

UNIVERSITY OF ENGINEERING & MANAGEMENT

DEPARTMENT OF ELECTRICAL ENGINEERING

Electricity
&
Energy

ELECTRA



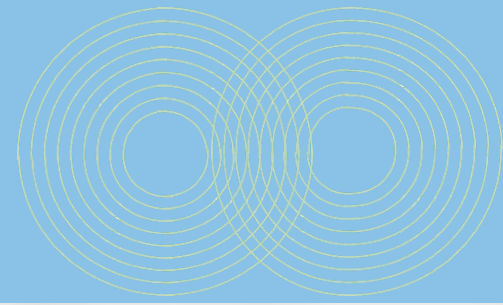
UNIVERSITY OF ENGINEERING & MANAGEMENT
GOOD EDUCATION, GOOD JOBS



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Electrical Department

Vision

To promote specialized knowledge in the field of Electrical Engineering along with interdisciplinary awareness and to develop a framework to support the communicative and ethical needs of industry and society at global level.

Mission

The mission of the Department is to provide high quality and effective education in the field of Electrical Engineering.

Editorial Team

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Dr. Shubhajit Pal
Associate Prof.
Electrical Department

Co-Editor



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Assistant Prof.
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Electrical
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Sushant Pathak
B.Tech. 2nd Year
Electrical
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Message from

Vice Chancellor's Office

As we welcome first edition of magazine, I am filled with pride in the remarkable progress and achievements of our University community. This period has been a time of growth, innovation, and collaboration as we continue to strive for excellence in every aspect of our academic, research, and social endeavors. Our students continue to demonstrate their resilience, creativity, and dedication, excelling in both academic and extracurricular pursuits. Their efforts are a testament to the strength of our learning environment and the support they receive from our esteemed faculty and staff.

In addition, the strides we have made in research and community engagement further solidify our commitment to creating impactful knowledge and fostering partnerships that make a difference in society. From groundbreaking research projects to new initiatives aimed at sustainable development, we are shaping a future that is not only academically sound but also socially responsible. As we look forward to the coming months, I encourage all members of our community to remain steadfast in their pursuit of knowledge, integrity, and collaboration.

Together, we can continue to build on our successes and overcome any challenges that lie ahead. Thank you for your continued dedication, and I look forward to the exciting opportunities the next quarter will bring. I encourage you to seek out partnerships that bring fresh perspectives and drive meaningful breakthroughs



Your curiosity, passion, and determination are what define the legacy of our department. Embrace every learning opportunity, for challenges are the stepping stones to success. The articles, case studies, and personal experiences shared within this newsletter highlight the remarkable achievements and dedication of our community.

Your unwavering commitment continues to strengthen our electrical community, making it a quality of leadership, innovation, and excellence. In today's rapidly evolving electric environment, our department stands as a leader in shaping future electrician and engineer.

Prof. Dr. Biswajoy Chatterjee

Vice-Chancellor,
University of Engineering & Management
(UEM), Jaipur

Message from

Registrar's Office

It gives me great pleasure to connect with you through this edition of magazine. Over the past few months, we have witnessed incredible growth, strengthened collaborations, and ongoing progress across our University.

As Registrar, I have had the privilege of overseeing and supporting many of the developments in our administrative processes that ensure the smooth functioning of our academic programs. We have introduced several key initiatives aimed at improving student services and enhancing the overall academic experience.

From more efficient registration procedures to providing increased support for student records and academic advising, our goal is to make your journey through the university seamless and enriching. Our commitment to transparency, efficiency, and continuous improvement in our administrative operation remains strong.

We are also focusing on adapting our systems to better respond to the evolving needs of our students and faculty in a fast-changing world. As we move forward, I encourage you to make advantage of the resources we have put in place and provide feedback on how we can continue to serve you better.

I am confident that, with our collective efforts, we will continue to enhance the dedication to our shared goals. I look forward to the exciting developments the next magazine will bring.



Faculty members have published impactful research in esteemed journals, significantly advancing electrical practices and theories. Moreover, the department has fostered strong collaborations with industry leaders, providing internships, guest lectures, and live projects that enrich our students' practical exposure and deepen their understanding of the practical learning landscape.

Additionally, our students have led various leadership and social initiatives, earning accolades for their efforts to create positive change both within the University and in the broader community. We encourage all students and faculty to share their stories and insights for the newsletter, celebrating our collective achievements.

Prof. (Dr.) Pradeep Kumar Sharma
Registrar & Provost
University of Engineering & Management
(UEM) Jaipur



I am delighted to announce the release of our latest magazine edition! This is more than just a collection of articles; it is a testament to the vibrant community we have built together. Inside, you will find stories that capture the essence of our institution—from the innovative research initiatives to the remarkable achievements of our students and faculty. Each feature highlights the unique talents and perspectives that make our community truly special. As you dive into the magazine, I encourage you to reflect on the stories and consider how each of us contributes to the narrative of our institution. Your voice and involvement are what make our community thrive. Thank you for your continued support and engagement. I hope you enjoy this edition as much as we enjoyed creating it.

Prof. (Dr) Mukesh Yadav

Associate Dean- Academics and Foreign Relations



It is a pleasure to extend my warm greetings to all the students, faculty, and staff of the Electrical Engineering department. The field of Electrical Engineering is ever-evolving, playing a pivotal role in technological advancements and innovation. I am proud to see the department embracing cutting-edge research, fostering industry collaborations, and promoting academic excellence. Our students continue to demonstrate exceptional talent through their participation in projects, competitions, and internships, reflecting the department's commitment to hands-on learning and innovation. The faculty's dedication to nurturing this talent and engaging in impactful research is also truly commendable. As we move forward, let us remain focused on building a dynamic learning environment that encourages creativity, critical thinking, and problem-solving. The future holds immense possibilities, and together, we can contribute significantly to technological progress and societal development. I wish the Electrical Engineering department continued success in all its endeavors. Let us continue to innovate, inspire, and lead with excellence.

Prof.(Dr.) G.Uma Devi

Associate Dean of Engineering
UEM Jaipur

Message from

HOD's Office

As the Head of the Electrical department it is both a privilege and a pleasure to contribute to this edition of our magazine. These accomplishments are a testament to the dedication of our students, faculty, and staff, who consistently strive for excellence in both academics and extracurricular activities. The field of subject is rapidly evolving, and we are proud to be at the forefront of this change.

Our curriculum is continuously updated to reflect the latest trends and technological advancements, ensuring our students are equipped with the knowledge and skills they need to thrive in an ever-changing world. Moreover, our faculty members are actively engaged in cutting-edge research, contributing significantly to the broader academic and professional community.

This magazine serves as a reflection of our collective efforts and a platform to showcase the creativity, talent, and hard work of our students. I would like to extend my heartfelt thanks to all those who have contributed to this issue, particularly the editorial team for their tireless efforts in bringing this publication to life.

As we look to the future, we are excited about continuing to push boundaries and foster a dynamic learning environment. We remain committed to supporting your growth and success, whether you are embarking on your journey with us or are an esteemed alumnus.



I encourage all of our students and faculty to continue pushing boundaries, pursuing knowledge, and making a positive impact on society. Together, we will continue to achieve great things. I am particularly proud of the dedication and resilience shown by our students and faculty alike.

Our students have engaged in thought provoking research, participated in various competitions, and contributed to impactful projects that bridge theory and practice. Their enthusiasm and innovative approaches continue to inspire us.

Their hard work and dedication have resulted in a magazine that not only reflects the academic and creative spirit of our department but also serves as a source of inspiration for all.

Wishing you all continued success and creativity.

Dr. Ankit Kumar Sharma
Head of the department
Electrical Engineering

About The Department

The **Electrical Engineering (EE)** Department focuses on educating and training students in the core areas of Electrical Engineering, emphasizing a strong foundation in both theory and practical application. It prepares students to address the rapidly evolving technological landscape and tackle challenges in various fields like power systems, PCB designing, smart grid, robotics, transmission lines, renewable energy, power electronics and control systems.

Introduction:

1. The Department of Electrical Engineering was established in the year 2011. Our department has excellent Hi-tech Lab facilities, and the Research-Centre is used by the students with innovative ideas.
2. The Department has always been on a high growth path and has experienced and dedicated faculty with a strong commitment to engineering education. The department is offering both UG, and PG programmes.

Research and Development:

The department often has dedicated labs and research centers where faculty and students collaborate on cutting-edge projects. Key research areas include renewable energy systems, smart grid technology, power electronics, and robotics. This focus on R&D helps students stay at the forefront of technological advancements and innovate within their fields.

Industry Collaboration and Internships:

To ensure industry relevance, the department frequently partners with companies for internships, guest lectures, and live projects. These collaborations help students gain real-world experience, engage with professionals, and develop skills that are valuable in their careers.

Facilities and Labs:

The department houses state-of-the-art laboratories for power systems, electronics, control systems, microprocessors, and renewable energy systems. These labs provide students with hands-on experience and are essential for learning design, testing, and troubleshooting of electrical and electronic systems.



Vision

To promote specialized knowledge in the field of Electrical Engineering along with interdisciplinary awareness and to develop a framework to support the communicative and ethical needs of industry and society at global level.

Mission

The mission of the Department is to provide high quality and effective education in the field of electrical engineering.

Values

We value the following attributes of our teaching, research, and service activities: pursuit of excellence highest standards of professional and scholarly ethics innovative solutions to electrical engineering problems collegial, creative, and supportive learning environment enrichment by diversity service to the profession of electrical engineering service to humanity.

Professional Development and Workshops:

To enhance the career-readiness of students, the department frequently organizes:

Technical Workshops:

Hands-on workshops on PCB design, MATLAB, AutoCAD, LabVIEW, and other industry-relevant software.

Career Development Sessions:

Focused on resume building, interview preparation, and professional communication.

Guest Lectures and Seminars:

Industry experts and alumni share insights on current trends, new technologies, and real-world applications in fields like energy systems, automation, and electronics design.

Career Prospects and Pathways:

Graduates of the EE department have diverse career paths, with opportunities in areas like:

- Power and Energy Sector:**

Roles in power generation, renewable energy, smart grid management, and energy conservation.

- Electronics Design and Manufacturing:**
Positions in circuit design, embedded systems, consumer electronics, and telecommunications.

- Automation and Robotics:**

Careers in designing and programming robotic systems, industrial automation, and process control.

- Research and Development:**

Many graduates go into R&D in specialized fields such as biomedical engineering, AI applications, and advanced electronics.

- Higher Education and Entrepreneurship:**

The department encourages further academic pursuits and provides support for students interested in starting their own ventures, particularly in technology and green innovation sectors.

Innovation Labs and Centers of Excellence:

The EE department often has dedicated innovation labs and Centers of Excellence (CoEs) to support interdisciplinary research and innovation, such as:

- Power Electronics and Renewable Energy Lab:**

Provides students with resources to work on renewable energy systems, power converters, and hybrid energy systems.

- Internet of Things (IoT) Lab:**

A space for projects that incorporate IoT in smart homes, healthcare, and industrial automation, using sensor networks, embedded systems, and data analytics.

- AI and Robotics Lab:**

Dedicated to research in robotics, AI-driven automation, and the integration of machine learning with control systems.



Faculty Details :

Dr. Ankit Kumar Sharma

- Designation: Associate Professor & Head of the department
- Qualification: Ph.D., M.Tech., B.Tech.
- E-Mail ID: ankitks.sharma@uem.edu.in
- Total Experience: 14 Years.
- Field of Interest: Voltage Stability, DSM, FACTS, ANN, Power System.
- Publications: 34 (16- Journals; 18-Conferences).

Dr. Govind Rai Goyal

- Designation: Associate Professor
- Qualification: Ph.D., M.Tech., B.Tech.
- E-Mail ID: govindr.goyal@uem.edu.in
- Total Experience: 14 Years.
- Field of Interest: Demand Side Management, Dynamic.
- Publications: 32 (14- Journals; 18-Conferences).

Dr. Shubhajit Pal

- Designation: Associate Professor
- Qualification: Ph.D., M.Tech., B.Tech.
- E-Mail ID: shubhajit.pal@uem.edu.in
- Total Experience: 7 Years.
- Field of Interest: Power Electronics, Power Quality, Electric Drive, Electric Vehicle.
- Publications: 16 (07- Journals; 09-Conferences).

Mr. Samrat Saha

- Designation: Assistant Professor
- Qualification: Ph.D.*, M.Tech., B.Tech.
- E-Mail ID: samrat.saha@iemcal.com
- Total Experience: 09 Years (07-Teaching; 02-Industrial).
- Field of Interest: Renewable Energy, Smart Grid, EV, Power Grid, Plant Automation, VFD Programing, SCADA/PLC RS485 communication.
- Publications: 04 (04- Conferences)

Mr. Ankit Kumar Sharma

- Designation: Assistant Professor
- Qualification: M.Tech., B.Tech.
- E-Mail ID: ankit.damodar08@gmail.com
- Total Experience: 05 Years
- Field of Interest: Power Quality and Power System
- Publications: 06 (02- Journals; 04-Conferences)

Mr. Pradipta Ghosh

- Designation: Assistant Professor
- Qualification: Ph.D.*, M.Tech., B.Tech.
- E-Mail ID: pradipta.ghosh@uem.edu.in
- Total Experience: 08 Years.
- Field of Interest: High Voltage, Power Systems , Electrical Machines.
- Publications: 09 (03- Journals; 06-Conferences).

Mr. Debdatta Samal

- Designation: Lecturer
- Qualification: AMIE
- E-Mail ID: debadatta.samal@iemcal.com
- Total Experience: 27 Years (6-Teaching; 15- Industrial)
- Field of Interest: Electrical Machines, PLC, Power System Planning
- Publications: 01 (01- Journal)

Publication Details (Journal):-

- P. Ghosh, B. Chakraborty, B. Chatterjee, S. Dalai and S. Chatterjee, "**An Advanced Technique for Investigating the Moisture Effect on Next Generation Transformer Insulation Using Lightning Impulse Parameters,**" in *IEEE Transactions on Plasma Science*, vol. 52, no. 5, pp. 1739-1746, May 2024, Doi: 10.1109/TPS.2024.3397924.
- Shubhajit Pal, A. Bhattacharya, M. V, "**Open-loop Capacitor Voltage Balancing of a Nine-Level Packed U-Cell Converter**" in *IEEE Transactions on Industry Applications*, 2024. (In Press).
- Shubhajit Pal, A. Bhattacharya, and R. S. Goopta, "**Designing of a Reduced Switch MLI Based Standalone Solar Inverter Suitable for Water Pump Application,**" in *IETE Technical Review*, 2024. (In Press).
- GR Goyal and S Vadhera, "**Solution to Objectives of Supply Side Energy Management by Integrating Enhanced Demand Response Strategy,**" in *Journal of Operation and Automation in Power Engineering*, vol. 12, no. 4, pp. 269 - 279, 2024.
- Govind Rai Goyal, Shelly Vadhera, "**Solution to uncertainty of renewable energy sources and peak hour demand in smart grid system,**" in *Measurement Sensors*, vol. 33, pp. 101-129, 2024.
- Shah Faisal, Bhanu Pratap Soni, Govind Rai Goyal, Farhad Ilahi Bakhsh, Dilawar Husain, Akbar Ahmad, "**Reducing the ecological footprint and charging cost of electric vehicle charging station using renewable energy based power system,**" in *e-Prime-Advances in Electrical Engineering, Electronics and Energy*, vol. 7, Issue 1, pp. 100-398, 2024.
- Ankit Kumar Sharma, Akash Saxena, DK Palwalia, "**Oppositional Slime Mould Algorithm: Development and application for designing demand side management controller,**" in *Expert Systems with applications*, vol. 214, pp. 119-002, 2023.
- Akash Saxena and Dheeraj Kumar Palwalia Ankit Kumar Sharma, "**Oppositional Slime Mould Algorithm: Development and application for designing demand side management controller,**" in *Expert Systems with Applications*, vol. 214, pp. 1-18, 2023.
- Bhanu Pratap Soni and Dheeraj Kumar Palwalia Ankit Kumar Sharma, Akash Saxena, "**Supervised Learning based Demand Response Simulator with RTP and PTR in Context of Smart Grid,**" in *2022 IEEE International Conference on Power Electronics Smart Grid, and Renewable Energy (PESGRE)*, pp. 1-5, 2022.

CONFERENCES:-

- R. S. Goopta, Shubhajit Pal and P. Bhattacharjee, **“High Frequency Control Logic Design for Asymmetrical Input CHB Inverters”** in *IEEE International Conference on Power, Electrical, Electronics and Industrial Applications*, Bangladesh, 2024.
- Abhishek Kumawat And Ankit Kumar Sharma, **“Ant Lion Optimizer For Optimum Economic Dispatch For Multi Machine Generating System,”** *First International Conference On Recent Advances In Smart Energy Systems & Intelligent Automation*, Rasesia-2024.
- Pradipta Ghosh, Biswajit Chakraborty, Arpan Kumar Pradhan, Sovan Dalai, Saibal Chatterjee, **“Investigation on the Effect of Simulated Standard and Non-Standard Lightning Impulse Voltage on the Conventional Oil-Paper Insulation,”** in 2022 IEEE 6th International Conference on Condition Assessment Techniques in Electrical Systems (CATCON), pp. 263-267, 2022.
- Rubell Sen Goopta, Shubhajit Pal, Avik Bhattacharya, **“A Single DC Source Multilevel Inverter for Stand-Alone Applications,”** in 2023 5th International Conference on Sustainable Technologies for Industry 5.0 (STI), pp. 1-6, Bangladesh, 2023.
- A Sharma, G Rai, M Jain, P Kumawat, **“Optimal Setting of Parameters of Power System Controllers Using PSO Technique for Economic Load Dispatch,”** in *International Conference on Science and Computing (ICSC 2021)*, Issue 46, 2021.
- Rubell Sen Goopta, Abdul Awal Rafi, Shubhajit Pal, Avik Bhattacharya, **“A Reduced Component Count Multilevel Inverter for Single and Three Phase Applications,”** in 2023 7th International Conference on Computer Applications in Electrical Engineering-Recent Advances (CERA), pp. 1-6, 2023.
- Ansil Sharma, Govind Rai, Mohit Jain, Parmeshwar Kumawat, **“Performance Study of Recent Swarm Optimization Techniques with Standard Test Functions II,”** in *National Conference on Recent Advancements in Computational Mathematics and Engineering Sciences*, 2020.
- Rubell Sen Goopta, Abdul Awal Rafi, Shubhajit Pal, **“A Reduced Component Count MLI for Solar Power Generation,”** in 2023 10th IEEE International Conference on Power Systems (ICPS), pp. 1-4, Bangladesh, 2023.

FDP:-

- Mr. Ankit Kumar Sharma University of Engineering and Management Participated in two days workshop on **“Teaching Pedagogy from 9th -10th July 2024 conducted by Information Management and emerging engineering”** department at NITTTR Chandigarh.
- Mr. Ankit Kumar Sharma from Institute of Engineering and Management, Jaipur has participated and successfully completed the 3-day Face-to-Face FDP on the theme **“Inculcating Universal Human Values in Technical Education”** organized by All India Council for Technical Education (AICTE) at University of Engineering & Management, Jaipur from 13th July to 15th July 2023.

Patent

- Govind Rai Goyal, Shelly Vadhera, **“Estimation of lost electricity price signal using bandit optimization in context of smart grid,”** app. No. 202411052232, 2024.

**Aim:**

Green Club plays an important role in creating environmental and energy related awareness amongst the students, youngster and society. It is a platform where members get knowledge about environment and renewable energy. It also enables the students to be sensitive towards environmental concerns, which help them to tackle environmental problems.

1.Awareness Campaigns

- Educating members and the community on pressing environmental issues like climate change, pollution, and biodiversity loss.
- Hosting events for Earth Day, World Environment Day, and other eco-themed days.

2.Tree Planting and Reforestation

- Organizing tree-planting drives and collaborating with local bodies on reforestation projects.
- Maintenance and care for campus greenery to promote biodiversity.

3.Waste Management and Recycling Programs

- Promoting waste reduction, recycling, and composting within the campus.
- Running campaigns for plastic-free zones and responsible waste disposal.

4.Sustainable Practices and Eco-Friendly Initiatives

- Encouraging the use of eco-friendly products, energy conservation, and sustainable campus facilities.
- Organizing workshops on sustainable practices like upcycling, organic farming, and clean energy use.

5.Clean-Up Drives and Community Involvement

- Conducting clean-up drives in local areas, parks, and beaches.
- Partnering with other organizations for community outreach programs on sustainability.

6.Eco-Projects and Research

- Providing opportunities for students to undertake research or projects related to renewable energy, conservation, or pollution control.
- Supporting innovations in sustainable technology and encouraging eco-entrepreneurship.

The Green Club's vision is to foster a culture of environmental responsibility, empowering members to take small but impactful actions that contribute to a healthier planet. By actively involving students in various eco-friendly initiatives, the club builds environmental stewardship and equips future leaders to advocate for sustainable solutions.



Scenes from the plantation drive at UEM JAIPUR, as one of the different green initiatives of our University. We have planted 500 more plants, and every year we plant such 500 plants in our green campus of UEM JAIPUR, to make it greener and greener. Which helps clean environment and pollution free. Numerous non-profit organizations focus on reforesting areas affected by deforestation, wildfires, or environmental degradation. Donating to or volunteering with these groups can help restore forests and create sustainable ecosystems. These events often provide saplings and guidance on how to plant and care for trees.

Planting trees is one of the most impactful actions we can take to ensure a healthier, more sustainable future for our planet. By coming together to plant trees today, we are taking a meaningful step toward a greener, more resilient tomorrow. Encourage local governments to prioritize urban greening projects. Advocating for more parks, tree-lined streets, and green roofs can transform cities into more sustainable, livable environments. If you have space, consider planting trees around your home. Not only will they provide shade and beauty, but they will also contribute to local biodiversity and improve air quality.



Trees play a vital role in regulating the water cycle. Their roots absorb water from the soil, preventing surface runoff and reducing the risk of floods. Trees also release water vapor into the atmosphere through a process called transpiration, which helps maintain the moisture levels in the air and contributes to rainfall. Forests provide habitats for a vast array of species, from mammals and birds to insects and fungi. Planting more trees helps to restore biodiversity by creating new homes for wildlife. The loss of natural forests due to deforestation has resulted in the decline of many species.

Trees are not just majestic, towering beings that beautify landscapes, they are vital for our survival and the health of our planet. Engaging in tree-planting initiatives can create a lasting positive impact on the environment, combat climate change, restore biodiversity, and foster a sense of community involvement. Trees act as natural air purifiers. In addition to removing CO₂, they absorb pollutants such as sulfur dioxide, ammonia, and nitrogen oxides from the air. By filtering out particulate matter, trees also reduce air pollution, leading to healthier living environments, particularly in urban areas where air quality is often compromised.



Vision:

A simple reduce, reuse, recycle, lifestyle does not only mean that you are actively saving the environment, it also means that you are benefiting yourself by possibly saving the nature.

Teaching young students about green living can be difficult especially in a modern school environment or the homeschool environment. Hands-on or touch learning is the last step in the process of teaching young children about green living.

Responsibility:

Going green at home is one of the few places that green lifestyle benefits are shown quickly. The first home benefit that many people who go green see is a drop in utility bills and spending. As people begin to make subtle and full blown changes in the amount of energy they use and how they use it, the utility bills will drop. This benefit shows itself within the first three billing cycles of the effective changes.

Green club is a voluntary group which promotes the participation of students in learning about, and improving their environment. A green club is a means by which students and youth can organize themselves to learn more and this issue, and also take action to improve their immediate environment.

Core Objectives of the Green Club:

1.Environmental Awareness and Education:

- Educating members about environmental challenges, including climate change, waste management, deforestation, biodiversity loss, and pollution.
- Hosting informative seminars, workshops, and movie screenings on environmental topics to spark discussion and action.

2.Promoting Sustainable Practices:

- Implementing eco-friendly habits such as reducing plastic use, conserving water, and recycling, and encouraging students and faculty to adopt these in their daily routines.
- Supporting sustainable living, waste reduction, and the use of renewable resources on campus and beyond.

3.Campus Greening and Reforestation:

- Organizing tree-planting drives, often in collaboration with local environmental organizations, to enhance green spaces and increase biodiversity.
- Maintaining campus green areas, including gardens, native plant habitats, and community green spaces, to promote ecological balance and provide a hands-on learning experience for members.

4.Advocacy and Community Outreach:

- Running environmental campaigns on energy conservation, plastic reduction, and wildlife protection, and spreading awareness through events, social media, and collaborations with other clubs.
- Engaging with the local community through clean-up drives, sustainable workshops, and partnerships with local eco-initiatives and NGOs.

Establishment Date

26 February 2020

Board of Studies Meeting



Board of Studies Meeting (BoS)_EEA meeting of Board of studies of the Department of Electrical Engineering has successfully completed. In the meeting, following external expert members, Dr. Rajiv Tiwari, MNIT Jaipur, Dr. Sunanda Sinha, MNIT Jaipur, Dr. Vinod Kumar Yadav, CTAE Udaipur and Mr S.R Jangid (RRVPNL) were present. Dr. Govind Rai Goyal, Assoc. Prof. (EE) welcomed all the members present in meeting. Thereafter he deliberated on agenda items. Members from Academics and Industry have given their inputs for the syllabus and curriculum of B.Tech. and M.Tech. All the suggestions were incorporated in MoM. During the meeting department faculty members Dr. Shubhajit Pal, Prof. Ankit Kumar Sharma, Prof. Samrat Saha, Prof. Debadatta Samal were also present and actively participated

in the discussion. By addressing these points, the BoS aims to provide a well-rounded, industry-relevant education to students, promote research, and maintain academic quality. The meeting outcomes include finalized curriculum updates, planned faculty development programs, new collaboration strategies, and resource allocation for labs and learning resources. The meeting typically involves faculty members, academic advisors, and sometimes industry representatives who come together to ensure that the curriculum aligns with current technological advancements, industry demands, and educational standards.



Industrial visit :

1. Glo Aire (Concept International Inc.), Solitaire Park, Bagru, Jaipur in Association with ISHRAE Jaipur Chapter.

Date: 24.01.2024



Different types of cooling pads available in the industries, their advantages and working. The cooling pads are long lasting and made by the paper that not harm environment. It can be recycled by the process. Assisting industries in export promotion and import substitution in addition to their quality assurance program. On-site testing and calibration at the customer's premises.

Established as a Sole Proprietorship firm in the year 2018, we “Concept International Inc” are a leading Manufacturer, Trader and Importer of a wide range of Cooling Pad, Exhaust Fan, Air Duct and AC Duct. Situated in Jaipur (Rajasthan, India), we have constructed a wide and well functional infrastructural unit that plays an important role in the growth of our company.



To impart training to scientists, technologists and technicians of business institutions in various industries, user organizations and business institutions in the following areas of technology. Assisting industries and user organizations with research and development work in test engineering.

We offer these products at reasonable rates and deliver these within the promised time-frame. We import our products from China. Under the headship of our mentor “Mr. Mudit Godha”, we have gained a huge clientele across the nation.



2. Daikin Air Conditioning India Pvt. Ltd, Neemrana.

Date: 08.11.2023



Daikin Industries Ltd was founded in 1924 as Ōsaka Metalworking Industries LP (Ōsaka Kinzoku Kōgyōsho) by Akira Yamada. Creating air around the world for greater happiness and greater comfort— To realize a sustainable society, Daikin will pursue new values in the environment and air. For Perfecting the Air, Daikin will pursue solutions in the realm of air to contribute to the well-being of the “earth” “cities” and “people”.

Guided through the different sections of the air conditioning manufacturing plant such as manufacturing of Split- AC, Cassette-AC, Ceiling Suspended –AC etc. And their working method that how the AC made in the industry by the different process. The visit began with a detailed presentation about Daikin's history, mission, and the innovative technologies driving the air-conditioning industry in India and across the world.



After this, Students were then guided through the different sections of the air- conditioning manufacturing plant such as manufacturing of Split- AC, Cassette-AC, Ceiling Suspended –AC, their indoor unit, out-door unit, air-handling unit and chillers, those are mostly used in domestic and commercials buildings. Where they witnessed the complex assembly lines, quality control measures, and automation systems used to produce cutting-edge air conditioning systems.

- The visit also included interactive sessions with Daikin's engineers and experts who generously shared their knowledge and insights. This visit & industry interaction will help the students to connect theoretical knowledge with practical applications, fostering a deeper appreciation for their engineering studies. Students are feeling and saying that it was a remarkable learning experience for them. Different types of cooling pads available in the industries, their advantages and working. On-site testing and calibration at the customer's premises.



3. National Test House (NWR) Jaipur, under Department of Consumer Affairs, Government of India.

Date: 19.01.2024

The NTH is the largest multi-location, multi-disciplinary industrial testing laboratory in India. Industries, Institutions and Trade have been extensively using the unique infrastructure and expertise of NTH over the last ten decades. The students interacted with the scientists at National Test House. The scientists demonstrated the various testing instruments.



Uniqueness of NTH – NTH imparts its services to the nation through seven of its regional branches located at Kolkata, Mumbai, Chennai, Ghaziabad, Jaipur, Guwahati and Varanasi (Satellite Centre). In all these branches testing and evaluation facilities of finished products/raw materials of all the branches of engineering disciplines are available under one roof. Calibration in the field of electrical and non-electrical measurements according to the standards referenced by the traceability of national standards. Testing and evaluation of goods, products, equipment, modules, systems and sub-systems in almost all branches of science and technology.

Output:

- The students also understood the various services provided by the National Test House.
- The students understood the various Indian Standard specifications to be followed in the testing and calibration.
- The students got to know the various accreditation agencies like NABL (National Accreditation Board for Testing and Calibration Laboratories), BIS (Bureau of Indian Standards).
- The students were also exposed to practical problems in the field of calibration and testing and possible solutions.



Industrial Visit to HWP NPCIL Rawatbhata



We are pleased to inform that 42 students from Core Engineering Departments (EE/CE/ME) visited the most prestigious Heavy Water Plant, Kota which is an integrated unit of Nuclear Power Corporation of India Ltd Rawatbhata (NPCIL) under Department of Atomic Energy, Govt. of India. About the Plant:

Heavy Water Plant, Kota is located at a distance of 65 KM from Kota Railway Station under Rawatbhata Tehsil of Chittorgarh District in Rajasthan. It is adjacent to Rajasthan Atomic

Power Plant (RAPP) & Rana Pratap Sagar Dam. The Plant is integrated with RAPP for its requirement of power and steam. It was commissioned in 1985. It is the first one based on H₂S-H₂O exchange process and has complete technology developed indigenously with the close interaction between Bhabha Atomic Research Centre and the Heavy Water Board. Heavy Water Plant, Kota was conceptualized, designed and engineered based on pilot plant study at BARC. It is an ISO-9001 (2015) & ISO-14001 (2015) certified organization. Safety performance record of HWP, Kota is one of the best among chemical industries and plant has received many prestigious awards from National Safety Council, Atomic Energy Regulatory Board, Institute of Engineers, etc. Indigenously developed solar energy based steam generator has been installed and commissioned at HWP, Kota which is first of its kind application in India for process industry. The students could get an exposure of basic working principle of Rana Pratap Sagar Dam. The Industrial Visit to HWP NPCIL Rawatbhata is an enriching experience for students, offering them a comprehensive view of the cutting-edge technology involved in nuclear power production and heavy water generation. It highlights the importance of nuclear energy in the future of India's energy landscape, providing students with real-world exposure that enhances their academic knowledge and future career prospects in the energy and engineering sectors. It provides valuable insights into career opportunities in nuclear power, energy production, and industrial operations, encouraging students to consider a career in the energy sector. The visit offers a practical experience that complements academic learning, particularly for students in nuclear, mechanical, electrical, and chemical engineering.

The faculty who accompanied the students and coordinated for the entire visit were:

Prof. Dr. Ankit Kumar Sharma, Prof. Dr. Umesh Gurnani, Prof. Dr. Anurag Hamilton, Prof. Ankit Kumar Sharma, Mr. Ved Prakash Sharma.

The visit provides an opportunity to observe the Deuterium extraction process from natural water. The plant employs the Girdler Sulphide Process for the production of heavy water, which involves a chemical exchange process. Gaining knowledge about the automation and control systems in place at the plant, such as SCADA systems for plant monitoring. These interactions help bridge the gap between theoretical knowledge and real-world applications in the field of nuclear energy.



Door Darshan Visit :



Our college visit to Door Darshan was an incredible opportunity to explore the heart of Indian broadcasting. Upon arrival, we were welcomed by knowledgeable staff who guided us through the various studios and facilities. The behind-the-scenes insights into scriptwriting, editing, and camera work were particularly enlightening for those of us studying media and communication.

The behind-the-scenes insights into scriptwriting, editing, and camera work were particularly enlightening for those of us studying media and communication.

Real-World Exposure:

Students gain a first-hand understanding of the media and broadcasting industry.

Enhanced Learning:

The visit complements academic learning, especially for students pursuing media studies, mass communication, or journalism.



By the end of the visit, students are expected to have:

- A clear understanding of the basics of TV broadcasting technology and program production.
- Practical insights into the roles of various professionals in a broadcast studio.
- Awareness of the ethics, policies, and standards in public broadcasting.
- Observing the technical, creative, and organizational aspects of broadcasting enhances students' practical knowledge and skills.
- Meeting professionals in action can inspire students interested in pursuing careers in media or broadcasting.

Additionally, we learned about Door Darshan's history and its role in promoting Indian culture and values. The visit sparked engaging discussions among us about the future of television and the impact of digital media. By visiting we realize that how the all program is done.

Date:-10-09-2024



TECHNICAL COMPETITION ON REAL TIME AUTOMATIC STREET LIGHT CONTROLLER PHASE-I

Organized by ISLE (Rajasthan Section)
Student Chapter UEM Jaipur

**VENUE: ANTENNA AND MICROWAVE LAB,
UEM JAIPUR**

SEPTEMBER 15TH, 2024

TIME: 2:00-3:00PM

STUDENT COORDINATOR

Prithivi Pandey (7266804221)
Shashank Rai (9079107135)

FACULTY COORDINATOR

Prof. Samrat Saha (EE)
Prof. Surajit Sur (ECE)

Competition on real time automatic street light controller

The event was graced by the presence of Prof. Dr. Tapas Si, Associate Dean(Research), Prof. Dr. Shubhajit Pal (EE), Prof. Dr. Anshuman Khan (ECE), Prof. Dr. Arnab Palui (Physics), Prof. Uttam Naredra Thakur (ECE), Prof. Soumya Sen (CSE), and Prof. Debojyoti Chatterjee (CSE). Also supported by Mr. Mukesh Ji (Electrician) and Mr. Bhagaban Da (Electrician). This competition not only provides participants with hands-on experience in smart technology but also contributes to the broader vision of creating energy-efficient, smart cities.



ISLE (Indian Society of lighting engineers Rajasthan Section) Student Chapter UEM Jaipur associated with IIC, IQAC conducted a competition on REAL TIME AUTOMATIC STREET LIGHT CONTROLAR PHASE-I at TECHUTOPIA 2024, UEM Jaipur on 15th September 2024. The venue of the event was in Antenna and Microwave Lab. The Real-Time Automatic Street Light Controller Competition is a valuable platform for those passionate about technology, sustainability, and urban development.

The Real-Time Automatic Street Light Controller Competition (Phase-I) is an innovative event aimed at encouraging students, researchers, and tech enthusiasts to develop efficient, sustainable solutions for street lighting. The focus of this competition is to design and implement a real-time, energy-efficient automatic street light controller system that can help reduce electricity consumption, enhance public safety, and promote the use of smart technology in urban infrastructure.



Winners of this event

1st - CORE:

Yuvraj Samonta
Nitin Singh Shekhawat
Vikash Kumawat
Narendra Kumar
Ashish Sharma

2nd - ELECTRA:

Sushant Pathak
Ritik Verma
Vijay Kumawat
Sanjay Kumar Saini

Teacher's Day Celebration

Date: 5.09.2024

The date marks the birth anniversary of Dr. Sarvepalli Radhakrishnan, an eminent educator, scholar, and former President of India, who advocated for the importance of education and revered the role of teachers in nation-building. The celebration aims to express gratitude towards teachers for their unwavering guidance, support, and knowledge-sharing.



As we celebrated, we realized that our teachers are not just educators; they are mentors and friends who shape our character and future. Teacher's Day celebrations typically conclude with a vote of thanks, expressing gratitude to the teachers, organizers, and participants. Presenting teachers with small gifts or tokens as a symbol of respect and gratitude from students and the institution.



Teachers' Day was a reminder of their unwavering dedication and the positive impact they have on our lives. Teacher's Day, celebrated annually on September 5th in India, honors the invaluable contributions and dedication of teachers who play a vital role in shaping society. Encouragement and motivational words for teachers to continue their work with passion and resilience.



The day stands as a reminder of the profound influence that teachers have on shaping young minds and instills a renewed sense of appreciate. Teacher's Day is not only a celebration but also a reflection of the impact of teachers, highlighting how their guidance and wisdom continue to empower and inspire the next generation. on for their role in every student's journey.

UNIVERSITY OF ENGINEERING & MANAGEMENT (UEM), JAIPUR

Campus: 'Gurukul', Udaipuria Mod, 6 Kms. from Chomu on Sikar Road, Jaipur-303807 (Rajasthan) | www.uem.edu.in

Global Ratings



Placement Record of Department of Electrical Engineering



Suhrid Haldar

B.Tech (EE)

Synergy Steels Pvt. Ltd.
Manikaran Power Pvt. Ltd.



Jitender Yadav

B.Tech (EE)

Synergy Steels Pvt. Ltd.



Ankita Priyadarshini

B.Tech (EE)

Indus Tower Pvt. Ltd.



Sanjeet Kumar

B.Tech (EE)

Car Dekho.com



Sonam Singh

B.Tech (EE)

Car Dekho.com
Kirloskar Technologies
Century Infra Power Pvt. Ltd.
Cape Electric



Akash Das

B.Tech (EE)

Wipro, Planet Sparks,
Rinex Technology,
Square Yards



Swagata Dutta

B.Tech (EE)

Tamra Dhatu Pvt. Ltd.
Aaklan Labs



Aritra Dey

Teleperformance,
PricewaterhouseCoopers



Subham Bose

Zucol Services Pvt. Ltd.,
SkillMax Academy



Jogaraj Sharma Adhikari

Cape Electric Pvt. Ltd.



Vishal Aadesh

Cape Electric Pvt. Ltd.

Current Trends in Electrical Engineering



Power Electronics Breakthroughs

Innovations in power electronics are critical for improving the efficiency of energy conversion. New materials like wide bandgap semiconductors are leading to higher performance and reduced losses in electrical systems. The breakthroughs in power electronics are paving the way for a more efficient, sustainable, and intelligent energy landscape. As technologies continue to evolve, they will play a crucial role in addressing global energy challenges, supporting the transition to renewable energy sources, and enabling the widespread adoption of electric vehicles.

Electric Vehicles and Charging

The rise of electric vehicles (EVs) is driving innovations in charging infrastructure and battery technology. These advancements are crucial for supporting the transition to sustainable transportation. The leading of EV vehicle in the field of electrical engineering is changing the world technology and infrastructure. EVs and their charging networks are integral to reducing greenhouse gas emissions and the transition to a cleaner energy future. The continued improvement of battery technology and charging infrastructure will further enhance the adoption of electric vehicles.



Renewable Energy Innovations

Renewable energy refers to energy derived from natural sources that are replenished on a human timescale. Unlike fossil fuels (coal, oil, and natural gas), which are finite and emit greenhouse gases when burned, renewable energy sources are sustainable and have a lower environmental impact. Here's an overview of the key aspects of renewable energy. The innovations in renewable energy technologies are transforming the global energy landscape, enabling a shift toward more sustainable and resilient energy systems. The continued investment in research and development, along with supportive policies, will be crucial in accelerating the adoption of these innovative technologies worldwide.

PCB Designing

PCB are at the heart of today's technology revolution. By integrating cutting-edge tools and design methodologies, we are equipping our students and researchers with the skills necessary to tackle the most complex design challenges. Our focus extends beyond just creating functional circuit boards. PCB (Printed Circuit Board) designing is a critical process in the electronics manufacturing industry, serving as the backbone for electronic devices. PCBs provide the mechanical support and electrical connections for electronic components, allowing them to function effectively within a system.

Smart Grids

Smart grids represent a transformative shift in how electricity is managed and delivered. By leveraging real-time data, automation, and advanced communication technologies, smart grids enhance the reliability, efficiency, and sustainability of energy systems. A smart grid is an advanced electrical grid that utilizes digital communication technology to enhance the reliability, efficiency, and sustainability of electricity services.



The Role of IoT

The Internet of Things is revolutionizing electrical engineering by enabling smart devices to communicate. This innovation leads to improved automation, monitoring, and control in various applications. These devices range from everyday household items like refrigerators and thermostats to sophisticated industrial tools. The Internet of Things (IoT) refers to the interconnected network of physical devices embedded with sensors, software, and other technologies that allow them to collect, share, and exchange data over the internet.



M E T A V E R S E

ABOUT METAVERSE

Metaverse is a virtual space in which user can interact with a computer-generated environment and other users. The internet will eventually evolve into the metaverse, which will come to represent the next major computing platform. combination of augmented, virtual and mixed reality can be metaveraei What is the Metaverse and Where Did the Concept Come From The Metaverse can be traced back to Neal Stephenson and his dystopian cyberpunk novel snow Crash. Which describes a virtual reality dataspace called the matrix.Likekeny place in Reality, the Street is subject to development. Developers can build theirm own all streets feeding off of the main one. They can build buildings, parks, signs, as well as things that do not exist in Reality. Mark Zuckerberg, the CEO of the newly named Meta (formerly Facebook), estimates it could take five to 10 years before the key features of the metaverse become mainstream. Aspects of the metaverse currently exist. Ultra-fast broadband speed, virtual reality headsets and persistent always-on online words are already up and running, even though they may not be accessible to all. The Metaverse :Where We Are and Where We're Headed Zuckerberg recently told tech podcaster Lex Freidman: "We're gone desktop to web to mobile from text to photos to video. But this isn't the end of the line," writes. Zuckerberg in a recent letter to his employees. "The next platform will be even more immersive-an embodied internet where you're in the experience, not just looking at it. We call this the metaverse, and it will touch every product we build".



FUTURE OF METAVERSE

Today's Metaverse: Virtual reality as the "digital escape". Over the next few years the future metaverse would be something very similar to our real world in many aspects and even replace some real-world activities (like working or hanging out).A lot of people think that virtual reality is an illusion, that it's not real. But i say that it has casual power , it exists outside of our mind, and is not an illusion". Although it lacks many of the components that would make it a genuinely next-generation digital experience, exciting use cases and applications are already being seen in areas such as Augmented Reality (AR), Virtual Reality (VR), 3D social media platforms, blockchain-based marketplaces, and many others.

METaverse PURPOSE

The metaverse project is a virtual world designed to bring users together as in real life, as they can meet and interact with each other. It is a virtual universe where users can use avatars that represent their personality and wishes. The metaverse project is a virtual version of real life except that you can do whatever you want. In this world, it is possible to do activities that we usually do in the real world such as skydiving or shopping for example. The design of the metaverse aims to have a virtual universe where everyone can interact as in the real world. Thus, players will be able to make purchases or trade in this world. It adds prestige and value to this universe. The metaverse is even economically independent. Indeed, it is not uncommon for users of the platform to make trades (sales and purchase) using real money to trade in the metaverse. The Metaverse is a spatial computing platform that provides digital experiences as an alternative to or replica of the real world, along with its key civilizational aspects.



METaverse SIGNIFICANCE

The metaverse is the result of over 30 years of technological progress. It required ubiquitous high-speed internet access. The larger culture needed to be familiar with concepts popularized by video games, such as moving in virtual environments. And, of course, both standard and graphical processing units are required to evolve to their current impressive state. Finally, display technologies used in virtual and augmented reality needed to become lightweight enough to feel natural when worn.

VR HEADSETS

VR headsets have exploded in popularity over the past few years. This is hardly a surprise, given that VR gaming, the metaverse, and similar technologies have also become so popular. VR headsets are one of the best ways to experience these new cutting-edge attractions. You'll soon find out which virtual reality headsets can best fit your particular needs. A VR consists of sensors to track your field of vision and two screens that provide a stereoscopic display.

METaverse IMPORTANCE -

The Metaverse is not a single system but a collection of interconnected systems, each with its own rules and capabilities. It is made up of interconnected worlds that are not limited by geographical boundaries, meaning that technically everyone with an internet connection and the right setup can have access to it. The Metaverse is the next evolution of the internet and is changing how we live, work, and play forever. Moreover, the metaverse is important because it allows people to interact with others that they may never have had the chance to, in a setting, they may not be able to visit. For example, if you work remotely from home in California, but your employer's office is located in New York, you can use the metaverse to sit in the same office, in a shared virtual space. The metaverse also allows for a more immersive experience in entertainment, education, and other forms of content all through virtual reality. The virtual environment enables people to communicate with others, share ideas, and create content easily.



CONCLUSION

Metaverse technology is far more advanced than virtual reality, as per the detailed report of differences between the Metaverse vs. virtual reality. Virtual reality is practically one of the basic automation for the advancement of the Metaverse. It grants the consumers to be a part of the metaverse universe. Nevertheless, high-tech VR still has limited power leading to a fixed number of efficient components. The Metaverse, on the other hand, is a vast and rapidly expanding virtual environment that would be a 3D depiction of the internet and the real virtual world. Users may navigate around virtual 3D environments in the Metaverse in the same way they can browse through different websites. The metaverse is a collective virtual space created by the convergence of virtually enhanced physical reality and persistent virtual reality. It encompasses a wide range of digital environments and experiences, where users can interact with each other and computer-generated elements in real-time. The concept has gained significant attention due to advancements in virtual reality (VR), augmented reality (AR), blockchain technology, and social media, promising to reshape how we work, play, and connect in digital spaces.

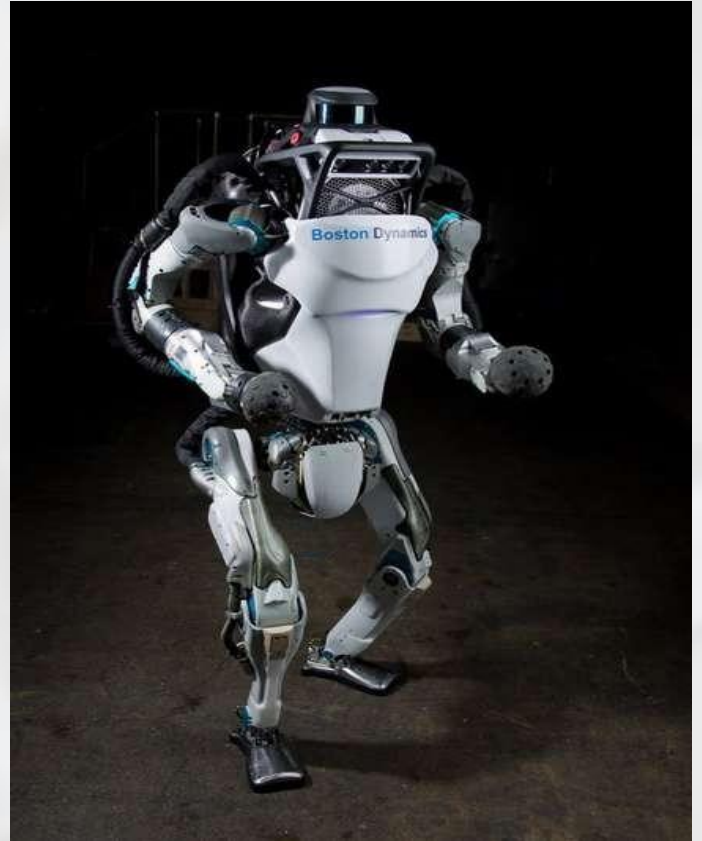
R O B O T I C S

ROBOTICS :

Robotics is a branch of engineering that involves the conception, design, manufacture and operation of robots. The objective of the robotics field is to create intelligent machines that can assist humans in a variety of ways. Robotics can take on a number of forms. A robot may resemble a human, or it may be in the form of a robotic application, such as robotic process automation (RPA), which simulates how humans engage with software to perform repetitive, rules-based tasks. While the field of exploration robotics and of the potential uses and functionality of robots have grown substantially in the 20th century, the idea is certainly not a new one.

HISTORY OF ROBOTICS

The term robotics is an extension of the word robot. One of its first use came from Czech writer Karel Čapek, who Used the word in his play, Rossum's Universal Robots, in 1920. Perhaps about the year 2020 the process will have produced the first broadly competent "universal robots" with lizard like minds that can be programmed for almost any routine chore. By 2030 second-generation robots with trainable mouselike minds may become possible. Besides application programs, these robots may host a suite of software "conditioning modules" that generate positive and negative reinforcement signals in predefined circumstances. By 2040 computing power should make third generation robots with monkey like minds possible. Such robots would learn from mental rehearsal in simulations that would model physical, cultural, and psychological factors. Mechanical devices, called automata, were built for entertainment and functional purposes.



The Future of Robotics:

The field continues to grow, driven by advancements in AI, nanotechnology, and quantum computing. Robotics research aims at developing robots capable of complex, adaptive, and safe interactions with humans across industries, suggesting a future where robots play increasingly integral roles in daily life and advanced sciences. Today, advancements in AI, machine learning, and robotics enable sophisticated autonomous systems, from self-driving cars to advanced drones and surgical robots.



Robots have a wide range of uses and applications across different industries and fields including:

Manufacturing and production: Robots are widely used in the manufacturing sector for tasks such as assembly, inspection, and packaging. They can work in hazardous or repetitive environments, reducing the risk of injury to human workers and increasing productivity.

Healthcare: Robots are used in the healthcare for various purposes, such as assisting in surgery, rehabilitation, and elderly care. For example, surgical robots can perform precise movements and reduce the risk of human error during operations.

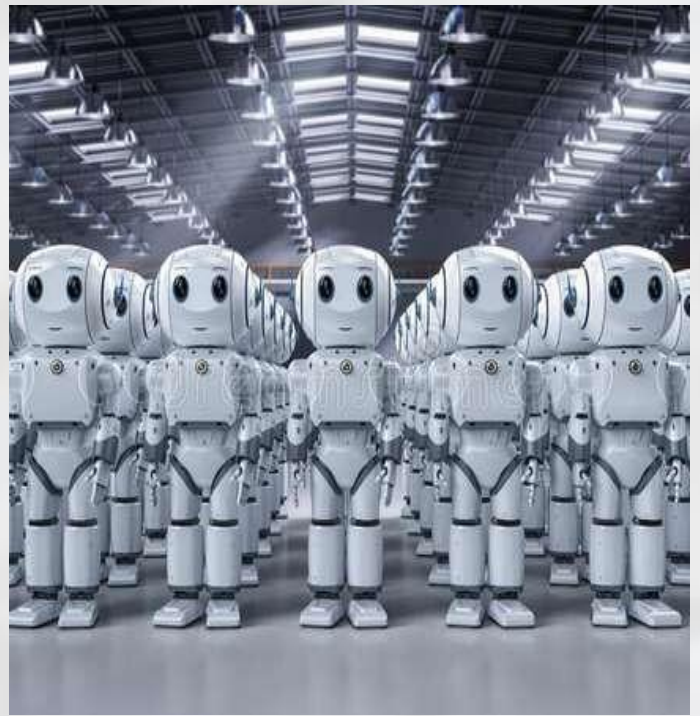
Agriculture: Agricultural robots are used for tasks such as planting, harvesting, and monitoring crops. They can help increase efficiency and reduce the need for manual labor in agriculture.

Retail and logistics: Retail and logistics robots are used for tasks such as inventory management, order fulfillment, and customer service.

Space exploration: Robots are used for space exploration, including missions to Mars and other planets. They can perform tasks such as collecting and analyzing data, drilling for samples, and mapping the terrain. Perform tasks such as collecting and analyzing data, drilling for samples, and mapping the terrain.

Search and rescue: Robots are used in search and rescue operations, where they can access dangerous or difficult to-reach areas to search for survivors or provide assistance.

Military: Robots are used in military for operations tasks such as reconnaissance, surveillance, and bomb disposal.



ADVANTAGE

There are several advantages of robotics, some of which are:

1.Precision: Robots can perform tasks with high precision, accuracy, and repeatability that is difficult for humans to achieve.

They can carry out tasks with consistent quality and precision without getting tired or making mistakes.

2.Efficiency: Robots can work continuously without taking breaks or getting tired, leading to increased productivity and efficiency. They can also perform tasks that are too dangerous or tedious for humans to undertake.

3.Cost Savings: Robots can help organizations reduce labor costs by automating various tasks. They can also help reduce production costs by minimizing scrap and rework.

4.Flexibility: Robots can be programmed to perform a wide range of tasks, making them highly adaptable to changing production needs. They can also perform tasks in hazardous or difficult-to-reach areas.

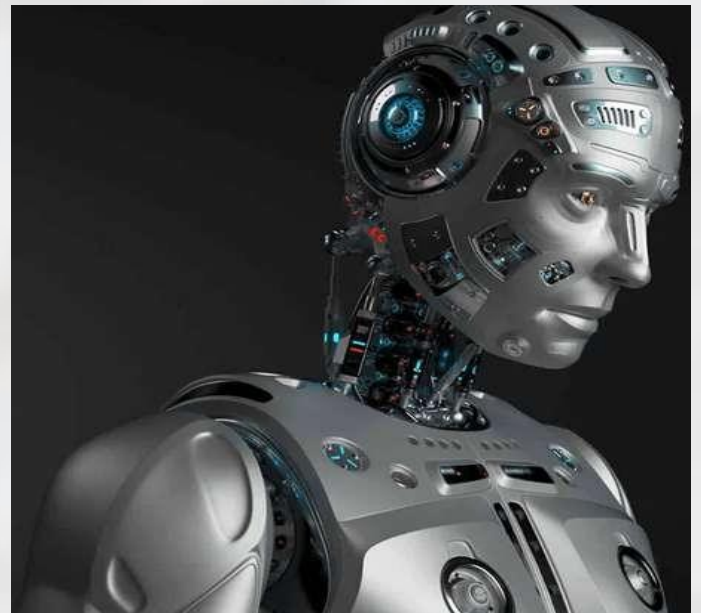
DISADVANTAGES :

1.High Cost: One of the major disadvantages of robotics is the high cost of design, manufacturing, and implementation. The advanced robotics technology is expensive in every aspect, from purchasing to maintenance, and requires a significant financial investment.

2.Lack of Flexibility: Robots are designed to perform specific tasks, and are not easily adaptable when it comes to new, non-standard jobs. They need to be reprogrammed or redesigned to make changes within their function, unlike human workers who can easily adapt to new challenges.

3.Job Loss: The rise of robotic technology has led to a decrease in job opportunities for human workers, particularly in industries such as manufacturing, where robots can perform tasks more efficiently and for longer hours without fatigue.

4.Technical Issues: Robotics systems are complex and require a high level of technical expertise to design, develop, and repair. As technology continues to advance, the integration of robotics into various aspects of society will present new opportunities and challenges. Embracing innovation while addressing ethical and safety considerations will be essential for realizing the full potential of robotics in the future.



CONCLUSION

Today we find most robots working for people in industries, factories, warehouses, and laboratories. Robots are useful in many ways. For instance, it boosts economy because businesses need to be efficient to keep up with the industry competition. Therefore, having robots helps business owners to be competitive, because robots can do jobs better and faster than humans can, e.g. robot can built, assemble a car. Yet robots cannot perform every job; today robots roles include assisting research and industry. Finally, as the technology improves, there will be new ways to use robots which will bring new hopes and new potentials. Robotics is the science and technology of robots, encompassing their design, construction, operation, and application. Robots can be programmed to carry out specific tasks, ranging from simple repetitive actions to complex decision-making processes. They can operate in diverse environments, from factories to outer space, and can be designed to assist humans or operate independently to healthcare advancements, the impact of robotics is far-reaching.

Laboratories :

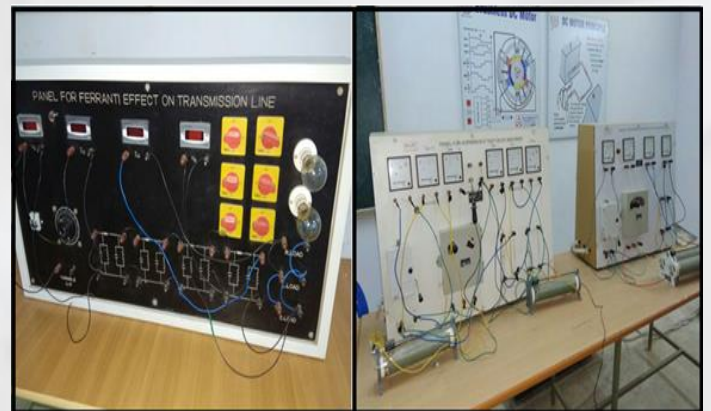


Electrical Machine Lab I and II

Electrical Machine Labs I and II typically focus on the practical study and experimentation of electrical machines such as transformers, motors, and generators. These labs are often designed for students studying Electrical Engineering, providing hands-on experience with machines that they've studied theoretically in their coursework.

Power System Lab I and II

Power System Labs I and II are structured to provide hands-on experience with the fundamentals of power system operations, analysis, and control. These labs usually complement theoretical courses on power systems, preparing students in fields like electrical engineering to handle practical power system challenges.



Control System Lab

The Control System Lab is designed to provide students with practical experience in analyzing, designing, and testing control systems. This lab complements theoretical studies in control engineering, focusing on real-world applications of controlling dynamic systems. Visual methods to assess system stability and adjust controller parameters.

Basic Electrical Laboratory

The Basic Electrical Laboratory introduces foundational concepts in Electrical Engineering, providing hands-on experience with essential electrical components, circuits, and measurement techniques. This lab is typically intended for beginners and is a core part of early Electrical Engineering education.





Electrical and Electronics Measurement

The Electrical and Electronics Measurement Lab focuses on teaching students how to accurately measure and analyze electrical and electronic parameters using various instruments. This lab is crucial in electrical and electronics engineering, as it builds skills in precision measurement, data interpretation, and troubleshooting.

Circuit Theory Laboratory

The Circuit Theory Laboratory is designed to give students practical experience with the principles and techniques in circuit analysis. This lab supports foundational courses in electrical engineering and helps students understand the behavior of electrical circuits in a hands-on environment. This experience is essential for more advanced study and practical applications in fields like power systems, electronics, and signal processing.



Pre-Industrial Electrical Hands-On training Course:-

1. 11kV Power Transmission and Grid Substation Lab.
2. Hand-on course on Maintenance and Installation of 11kV power transformer and 11kV VCB (Vacuum Circuit Breaker).
3. PLC and SCADA Training.
4. Industrial standard Induction Motor and DC motor control using Electric Drive Lab with PLC Automation facility.
5. Electronic governor controller Based Diesel Generator Installation and maintenance Training. With Level 5 Automation.
6. Hands-on training on Industry standard 3 phase Induction motor control panel.

1. 11kV Power Transmission Lab with PLC/SCADA Automation:



UNIVERSITY OF ENGINEERING AND MANAGEMENT, Jaipur is the first University in North INDIA Established a Live Grid Substation Lab:



2. 11kV Transformer and High Voltage Vacuumed circuit Breaker Maintenance Lab:



3. 3 Phase 20kW Induction Motor Control Panel Training Lab:



Industrial Standard STAR-DELTA Starter Panel



Industrial Standard Direct Online Panel



Industrial Standard Induction Motor Starter Panel For Reverse And Forward Rotation Operation



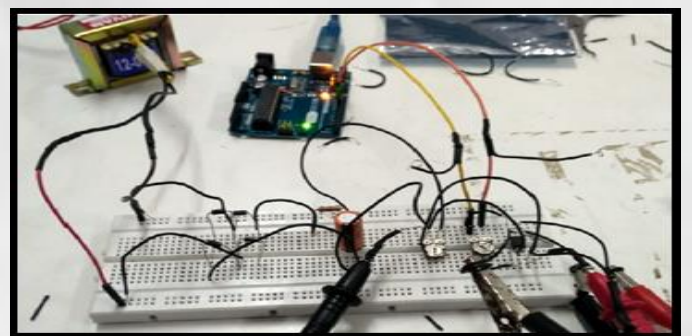
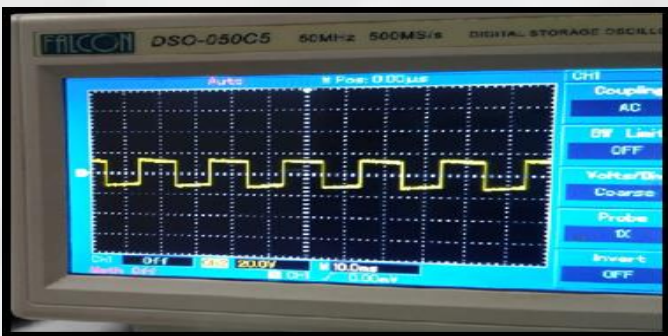
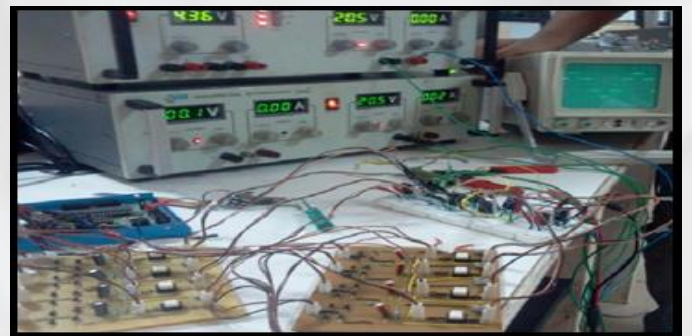
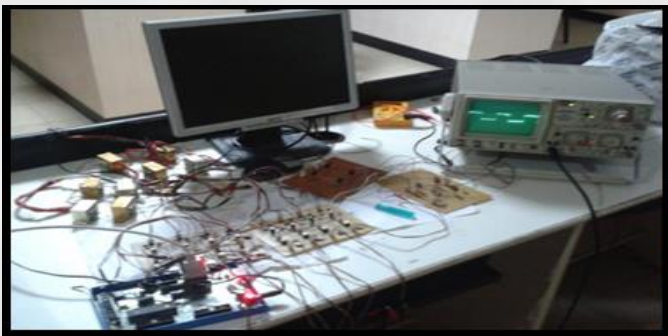
Industrial Standard Transformer

4. Microprocessor Controlled Diesel Generator Training center:



PS500 Microcontroller Based DIESEL Generator Set

5. Power Electronics Training and Research Lab



6. PLC/SCADA Enabled Level 5 Automated 7KW Electrical Drive Lab and Training center (Operation voltage 433Volt):



Pre-Industrial Electrical Hands-On training Course

- Till now we have trained more than 200 students in this training program.
- We have successfully completed 14th batch of pre industrial training.
- Students learned about the hands-on Training on:-Automation (, motor feeder panel, HMI/SCADA programing4.0), Renewable energy generation (PV plant) and DC protection, AC protection system, Induction motor starter panel DOL and Star Delta, 11kV/433 volt stepdown transformer, PLC programming for substation.

Pictures of Industrial Training (14th Batch)



Pictures of Industrial Training (13th Batch)



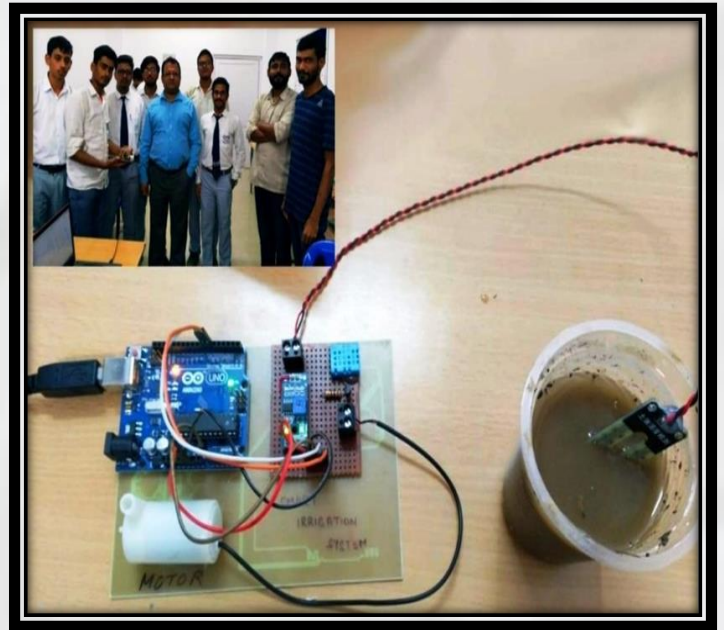
Pictures of Industrial Training (2024 IEM)



Innovative Projects Developed By Our Students

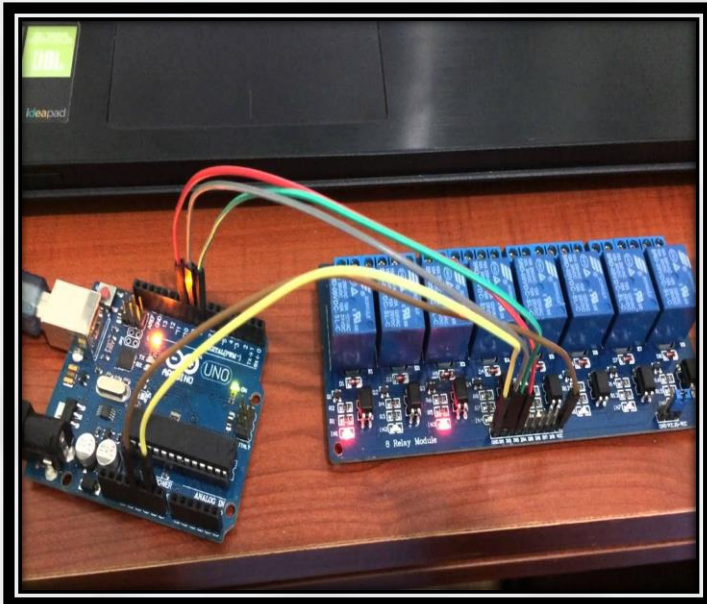
ARDUINO BASED SMART IRRIGATION SYSTEM

An Arduino-Based Smart Irrigation System is an automated irrigation setup that uses Arduino microcontrollers to monitor soil moisture and other environmental factors, controlling water supply based on real-time data. This system is efficient, cost-effective, and widely used in agriculture and gardening to conserve water while ensuring plants receive adequate moisture. An Arduino-Based Smart Irrigation System is ideal for modern agriculture and urban gardening, promoting sustainability through intelligent water management.



HOME AUTOMATION USING ARDUINO BASED RELAY CIRCUIT BOARD

Home Automation using an Arduino-Based Relay Circuit Board enables automated control of various home appliances, allowing users to turn lights, fans, security systems, and other devices on or off remotely. By using an Arduino and relay board, you can control devices from a smartphone app, through a voice assistant, or via programmed schedules, making your home smarter and more energy-efficient. The brain of the system that receives commands and controls the relay switches.



PLC AUTOMATED, VFD BASED CONVEYOR SPEED CONTROL FOR RAW MATERIAL HANDLING PLANT

A PLC Automated, VFD-Based Conveyor Speed Control System for a raw material handling plant is an advanced system designed to optimize the movement of materials through a plant by automating and dynamically adjusting conveyor speeds. This type of system utilizes a Programmable Logic Controller (PLC) to control a Variable Frequency Drive (VFD), which, in turn, adjusts the conveyor motor speed to meet the plant's operational requirements.



A Seminar on “Renewable Energy Technologies and Developments”



The Department of Electrical Engineering, Mechanical Engineering and Civil Engineering in association with IIC and E Cell conducted a Seminar on “Renewable Energy Technologies and Developments”. The Resource Person was Mr. Sudhakar Sundaray. Mr. Sudhakar Sundaray is a Renewable Energy Specialist and having thirteen years of work experience in electrical engineering consulting, asset management and R&D.



He has been instrumental in completion of various multi MW renewable energy projects in India and abroad. He earned his Master’s degree in Energy Engineering from Indian Institute of Technology, Delhi. Presently, he is the Senior. Vice President in TruBoard Partners, a fastest growing Real Asset Management Service company in India which manages GW+ Renewable assets across India.

The students and faculty got knowledge on the present scenario of the renewable energy Market in India. What are the future job opportunities for students. Main research thrust area on renewable energy management system with BESS etc. The seminar successfully provided a platform for knowledge exchange, fostering an interdisciplinary approach to addressing energy challenges and encouraging future developments in renewable energy technologies.



Exploration of cutting-edge developments in renewable energy technologies, such as advancements in photovoltaic systems, energy storage solutions, wind turbine designs, and offshore wind energy. Focus on energy efficiency improvements, smart grids, and integration of renewable energy with the existing power grid.

Date: 20.07.2024.



Up-coming Events



JOINTLY ORGANIZED BY:

**Department of Electrical Engineering,
Civil & Mechanical Engineering**



**4th International Conference on
Intelligent Energy Management
in Smart Cities(ICIEMSC-2025)**

 **25th-27th May**



<https://iciemsc2025.uem.edu.in/>

Some funny aspect in Electrical Engineering

1. The Mythical “Magic Smoke”:

Engineers joke that all electronics are powered by “magic smoke” inside the components. When you accidentally overload or short something, and it burns out, you'll see smoke—signifying that the "magic" escaped. Once the magic smoke is gone, the device is broken forever!

2. Ohm’s Law Confusion:

Ohm’s Law is one of the first things you learn ($V = IR$), yet people still mix up voltage, current, and resistance constantly. A common joke is “In case of emergency, apply Ohm’s Law. If unsure, divide by zero and pray.”

3. The Oscilloscope:

When engineers are troubleshooting a circuit and have no idea what’s going wrong, they might just hook it up to an oscilloscope, randomly poke around, and declare “yep, that looks... fine.” It’s often referred to as "signal fishing.”

4. Capacitor Gremlins:

Capacitors seem to mysteriously charge and discharge at the most inconvenient times. A well-known "rule" is that if you have no idea what went wrong, blame the capacitor!

5. Murphy’s Law on PCB Design:

Every engineer knows that if there’s one small mistake on a printed circuit board (PCB), it will always end up being the most inaccessible part of the board. Murphy’s Law practically guarantees it.

6. The Ideal vs. Reality:

Textbooks make Electrical Engineering seem like clean, easy math. But in reality, electrical systems have a mind of their own with "noise," unpredictable currents, and phantom voltage drops that just can’t be explained.

7. Units Everywhere!:

Engineers know that forgetting a unit or confusing milli (m) with micro (μ) can cause total chaos. "Just missed it by a factor of a thousand" is a common excuse when something explodes or catches fire!

8. The Resistor Color Code Song:

Most engineers remember the color code by a somewhat cheeky mnemonic. You’ll often find an electrical engineer humming it quietly when picking out resistors, usually with an embarrassed grin.

9. The Resistor Jungle:

Engineers love organized toolboxes, but resistors always manage to go rogue, mixing values and escaping their little compartments. Digging through “the jungle” for the right one is always an adventure.

Summery

Inovations in Electrical Engineering are pivotal in transforming energy systems. By embracing these advancements, we can achieve a sustainable, efficient, and resilient energy future for all. As the field of electrical engineering continues to evolve, it remains a cornerstone of modern technology, powering advancements across industries. The Electrical Department plays a vital role in shaping the future, pushing boundaries with innovations in renewable energy, smart systems, and cutting-edge technologies. Whether through sustainable energy solutions, automation, the electrical domain is set to transform the way we live and work. Our department's commitment to excellence and education ensures that we remain at the forefront of these innovations, preparing the next generation of engineers to lead the charge toward a more connected and sustainable world. It's clear that the landscape of Electrical Engineering is undergoing a revolutionary transformation. From harnessing renewable energy sources to advancing smart grid technologies, the department continues to be at the epicenter of innovation. The breakthroughs in energy storage, electric vehicles, and automation are not just technological milestones—they represent real progress toward a more efficient & sustainable future. In a world increasingly dependent on electricity, the Electrical Department stands as a beacon of progress. We are not only focused on developing the next generation of technology but also fostering a new wave of engineers who are equipped to handle tomorrow's challenges.

These young minds are trained to think critically, innovate fearlessly, and apply their knowledge to global challenges such as climate change, energy security, and the digital transformation of industries. As the demand for Electrical Engineers continues to rise in various industries, including renewable energy, telecommunications, automation, and robotics, the EE Department prepares graduates to tackle complex challenges and contribute meaningfully to society. The emphasis on hands-on experience, research opportunities, and collaboration with industry partners ensures that students are not only well-versed in theoretical concepts but also proficient in practical applications. Moreover, the department fosters a culture of innovation and creativity, encouraging students to explore new technologies and develop solutions that address real-world problems. As we move towards a more interconnected and sustainable future, the contributions of electrical engineers will be paramount in driving advancements in smart systems, green trees growing by nurturing talent, fostering collaboration, and embracing innovation, the department is poised to make significant contributions to the field and society at large, ensuring a brighter and more sustainable future for all Technologies, and digital transformation. It integrates aspects of social media, online gaming, augmented reality, virtual reality, and digital economies. Users can create avatars, participate in virtual environments, attend events, socialize, conduct business, and engage in various activities.

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