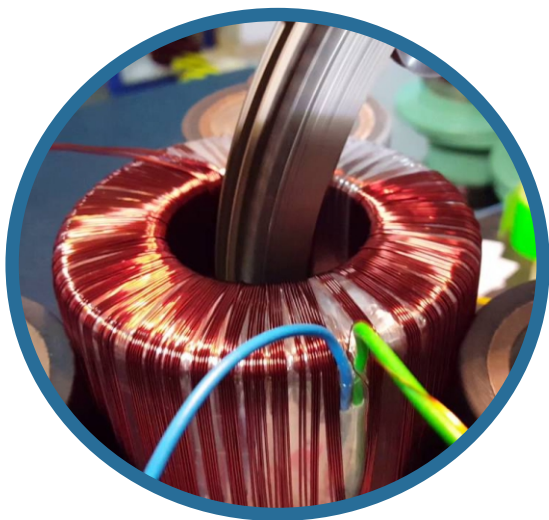




Gyan Ganga

Institute of Technology & Sciences
Jabalpur (M.P.)



ELEXA

Volume 4

Department of
Electrical &
Electronics Engineering

 P.O. Tilwara Ghat, Bargi Hills, Jabalpur,
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P R E F A C E

The Department of Electrical and Electronics has recorded consistent improvement in its academic, research, and placement performance. Department offers a range of innovatively designed programmes that's curricular are constantly updated to meet the changing requirements of the industry and also meet the needs of major stakeholders.

When publishing these newsletters and magazine, the only thing we had in mind was that they should reflect the outlook of the department in all aspects. Hereby, we, the editors, take the responsibility of ensuring the continuity of the issues in the years to come with improvements and richness every time. We are pretty sure that you will get a lot of useful information from it.

The department publishes the following newsletters and technical magazines. The departmental newsletter has four issues in a year; issue 1 publishes in the month of September, issue 2 publishes in the month of December, issue 3 publishes in the month of March, and issue 4 publishes in the month of June. Technical Magazine publishes one per year, i.e., in June of every year. The editorial board for both is common; there are four student members (one from each semester) and three faculty members on the editorial board.

लड़ना मत छोड़ो

तब तक लड़ना मत छोड़ो
जब तक अपनी तय की हुई
जगह पर न पहुँच जाओं
यही अद्वितीय हो तुम।
जिन्दगी में एक लक्ष्य रखो
लगातार ज्ञान प्राप्त करो
कड़ी मेहनत करो, और
महान जीवन को प्राप्त करने
के लिए दृढ़ रहो।

डॉ. ए पी जे अब्दुल कलाम



EDITORIAL

FROM CHAIRMAN DESK

It is with immense pride and enthusiasm that I address you on the occasion of the release of the technical magazine of the Electrical & Electronics Engineering department. This publication serves as a beacon, illuminating the remarkable accomplishments, the pioneering research, and the boundless potential within our academic community.



Within the pages of this magazine, you will encounter a mosaic of ideas, discoveries, and innovations that reflect the collective spirit of our department. Each article, each project, and each contribution resonates with the unwavering commitment to excellence that defines Electrical & Electronics Engineering.

As we embrace the ever-evolving landscape of technology, it's imperative that we acknowledge the transformative role that knowledge dissemination and academic collaboration play. This magazine not only showcases the outstanding work of our faculty and students but also underlines the collaborative synergy that fuels our successes.

I extend my heartfelt gratitude to the contributors, the editorial team, and all those who have poured their expertise and passion into this publication. Your dedication to pushing boundaries, exploring the unknown, and inspiring others is a testament to the spirit of innovation that we hold dear.

I invite you all to immerse yourselves in the magazine's content, to explore the narratives of progress and the stories of visionaries. Let this magazine inspire you to continue pushing the envelope, to continue seeking breakthroughs, and to continue shaping the landscape of Electrical & Electronics Engineering.

Thank you for your dedication, your contributions, and your role in making our academic community a hub of creativity, excellence, and transformative thinking.

Er D. C. Jain

FROM SECRETARY DESK

It is a pleasure to address you as the College Secretary on the occasion of the release of the technical magazine of the Electrical & Electronics Engineering department. This publication stands as a testament to the collaborative efforts, boundless creativity, and unwavering commitment that define our academic community.



The magazine's pages encapsulate the spirit of exploration and innovation that thrives within our department. Each article, research paper, and project showcases the dedication and expertise of our faculty and students, pushing the boundaries of what's possible in the realm of Electrical & Electronics Engineering.

Behind the scenes, there are countless hours of coordination, organization, and teamwork that contribute to the realization of this magazine. As the College Secretary, I have had the privilege of witnessing the intricate web of efforts that come together to create such an inspiring publication.

I extend my heartfelt gratitude to everyone involved in bringing this magazine to life – the contributors, the editorial team, and all those who play a part in showcasing the brilliance of our department. Your dedication to sharing knowledge and fostering an environment of excellence is truly commendable.

I encourage you all to explore the magazine's contents, to immerse yourselves in the narratives of innovation and achievement. Let these stories serve as a reminder of the impact that can be achieved through collaborative effort and a shared passion for learning.

Thank you for your contributions, for your commitment to advancing our field, and for being an integral part of the remarkable journey that is Electrical & Electronics Engineering.

Dr. RAJNEET JAIN

FROM EXECUTIVE DIRECTOR DESK

It is with great pride and excitement that I extend my warmest greetings on the occasion of the launch of the technical magazine of the Electrical & Electronics Engineering department. This publication stands as a beacon of innovation, a testament to the collaborative spirit, and a tribute to the transformative power of knowledge.



Within the pages of this magazine, you will discover a wealth of ideas, research breakthroughs, and creative projects that embody the spirit of exploration and advancement. Each article, each contribution, and every insight is a testament to the relentless pursuit of excellence that defines Electrical & Electronics Engineering.

As we navigate the ever-evolving landscape of technology and education, it is essential to recognize the pivotal role that leadership and vision play in driving progress. This magazine not only celebrates the achievements of our students and faculty but also underscores the guidance, support, and strategic thinking that shape our academic journey.

I extend my heartfelt gratitude to all contributors, the editorial team, and everyone who has poured their expertise and passion into this publication. Your dedication to pushing boundaries, fostering collaboration, and inspiring innovation is truly commendable.

I invite you all to immerse yourselves in the magazine's contents, to explore the narratives of progress, research discoveries, and visionary ideas. Let this magazine serve as a reminder that every effort, every exploration, and every insight contributes to the advancement of our field and the enrichment of our collective knowledge.

Thank you for your unwavering commitment, your passion for education, and your instrumental role in guiding our academic community towards a future illuminated by innovation and excellence.

Mr. PANKAJ GOYAL

FROM EXECUTIVE DIRECTOR DESK

It brings me great joy and pride to address you on the launch of the technical magazine of the Electrical & Electronics Engineering department. As the College Treasurer, I understand the vital role that financial support plays in nurturing innovation and driving progress in our academic community.



In the pages of this magazine, you'll find a treasure trove of ideas, insights, and discoveries that highlight the cutting-edge work being done within the department. From groundbreaking research to ingenious projects, each contribution represents a step forward in the world of Electrical & Electronics Engineering.

Behind the scenes, our financial investments in infrastructure, resources, and research grants lay the foundation for these achievements. As we embrace the transformative power of technology, we must acknowledge that sound financial stewardship is integral to our journey towards excellence.

I extend my heartfelt gratitude to the faculty, students, and contributors who have poured their expertise and passion into this publication. Your dedication to advancing knowledge and sharing it with our community is truly commendable.

I encourage everyone to delve into the magazine's pages, absorbing the stories of progress and inspiration. Let these stories motivate you to continue pushing boundaries and seeking new horizons within your academic pursuits.

Thank you for your unwavering commitment to innovation, for your contributions, and for being a part of the incredible journey that Electrical & Electronics Engineering offers.

Er. APURVA SINGHAI

FROM EXECUTIVE DIRECTOR DESK

It is an honor to convey my thoughts as a College Executive Member on the occasion of the release of the technical magazine of the Electrical & Electronics Engineering department. This magazine is not just a publication; it is a testament to the dedication, intellect, and unyielding passion that define our academic community.



Through the pages of this magazine, you will delve into a world of ideas, discoveries, and accomplishments that showcase the dynamism of our department. Each article, each research piece, and every contribution reflects the spirit of curiosity and the drive for excellence that characterizes Electrical & Electronics Engineering.

Behind this publication lies the efforts of numerous individuals who have worked tirelessly to bring these ideas to light. As an Executive Member, I've had the privilege of witnessing the collaborative spirit and the sense of purpose that our department embodies.

I want to express my heartfelt gratitude to all contributors, the editorial team, and everyone who has played a role in making this magazine a reality. Your commitment to sharing knowledge, sparking innovation, and fostering intellectual growth is truly commendable.

I encourage you all to immerse yourselves in the magazine's pages, to absorb the stories of progress, breakthroughs, and vision. Let this magazine serve as a reminder of the transformative power of education and the profound impact that our collective efforts can have on the world of Electrical & Electronics Engineering.

Thank you for your contributions, your dedication, and your continuous pursuit of excellence. It's your enthusiasm and determination that make our academic community thrive.

Er. VISHESH JAIN

FROM PRINCIPAL DESK

It is with immense pride and excitement that I extend my warm greetings on the launch of the technical magazine of the Electrical & Electronics Engineering department. This publication stands as a testament to the relentless pursuit of excellence, the spirit of exploration, and the boundless creativity that define our academic community.



The pages of this magazine hold a treasure trove of ideas, discoveries, and accomplishments that echo the vibrancy of our department. Each article, each research endeavor, and every contribution reflects the intellectual fervor and the quest for innovation that characterize Electrical & Electronics Engineering.

As we navigate the dynamic landscape of technology and education, it is paramount that we acknowledge the transformative role that knowledge dissemination and academic collaboration play. This magazine not only celebrates the achievements of our students and faculty but also underscores the collective spirit that drives our progress.

I extend my heartfelt appreciation to all the contributors, the editorial team, and everyone who has dedicated their time and expertise to create this publication. Your commitment to fostering a culture of inquiry, pushing boundaries, and inspiring others is truly commendable.

I invite you all to immerse yourselves in the magazine's contents, to engage with the stories of accomplishment, breakthroughs, and ingenuity. Let this magazine serve as a reminder that every thought, every innovation, and every endeavor contributes to shaping the landscape of Electrical & Electronics Engineering.

Thank you for your contributions, your passion, and your dedication to shaping the future of our field. It is your enthusiasm and drive that make our academic community a thriving hub of inspiration and progress.

Dr. R V Kshirsagar

FROM DIRECTOR IQAC DESK

It is with great pleasure and pride that I address you on the launch of the technical magazine of the Electrical & Electronics Engineering department. This publication is a testament to the unwavering commitment to quality, the spirit of continuous improvement, and the pursuit of excellence that define our academic community.

Within the pages of this magazine, you will encounter a rich tapestry of ideas, research endeavors, and pioneering projects that reflect the ethos of our department. Each article, each contribution, and every insight symbolize the dedication to knowledge, innovation, and growth that characterize Electrical & Electronics Engineering.

As we uphold the principles of quality enhancement and academic excellence, it is crucial to acknowledge the transformative role that knowledge dissemination and sharing play. This magazine not only celebrates the accomplishments of our faculty and students but also highlights the collaborative efforts that underlie our success.

I extend my heartfelt gratitude to all contributors, the editorial team, and everyone who has contributed to this publication. Your commitment to fostering a culture of continuous improvement, pursuing excellence, and sharing insights is truly commendable.

I invite you all to explore the magazine's contents, to engage with the stories of progress, research breakthroughs, and transformative ideas. Let this magazine serve as a reminder that every endeavor, every discovery, and every advancement contributes to the advancement of Electrical & Electronics Engineering and beyond.

Thank you for your dedication, your passion for learning, and your role in making our academic community a hub of continuous improvement and academic excellence.



Dr D. V. S. BHAGWANULU

FROM HOD DESK

It is with immense pride and enthusiasm that I address you on the release of the technical magazine of the Electrical & Electronics Engineering department. This publication serves as a testament to the intellectual fervor, the collaborative spirit, and the unyielding dedication that define our academic community.

Within the pages of this magazine lies a tapestry of ideas, research endeavors, and innovative projects that mirror the essence of our department. Each article, each contribution, and every insight exemplify the commitment to exploration, technical prowess, and scholarly pursuit that characterize Electrical & Electronics Engineering.

As we navigate the ever-evolving landscape of technology and education, it's paramount to recognize the pivotal role that academic leadership and mentorship play. This magazine not only celebrates the achievements of our students and faculty but also underscores the guidance, support, and vision that shape our progress.

I extend my heartfelt gratitude to all contributors, the editorial team, and everyone who has dedicated their time and expertise to make this publication a reality. Your dedication to fostering an environment of innovation, pushing boundaries, and nurturing academic growth is truly commendable.

I invite you all to immerse yourselves in the magazine's contents, to explore the narratives of progress, research breakthroughs, and visionary thinking. Let this magazine serve as a reminder that every endeavor, every discovery, and every insight contributes to the advancement of our field and to the shaping of our collective journey.

Thank you for your unwavering dedication, your passion for education, and your instrumental role in making our academic community a hub of inspiration and technical brilliance.



Dr. RUCHI PANDEY

Editorial Message

Dear Readers and Enthusiasts,

Welcome to the latest edition of our department's technical magazine, an endeavor that exemplifies the essence of exploration, innovation, and academic excellence within the realm of Electrical & Electronics Engineering.

In a world where technology evolves at a rapid pace, this magazine serves as a compass, guiding us through the myriad advancements, breakthroughs, and discoveries that shape our field. Each article, research paper, and project showcased within these pages is a testament to the curiosity, intellect, and dedication that define our academic community.

As we embark on this journey of discovery, we invite you to immerse yourselves in the narratives of innovation that unfold. From pioneering research that expands the boundaries of knowledge to creative projects that embody the practical applications of theory, you'll find a wealth of insights that inspire and captivate.

Our department thrives on collaboration, where the expertise of faculty, the passion of students, and the support of our academic leadership converge to create an environment conducive to progress. This magazine is a celebration of the collective achievements, the collaborative spirit, and the boundless potential that our field offers.

I extend my gratitude to the contributors for their invaluable insights and the editorial team for their meticulous efforts in bringing this publication to fruition. It is through your dedication that we are able to capture the essence of our department's intellectual journey.

As you delve into the pages of this magazine, I hope you are inspired by the transformative power of knowledge and the possibilities that lie ahead. May the stories shared here kindle your curiosity, ignite your creativity, and encourage you to continue pushing the frontiers of Electrical & Electronics Engineering.

Thank you for embarking on this exploration with us. Your curiosity, your enthusiasm, and your commitment to advancing our field make this endeavor truly remarkable.

Editorial board
Dr. Ruchi Pandey
Prof. Shalini Vaishya
Prof. Ashok Soni

MISSION AND VISION OF THE INSTITUTE

Vision of Institution:

Initially to seek autonomy and eventually grow the Institute into a renowned University by:

- Imparting the best technical and professional education to the students of the Institute.
- Developing all the Departments of the Institute as Centers of Excellence.
- Creating the most congenial and cordial environment of Teaching, Learning and Research in the Institute.
- Conceiving world – class Education, Ethics and Employability for students in global perspective.

Mission of Institution:

To explore and ensure the best environment to transform students into creative, knowledgeable, principled engineers and managers compatible with their abilities in ever- changing socio- economic and competitive scenario by:

- Imparting intensive teaching and training through latest technology
- Motivating the teachers for higher learning and innovative research activities with social services.
- Generating maximum opportunities for placement of students in National, Multi-National companies and nurturing entrepreneurship quality.
- Producing highly intellectual citizens through technical education to constitute an elegant society and meeting social challenges.

MISSION AND VISION OF THE DEPARTMENT

Vision of Department:

“The Department of Electrical and Electronics Engineering aims to achieve excellence by providing high quality teaching and learning process, inculcating ethical and moral values, innovation and research to produce skilled technocrats to meet the needs of the society.”

Mission of Department:

The Department aims to realize the Vision through the following Mission by:

- Providing a quality engineering education by implementation of latest technologies and processes.
- Creating opportunities to carry out research and innovation and understand the importance of lifelong learning.
- Organizing student centric programs, trainings and make them employable in national and multinational organizations.
- Preparing them to be successful engineers and train them to provide sustainable solutions to the industry and society.

ENERGY AUDIT

Prof (Dr.) Ruchi Pandey

HOD (Department Of Electrical & Electronics Engineering)

What is Energy Audit ?

Energy today has become a key factor in deciding the product cost at micro level as well as in dictating the inflation and the debt burden at the macro level. Energy cost is a significant factor in economic activity at par with factors of production like capital, land and labor. The imperatives of an energy shortage situation calls for energy conservation measure, which essentially mean using less energy for the same level of activity. Energy Audit attempts to balance the total energy inputs with its use and serves to identify all the energy streams in the systems and quantifies energy usage's according to its discrete function. Energy Audit helps in energy cost optimization, pollution control, safety aspects and suggests the methods to improve the operating & maintenance practices of the system. It is instrumental in coping with the situation of variation in energy cost availability, reliability of energy supply, decision on appropriate energy mix, decision on using improved energy conservation equipment's, instrumentation's and technology.

Objectives of Energy Audit

The Energy Audit provides the vital information base for overall energy conservation program covering essentially energy utilization analysis and evaluation of energy conservation measures. It aims at:

- Identifying the quality and cost of various energy inputs.
- Assessing present pattern of energy consumption in different cost centers of operations.
- Relating energy inputs and production output.
- Identifying potential areas of thermal and electrical energy economy.
- Highlighting wastage's in major areas.
- Fixing of energy saving potential targets for individual cost centers.
- Implementation of measures for energy conservation & realization of savings.

Energy audits can be categorized into different levels based on their depth and complexity:

Level 1 Audit: This involves a basic analysis of energy bills and a walkthrough survey to identify low-cost, no-cost energy-saving opportunities.

Level 2 Audit: In addition to the Level 1 audit, this level includes a more detailed analysis of energy consumption patterns and potential measures, along with an estimate of costs and savings.

Level 3 Audit: This is a comprehensive audit that includes a detailed engineering analysis, simulations, and economic feasibility studies for a wide range of potential energy-saving measures.

Overall, energy audits are a crucial tool for businesses, homeowners, and organizations aiming to reduce their energy consumption, lower operating costs, and contribute to environmental sustainability. Energy audits are beneficial for various types of buildings and industries, including commercial, industrial, and residential sectors, as they contribute to cost savings, reduced environmental impact, and increased energy security.

ELECTRIC VEHICLE & SOLAR ENERGY

Ashok Soni
Assistant professor
Department Of Electrical & Electronics Engineering



Electric vehicles (EVs) and solar energy are two important components of the ongoing transition towards a more sustainable and environmentally friendly energy system. Let's explore each of these topics:

Electric Vehicles (EVs): Electric vehicles are automobiles that are powered by one or more electric motors, using energy stored in rechargeable batteries. They have gained significant attention in recent years due to their potential to reduce greenhouse gas emissions, decrease air pollution in urban areas, and decrease dependence on fossil fuels. Some key points about EVs include:

Advantages:

- **Environmental Benefits:** EVs produce lower or zero tailpipe emissions, depending on the energy source used for electricity generation. This can significantly reduce air pollution and contribute to combating climate change.
- **Energy Efficiency:** EVs are generally more energy-efficient than traditional internal combustion engine vehicles, as electric motors have higher efficiency rates.
- **Reduced Operating Costs:** EVs have fewer moving parts compared to internal combustion engine vehicles, leading to reduced maintenance costs.
- **Quiet Operation:** Electric motors produce significantly less noise than internal combustion engines, leading to quieter streets and neighborhoods.

Challenges:

- **Limited Range:** Although EV technology has improved, some models still have limitations in terms of driving range compared to traditional vehicles.
- **Charging Infrastructure:** The availability and accessibility of charging stations can vary depending on the region, which can be a concern for long-distance travel.
- **Initial Cost:** While the cost of EVs has been decreasing, the upfront cost can still be higher than that of traditional vehicles, although lower operating and maintenance costs can offset this over time.

Solar Energy: Solar energy is derived from the sun's radiation and can be converted into electricity or used directly for heating and lighting. Solar power is considered a clean and renewable energy source with immense potential. Key points about solar energy include:
Photovoltaic (PV) Systems: Solar photovoltaic systems convert sunlight directly into electricity using solar panels made of semiconductor materials. These panels generate DC electricity, which can then be converted into AC electricity using inverters for household or grid use.

Advantages:

- **Renewable:** Solar energy is abundant and virtually limitless as long as the sun continues to shine.
- **Environmental Benefits:** Solar power generation produces no greenhouse gas emissions or air pollutants.
- **Reduced Energy Bills:** Installing solar panels on residential or commercial properties can lead to significant reductions in electricity bills over time.

Challenges:

- **Intermittency:** Solar energy generation is dependent on sunlight, which can be intermittent due to weather conditions and the day-night cycle. Energy storage solutions like batteries are often used to address this issue.
- **Initial Investment:** While solar costs have decreased, the initial investment for purchasing and installing solar panels can still be substantial, although various incentives and rebates may help mitigate this.
- **Space Requirements:** Solar panels require space for installation, which might be a limitation in densely populated or constrained areas.

Bringing EVs and solar energy together can form a synergistic approach to sustainable living. Some EV owners choose to power their vehicles with electricity generated from solar panels installed on their properties, reducing both their transportation-related emissions and their reliance on the grid. This combination can contribute to a more environmentally friendly lifestyle and a more resilient energy system.

SMART TRANSFORMERS

Amit Gupta
Assistant professor
Department Of Electrical & Electronics Engineering



Smart transformers, also known as intelligent transformers or digital transformers, are an evolution of traditional transformers that incorporate advanced monitoring, control, and communication technologies. These technologies enable smart transformers to actively interact with the electrical grid, providing a range of benefits for power distribution, management, and reliability. Here are some key features and advantages of smart transformers:

Real-time Monitoring: Smart transformers are equipped with sensors that monitor various parameters such as voltage, current, temperature, and oil condition. This real-time data helps utilities detect abnormalities and potential faults before they escalate into major issues.

Remote Control and Management: Through communication interfaces such as the Internet of Things (IoT) and Supervisory Control and Data Acquisition (SCADA) systems, smart transformers can be remotely controlled and managed. This allows for adjustments to voltage levels, tap settings, and other parameters without physically accessing the transformer.

Condition Monitoring: Smart transformers can perform continuous self-diagnosis and assess their own health. This information enables utilities to perform predictive maintenance, reducing downtime and preventing unexpected failures.

Efficiency Improvement: With the ability to optimize their operations based on real-time grid conditions, smart transformers can contribute to higher overall energy efficiency in the distribution network.

Load Balancing: Smart transformers can dynamically redistribute loads within a network by rerouting power flows, reducing congestion and maximizing utilization of existing infrastructure.

Voltage Regulation: Voltage levels can be adjusted more precisely with smart transformers, helping to maintain stable power quality and mitigate voltage fluctuations.

Integration of Renewables: Smart transformers facilitate the integration of renewable energy sources by adapting to variable generation patterns and ensuring grid stability.

Faster Fault Detection and Response: The quick detection of faults allows utilities to isolate the affected area and minimize disruptions to the rest of the grid. This enhances the overall reliability of the power distribution system.

Grid Resilience: By responding to grid disturbances and actively participating in grid

management, smart transformers contribute to the resilience and stability of the entire electrical network.

Data Analytics and Insights: The data collected from smart transformers can be analyzed to gain insights into grid behavior, load patterns, and transformer performance. This data-driven approach can inform decision-making for grid optimization and future planning.

Demand Response: Smart transformers can support demand response initiatives by enabling utilities to adjust power delivery based on demand fluctuations, contributing to more efficient energy usage.

Overall, smart transformers represent a significant advancement in power distribution technology. Their ability to monitor, communicate, and adapt makes them a key component in modernizing and optimizing electrical grids for the challenges of the future, including the integration of renewable energy, increased demand, and the need for improved grid reliability.

"M-VOTING: THE FUTURE OF VOTING"

Parul Sharma

Assistant professor

Department Of Electrical & Electronics Engineering

In an era marked by technological innovation, the evolution of democratic processes continues to reshape the way societies engage with their governments. As the world increasingly embraces digital solutions, the concept of e-voting has emerged as a transformative force, enabling citizens to cast their ballots conveniently and securely. However, the horizon of innovation knows no bounds, and now, a new paradigm - M-Voting - is gaining momentum as a promising alternative.

M-Voting, or Mobile Voting, builds upon the principles of e-voting while leveraging the ubiquity and accessibility of mobile devices. Imagine a scenario where citizens can exercise their democratic rights not just from their computers but also from the very palm of their hands. This approach harnesses the power of smart phones, ensuring that voting becomes even more seamless, efficient, and inclusive.

One of the key advantages of M-Voting lies in its potential to overcome geographical barriers. With mobile phones in the hands of even the most remote populations, this approach has the capacity to empower citizens who might otherwise face challenges in accessing traditional polling stations. Moreover, the security features embedded in modern smartphones, including biometric authentication, encryption, and secure transmission, can enhance the integrity of the voting process.

However, as with any innovation, M-Voting also presents its own set of challenges. Ensuring the verifiability, privacy, and security of each vote is paramount. Robust authentication mechanisms, foolproof encryption, and rigorous testing are imperative to address concerns related to hacking, fraud, and coercion.

M-Voting exemplifies the dynamic nature of our digital age, where innovation continues to redefine the boundaries of possibility. As we explore this alternative to e-voting, careful consideration of technological, logistical, and ethical aspects is essential. The potential to increase voter participation, streamline the electoral process, and enhance democracy's accessibility is indeed promising.

The journey towards M-Voting as a reliable alternative to traditional and e-voting is just beginning. It requires the collaboration of technology experts, policymakers, and society at large to navigate the challenges and seize the opportunities it presents. With careful planning, robust implementation, and a commitment to democratic values, M-Voting could well emerge as the next chapter in the evolution of digital democracy.

APPLICATIONS OF INTERNET OF THINGS

SHIVANAND DWIVEDI (0206EX201046)

III Semester

Department of Electrical & Electronics Engineering



SMART HOME: Smart Home clearly stands out, ranking as highest Internet of Things application on all measured channels. More than 60,000 people currently search for the term “Smart Home” each month. This is not a surprise. The IoT Analytics company database for Smart Home includes 256 companies and start-ups. More companies are active in smart home than any other application in the field of IoT. The total amount of funding for Smart Home start-ups currently exceeds \$2.5bn. This list includes prominent start up names such as Nest or Alert Me as well as a number of multinational corporations like Philips, Haier, or Belkin.

SMART CITY: Smart city spans a wide variety of use cases, from traffic management to water distribution, to waste management, urban security and environmental monitoring. Its popularity is fuelled by the fact that many Smart City solutions promise to alleviate real pains of people living in cities these days. IoT solutions in the area of Smart City solve traffic congestion problems, reduce noise and pollution and help make cities safer.

SMART GRIDS: Smart grids are a special one. A future smart grid promises to use information about the behaviours of electricity suppliers and consumers in an automated fashion to improve the efficiency, reliability, and economics of electricity. 41,000 monthly Google searches highlights the concept's popularity. However, the lack of tweets (Just 100 per month) shows that people don't have much to say about it.

INDUSTRIAL INTERNET: The industrial internet is also one of the special Internet of Things applications. While many market researches such as Gartner or Cisco see the industrial internet as the IoT concept with the highest overall potential, its popularity currently doesn't reach the masses like smart home or wearables do. The industrial internet however has a lot going for it. The industrial internet gets the biggest push of people on Twitter (~1,700 tweets per month) compared to other non-consumer-oriented IoT concepts.

CONNECTED CARS: The connected car is coming up slowly. Owing to the fact, that the development cycles in the automotive industry typically take 2-4 years, we haven't seen much buzz around the connected car yet. But it seems we are getting there. Most large auto makers as well as some brave start-ups are working on connected car solutions. And if the BMWs and Fords of this world don't present the next generation internet connected car soon, other well-known giants will: Google, Microsoft, and Apple have all announced connected car platforms.

CONNECTED HEALTH (DIGITAL HEALTH/TELEHEALTH/TELEMEDICINE) Connected health remains the sleeping giant of the Internet of Things applications. The concept of a connected health care system and smart medical devices bears enormous potential (see our analysis of market segments), not just for companies also for the well-being of people in general. Yet, Connected Health has not reached the masses yet. Prominent use cases and large-scale start-up successes are still to be seen.

SMART RETAIL: Proximity-based advertising as a subset of smart retail is starting to take off. But the popularity ranking shows that it is still a niche segment. One LinkedIn post per month is nothing compared to 430 for smart home.

SMART SUPPLY CHAIN: Supply chains have been getting smarter for some years already. Solutions for tracking goods while they are on the road, or getting suppliers to exchange inventory information have been on the market for years. So, while it is perfectly logic that the topic will get a new push with the Internet of Things, it seems that so far its popularity remains limited.

SMART FARMING: Smart farming is an often, overlooked business-case for the internet of Things because it does not really fit into the well-known categories such as health, mobility, or industrial. However, due to the remoteness of farming operations and the large number of livestock that could be monitored the Internet of Things could revolutionize the way farmers work. But this idea has not yet reached large-scale attention. Nevertheless, one of the Internet of Things applications that should not be underestimated. Smart farming will become the important application field in the predominantly agricultural-product exporting countries.

ऊर्जा संरक्षण पर कविता

ऊर्जा बचाओ ऊर्जा बचाओ
आने वाले कल को तुम
खुशियों से सजाओ
ऊर्जा बचाओ ऊर्जा बचाओ

सीमित हैं पुराने संसाधन
इनको कम उपयोग में लाओ
सम्पन्न भारत हेतु तुम
नव ऊर्जा को अपनाओ
ऊर्जा बचाओ ऊर्जा बचाओ

पेट्रोल डीजल सब हैं सीमित
यूं गाड़ियां ना दौड़ाओ
प्रदूषण मुक्त भारत तुम
नव पीढी को दे जाओ
ऊर्जा बचाओ ऊर्जा बचाओ

बिजली का करके दुरुपयोग
यूं बिल ना भरे ही जाओ
ऊर्जा संरक्षण में सहयोग करो
तुम कर्तव्य अपना निभाओं
ऊर्जा बचाओ ऊर्जा बचाओं

ABHISHEK PAROCHI
(0206EX211004)
I Semester
Department of
Electrical & Electronics Engineering



EVENTS ORGANIZED BY THE DEPARTMENT

Expert Talk:

Following events are organized from 1 Jul 2021 to 30 Jun 2022:

- Guest Lecture on **“Leveraging distributed machine learning for IoT Related Problems in Electrical Engineering: A Drone Perspective”** delivered by Mr. Aizaz Timrizi, Project Manager, Technical Head & Project Engineer, Sofcon India Pvt. Ltd. Indore dated on 24/06/2022.
- A Seminar by on **“Placement Awareness”** delivered by Mr. Prabhakar Managing Director OPTUS, ED Tech Solution dated on 26/05/2022.
- Expert Lecture on **“Role of AI in Smart Electrical grid Empowering Social Life”** delivered by Dr. Ashok Tiwari, Head CTI, MPPDCL, Jabalpur dated on 2022. Expert Lecture on **“Modernize your substation with digital capabilities”** delivered by Mr. M. M. Farooqui, Corporate Trainer, Sofcon India Pvt. Ltd. Indore dated on 25/03/2022.
- Expert Lecture on **“Development of artificial intelligence in electrical power system applications”** delivered by Dr. Vivek Chandra, General Manager and Head IT, MPPKVVCL Jabalpur dated on 26/02/2022.
- Guest Lecture on **“Applications of Signals & Systems”** delivered by Dr. G.C. Manna, CGM, BSNL, Jabalpur dated on 21/01/2022.
- Expert talk on **“To design a data base solution for a Business or Organization”** dated on 10-01-2022.
- Guest Lecture on **“Importance of Co-generation and coordination of power plant, their merits and demerits”** delivered by Mr. Mayank Mishra Managing Director, RM Solar Green Energy, Rewa dated on 29/10/2021.
- Expert Talk on **“Improved Power System Protection and Control in a Robust Smart Grid”** delivered by Mr Chetan Chauhan Regional Manager, Sofcon India Pvt. Ltd. Indore dated on 21/08/2021.
- Two days training programme on **“MS-Excel & Power BI”** delivered by Dr Ashok Verma dated on 13/08/2021 to 14/03/2021.
- A Seminar on **“Cyber Security”** delivered by Mr. M. Pandey, Jabalpur Cyber Cell dated on 11/8/2021





ACHIEVEMENTS



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PAPER PUBLICATION :

- Dr Rajeev Kumar Chauhan published a paper **“Coordinated Multistage Expansion Planning Of Distribution Network”** on AICTE Sponsored International Conference On Electrical Engineering And Multidisciplinary Research (ICEEMR 2022) , ISBN 978-93-91930-06-6, dated on June, 2022.
- **Mrs. Ritu Sharma** published a paper **“Role Of Artificial Intelligence In Power Electronic Circuit”** on International Conference On Science & Innovative Engg. In Association With Jawahar Engg. College Chennai dated on June 2022.
- **Mrs. Parul Sharma** published a paper **“Role Of Artificial Intelligence In Power Electronic Circuit”** on International Conference On Science & Innovative Engg. In Association With Jawahar Engg. College Chennai dated on June 2022.
- Mrs. Rashi Goswami published a paper **“Power Quality Improvement Of DC Drive By Reduction Of Circulating Current Using IOT”** on International Journal Of Recent Research In Electrical And Electronics Engineering (IJRREEE) Vol. 8, Issue 1 dated on June 2022. Dr Ruchi Pandey published a paper **“Analytical Approach On Energy Management System And Utilization In Madhya Pradesh For Paper Industry”** on International Advanced Research Journal In Science, Engineering And Technology, Vol-45, No.-1, (III) January-March (2022) ISSN: 2249-6661 dated on Jan 2022.
- Dr Ruchi Pandey published a paper **“Implementation And Analysis Based On Power Grid On Energy Storage System Quality: A Review”** On Accent Journal Of Economics Ecology & Engineering , Vol. 06, Issue 01, January 2022, pp.2456-1037, ISSN NO. 2456-1037 , dated on Jan 2022.
- Dr Ruchi Pandey published a paper **“Analytical Approach On Energy Management System And Utilization In Madhya Pradesh For Paper Industry: A Review”**, On Accent Journal Of Economics Ecology & Engineering , Vol. 06, Issue 10, October 2021 , (ISSN NO. 2456-1037) , dated on October 2021
- Dr Ruchi Pandey published a paper **“An Analytical Approach On Solar Radiation Concept For Energy Arrivals Resources For Power Quality Improvement: A Review”** On Accent Journal Of Economics Ecology & Engineering, [Vol. 14 No. 1 \(2021\)](#), dated on 2021.
- Dr Ruchi Pandey published a paper **“Energy Efficiency Opportunities By Monitoring And Using Converter In Household Electricity: A Review”** on Accent Journal Of Economics Ecology & Engineering [Vol. 14 No. 1 \(2021\)](#) ISSN NO. 2456-1037 dated on 2021.
- Dr. Pawan Kumar Pandey published a paper **“Integrated Grid-Connected Hybrid Power Generating System With Optimized PLL-Based Power Control”** on Walailak Journal Of Science And Technology (WJST), 18/16, 2228-835X, dated on 2021.
- Dr. Pawan Kumar Pandey published a paper **“Hybrid Controller And DSTATCOM With Hybrid Technique Optimized And Integrated The Hybrid Power Generating System”** on Turkish Online Journal Of Qualitative Inquiry (TOJQI) 12-07, 1309-6591 dated on 2021.
- Mr. Anand Goswami published a paper **“Performance Analysis Of 3kw Residential Grid - Connected Photovoltaic System With Micro Inverter Topology Using System Advisor Model”** on International Journal For Research In Applied Science & Engineering Technology (IJRASET), Volume 9 Issue IX, dated on 2021.



ACHIEVEMENTS



- Dr Ruchi Pandey published a paper **“Power Quality Improvement By Monitoring And Using Converter In Household Electricity”** on International Journal Of Grid And Distributed Computing, Vol. 14, No. 01, (2021), pp.1419-1430 ISSN: 2005-4262 (ONLINE), dated on 2021.
- Dr. Pawan Kumar Pandey published a paper **“Analysis Of Integrated Grid-Connected PV/Battery System Under Various Operating Conditions”** on Design Engineering (Toronto) 2021-07 0011-9342 dated on 2021
- Dr. Pawan Kumar Pandey published a paper **“Hybrid System - Framework Which Prompts Produce Power With Reasonable Expense Without Harming The Nature Balance”** on Design Engineering (Toronto) 2021-09 0011-9342 dated on 2021
- Mr. Anand Goswami published a paper **“Performance Comparison Of 3kw Residential Grid-Connected Photovoltaic System Between Micro Inverter And String Inverter Topology Using System Advisor Model”** on International Research Journal Of Engineering And Technology (IRJET) Volume: 08 Issue: 09 dated on 2021.

BOOKS / BOOK CHAPTERS PUBLICATIONS:

- Dr Ruchi Pandey Published a Book Chapter in book titled **Emerging Trends and Innovation in Commerce and Management (Book Chapter)** by RFI International Book Publications, ISBN No.:- 978-93-91903-48-0, Year: 2021, Book Chapter No. - 08, pp. 51-55, Title: Recent Innovation for Autonomous Building Energy Management.
- Dr Ruchi Pandey Published Book Chapter in book titled Intellectual Property Rights and Contemporary Issues in Innovation, Ecosystem, Environmental and Sustainable Development (Book Chapter) by Black Pearl Publications, ISBN No.- 978-93-90975-39-6, Year: 2021, Book Chapter No.- 05, pp 55-60, Title: Conceptual Research on Climate Change, Sustainable Development Goal.

AWARD:

- Students of Department of Electrical & Electronics got 3rd rank in state level project competition SRIJAN organized in Bhopal on the topic “Animal Detection System Using Laser”.
1. Aanchal Kesarwani
 2. Nidhi Singh Chouhan
 3. Rajneesh Choudhary
 4. Shalini Choubey
 5. Shivnesh Goundar



INDUSTRIAL VISIT:



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A campaign for
Crowd Sourcing of
Data about Rivers



Placements :



Batch 2022 Passout

S.no.	Name of the student placed	Enrollment no.	Name of the Employer	Appointment letter reference no. with date
1	Shalini Choubey	0206EX181041	CISCO	Offer Letter Dated, 1th Feb. 2022
2	Somya Jha	0206EX181048	Jaro Education	Mail And Offer, Nov. 11, 2021
3	Aanchal Kesarwani	0206EX181001	Persistent System	Mail, Sept. 27, 2021
4	Gagan Pandey	0206EX181017	Persistent System	Mail, Sept. 27, 2021
5	Ayush Dwivedi	0206EX181012	Pyramid It Consulting (P) Ltd.	Mail, Dated Apr. 07, 2022
6	Khirabdhi Tanaya Pati	0206EX181022	Ericsson	Mail, Dec. 9, 2021
7	Pallavi Kartikeya	0206EX181030	DHL	Offer And Mail, May 12, 2022
8	Prateek Bhalelu	0206EX181034	DHL	Offer And Mail, May 12, 2022
9	Aayush Sharma	0206EX181002	Cognizant Genc	Offer And Mail, Oct. 1, 2021
10	Ojasva Choubey	0206EX181029	Cognizant Genc	Offer And Mail, Oct. 1, 2021
11	Shivnesh Goundar	0206EX181044	Cognizant Genc	Offer And Mail, Oct. 1, 2021
12	Shreyansh Mishra	0206EX181045	Cognizant Genc	Offer And Mail, Oct. 1, 2021
13	Vanshika Bilthariya	0206EX181052	Cognizant Genc	Offer And Mail, Oct. 1, 2021
14	Vanshika Choudha	0206EX181053	Cognizant Genc	Offer And Mail, Oct. 1, 2021
15	Hritik Jain	0206EX181019	Cerium Systems (P) Ltd.	Email And Offer, Dec. 23, 2021
16	Nikita Devgirkar	0206EX181027	Cerium Systems (P) Ltd.	Email And Offer, Dec. 23, 2021
17	Shubh Sahu	0206EX181046	Cerium Systems (P) Ltd.	Email And Offer, Dec. 23, 2021
18	Garima Singh	0206EX181018	Collabera	Email, Dated Jan. 21, 2022
19	Atharva Tiwari	0206EX181011	Dhoot Transmission (P) Ltd.	Mail, Apr. 29, 2022
20	Deepak Yadav	0206EX181016	Dhoot Transmission (P) Ltd.	Mail, Apr. 29, 2022
21	Raju Kushwaha	0206EX181037	Dhoot Transmission (P) Ltd.	Mail, Apr. 29, 2022
22	Sujeet Patel	0206EX181049	Dhoot Transmission (P) Ltd.	Mail, Apr. 29, 2022
23	Umendra Kumar Shah	0206EX181051	Dhoot Transmission (P) Ltd.	Mail, Apr. 29, 2022
24	Shilpi Manik	0206EX181042	Av Services	Offer, January 11, 2022
25	Sejal Gupta	0206EX181040	Av Services	Offer, January 11, 2022
26	Satyam Choubey	0206EX181039	Lancesoft India Pvt. Ltd.	Offer, Feb. 14, 2022
27	Rajneesh Choudhary	0206EX181036	Lancesoft India Pvt. Ltd.	Offer, Feb. 14, 2022
28	Bhupendra Kumar	0206EX181014	Lancesoft India Pvt. Ltd.	Offer, Feb. 14, 2022
29	Nidhi Singh Chouhan	0206EX181026	Capgemini	Superset Id: 1436665
30	Monti Luhar	0206EX181025	Capgemini	Superset Id: 1436690

Placements :



31	Ishan Jain	0206EX181020	Capgemini	Superset Id: 1436580
32	Anchal Singh	0206EX181008	Capgemini	Superset Id: 1436572
33	Yukta Vaidya	0206EX181056	Capgemini	Superset Id: 1437001
34	Ayush Yadav	0206EX181013	KEC International Ltd	Offer Letter Dated, 28-08-2022
35	Aniket Jain	0206EX181009	KEC International Ltd	Offer Letter Dated, 28-08-2022
36	Aman Pandey	0206EX181007	KEC International Ltd	Offer Letter Dated, 28-08-2022
37	Adarsh Kumar Gupta	0206EX181005	JBS Pvt. Ltd.	Jbs/Hr/21-22/201202
38	Devashish Jhariya	0206EX193D02	JBS Pvt. Ltd.	Jbs/Hr/21-22/201212
39	Rakesh Kumar Sahu	0206EX193D03	JBS Pvt. Ltd.	Jbs/Hr/21-22/201215

Slogans



Think. Act. Save.

**Saving electricity is our job, we
must remember to turn electronics off!**

EDITORIAL TEAM

Faculty :-

1. Dr Ruchi Pandey
2. Prof. Shalini Vaishya
3. Prof. Ashok Soni

Students :-

1. Shalini Choubey
2. Khushboo Agrawal
3. Shivahans Singh
4. Zoukia Akhtar



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