.

The protection scheme must be capable of responding to faults occurring in both the main grid and the micro-grid. If a fault occurs on the main grid, the response must rapidly isolate the DER's from the main grid to ensure the safety of the system and connected loads. If the fault occurs within the micro-grid, the protection scheme must properly coordinate and isolate the least priority possible part of the grid to eliminate the fault while maintaining system stability. In order to deal with the bidirectional energy flow caused by the large number of micro sources, new and adaptive protection schemes are required. The proposed algorithm is tested in a micro-grid connected power system environment and is proven to be effective for the detection, discrimination, and location of faults.

SPEED CONTROL OF BRUSHLESS DC MOTOR USING PID AND FUZZY-PID CONTROLLER

G. Harshit, V. Mahesh, M. Vishal, Vaibhav. S

University College of Engineering, OU.

Green technology is a critical focus worldwide, with electricity serving as a key clean energy source that promotes its adoption. Electric motors are fundamental in converting electrical power into mechanical energy, making them essential for many applications. Brushless Direct Current (BLDC) motors are increasingly popular due to their low maintenance requirements, compact design, and suitability for diverse industries. To optimize their performance, particularly in speed and torque control, an effective drive system is necessary. This paper presents the design of a BLDC motor control system using MATLAB/SIMULINK software, incorporating the Proportional Integral Derivative (PID) algorithm to enhance speed control. The study evaluates the performance of BLDC motors with and without controllers, comparing conventional controllers like PI and PID with a fuzzy based controller. The results demonstrate that while fuzzy controllers provide effective speed response, conventional controllers, especially PID, perform better under varying load conditions. The study confirms the superiority of PID in achieving satisfactory control performance compared to other control methods.

Additionally, the proposed control strategy ensures improved system stability and reduced steady-state error, which are critical for real-time motor applications. The simulation results further highlight the robustness and reliability of the PID-controlled BLDC motor under dynamic operating conditions, reinforcing its suitability for practical implementation.

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Performance Evaluation of Cascaded H- Bridge Multilevel Inverters: Influence of Modulation Index on Voltage and Current THD

Veena Chevula, Shireesha Bollam, Venkateswarlu Tadikamalla

University College of Engineering, OU.

This research explores the implementation of 5-level, 7-level, and 9-level multilevel inverters using Cascaded H-Bridge (CHB) topology with Pulse Width Modulation (PWM) techniques. The objective is to minimize harmonic distortion and improve power quality in medium- and high-power applications. Multilevel inverters are essential for renewable energy systems and industrial applications due to their ability to produce near-sinusoidal output waveforms.

The study analyzes the impact of different PWM strategies—Phase Disposition (PD), Phase Opposition Disposition (POD), and Alternate Phase Opposition Disposition (APOD)—on the Total Harmonic Distortion (THD) at various modulation indices. MATLAB/Simulink simulations demonstrate that increasing the inverter levels significantly reduces THD. The results indicate that the POD PWM technique provides the best performance in terms of harmonic minimization.

A comparative analysis of voltage and current THD for different loads confirms that higher levels and optimized modulation indices improve inverter efficiency and waveform quality. Additionally, the simulation results validate the stability and reliability of the proposed inverter configuration under different operating conditions, making it suitable for practical power system applications.

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Electrifying your thoughts...

iL²C Resonant Full Bridge DC-DC Power Converter For Electric Vehicle Charging Systems

B. Prem Chand, Md. Javeed Pasha, Ch. Sreenath, K. Mukesh Chandra

University College of Engineering, OU.

This paper presents an interleaved inductor-inductor-capacitor (iL²C) full-bridge resonant DC-DC converter for efficient electric vehicle (EV) charging. By paralleling two L²C converters on the primary side with a common rectifier on the secondary side, the design reduces current ripples, improves load sharing, and minimizes conduction losses. A hybrid control strategy combining Variable Frequency and Phase Shift Modulation (VFPSM) enhances regulation and soft switching.

PSO-Based MPPT Solar Power Optimization with FCNN-Based Voltage and Delta Prediction

Chanda Joshith, Darshanala Nikhitha, Athapu Laxmi Jhansi

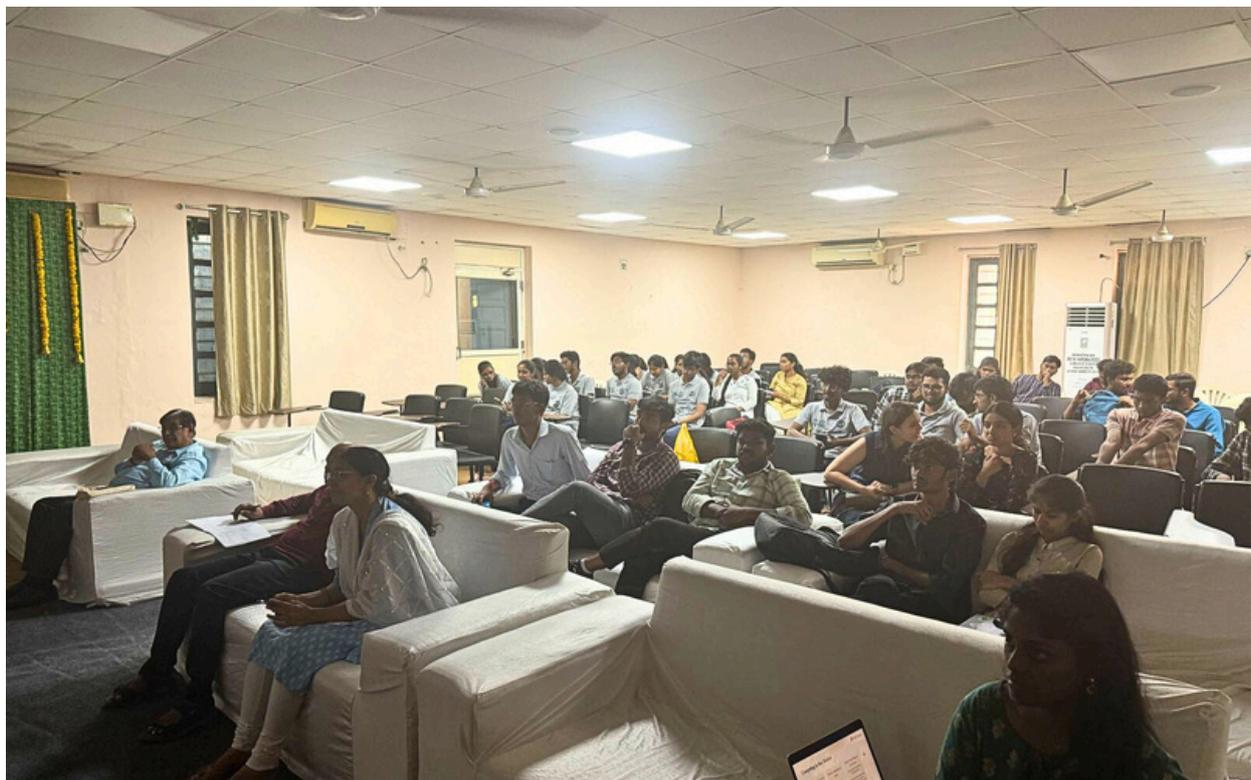
University College of Engineering, OU.

Solar photovoltaic (PV) systems face significant challenges in maximizing power extraction under partial shading and dynamic environmental conditions, where conventional Maximum Power Point Tracking (MPPT) algorithms often fail to identify the global maximum. This research proposes a Particle Swarm Optimization (PSO)-based MPPT algorithm to enhance power extraction efficiency, reduce convergence time, and minimize oscillations. The algorithm is validated through simulations and hardware implementation, demonstrating superior performance in tracking the global maximum under partial shading. The results confirm improved stability and reliability of the PV system across varying irradiation and temperature conditions.

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PATHRABHARA



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INVENTEX

(PROJECT EXPO)

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Bus Safety: Intelligent Footboard Detection System

Footboard travel, where passengers stand on the footboard of moving buses, is a highly dangerous practice that has caused numerous accidents, injuries, and fatalities. This problem mainly occurs due to overcrowding and inadequate safety enforcement in public transportation. Standing near the footboard increases the risk of falling, collision with pedestrians, and contact with nearby obstacles, making it essential to implement an effective safety mechanism.

The proposed pedestrian detection device enhances passenger safety by identifying pedestrians and obstructions near the footboard area of the bus in real time. Infrared (IR) sensors are placed near the footboard to continuously monitor the surroundings. When an obstacle is detected, the sensors send signals to the control unit for immediate processing.

An Arduino microcontroller acts as the central control unit of the system. It processes the input from the IR sensors and controls alerts and safety mechanisms based on predefined conditions. A Bluetooth module is interfaced with the Arduino to enable wireless monitoring and communication, allowing real-time status updates to be sent to external devices.

The motor driver receives control signals from the Arduino and regulates the movement of the bus motor accordingly. If a pedestrian or obstacle is detected near the footboard, the motor driver slows down or stops the vehicle to ensure safe operation. The bus motor then responds to these signals, helping prevent unsafe boarding and reducing the risk of accidents.

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Multi-purpose Research Vehicle

The exploration of extraterrestrial environments presents unique challenges and valuable opportunities for scientific discovery. Extreme conditions, unpredictable terrain, and communication delays make human exploration difficult, highlighting the importance of robotic systems such as multi-purpose research rovers in planetary exploration. These rovers enable long-duration missions while reducing risks and operational costs.

This project focuses on the design and development of a versatile planetary rover capable of performing a wide range of scientific investigations on extraterrestrial surfaces. The rover features an advanced mobility system to navigate diverse terrains and is equipped with scientific instruments for analyzing soil, rocks, and atmospheric conditions. It also includes sample collection and in-site analysis capabilities to support detailed scientific studies and geological assessment.

A robust communication system enables reliable data transmission to remote monitoring stations, while autonomous functionalities such as obstacle detection and path planning ensure efficient operation with minimal human intervention. Overall, the proposed rover provides a flexible and effective platform for planetary exploration, contributing to future space missions and expanding scientific understanding of distant worlds.

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INVENTEX



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MAIN MODEL

This live model represents a smart electrical infrastructure system that demonstrates the complete process of power generation, transmission, and distribution, integrated with a modern residential complex. The model highlights how electricity generated from different power sources is efficiently and safely delivered to end users while supporting organized urban development.

Power Generation

The model includes three major power generation systems: hydroelectric, thermal, and nuclear power plants.

In the hydroelectric power plant, water stored in a reservoir flows through a penstock and rotates a turbine. The turbine is coupled to a generator, converting mechanical energy into electrical energy.

In the thermal power plant, fuel is used to heat water in a boiler to produce high-pressure steam. This steam rotates a turbine connected to an alternator, generating electricity through thermal energy conversion.

In the nuclear power plant, heat is produced through a controlled nuclear fission reaction inside the reactor. The heat converts water into steam, which rotates the turbine connected to a generator. Safety systems such as control rods ensure controlled and safe operation.

Voltage Transformation

The electrical power generated at the power stations is initially at low voltage. It is then supplied to step-up transformers, where the voltage is increased to reduce transmission losses during long-distance power transfer.

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Electrifying your thoughts...

MAIN MODEL

Power Transmission

High-voltage electricity is transmitted through transmission lines from the power plants to urban areas. This stage represents efficient bulk power transfer through the interconnected power grid.

Substation and Voltage Regulation

At the receiving end, electricity reaches a substation, where step-down transformers reduce the voltage to suitable levels for distribution. Protection equipment such as circuit breakers and relays ensure system safety and reliability.

Distribution to Residential Complex

The regulated power is distributed to a planned residential complex, including homes, street lighting, and commercial areas. The model demonstrates organized city planning, reliable power supply, and efficient electrical distribution to support modern infrastructure growth.

Conclusion

This model effectively demonstrates the integration of multiple power generation sources into a unified electrical grid. It emphasizes efficient energy conversion, safe transmission, and smart distribution, showcasing the role of electrical engineering in sustainable and organized urban development

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MAIN MODEL



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E-ENIGMA



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ELECTRIC FRENZY



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BRAIN BUSTERS



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PITCH PERFECT



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Donated by:

Shri T. Jagath Reddy

Director, Transmission

TSTRANSCO, Hyderabad

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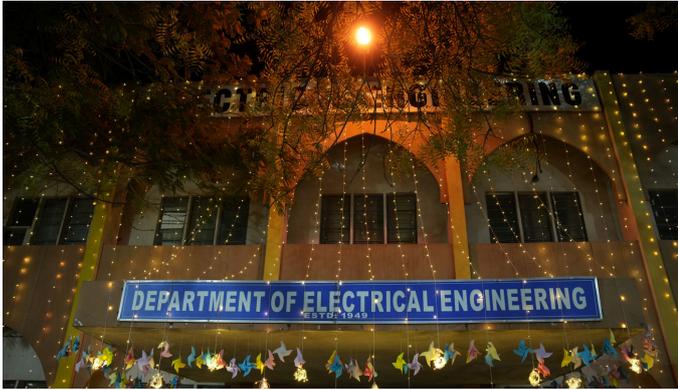
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CULTURALS



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The Department of Electrical Engineering, University College of Engineering (A), Osmania University was established in the year 1949. The Department is committed to provide quality technical education, research and development services to meet the needs of industry, business, service sector and society at large. It believes in core values of equality, efficiency, excellence and quality.

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