

URJA 2022

e - Magazine

Year 2021-22

IPS Academy
Institute of Engineering & Science
(A UGC Autonomous Institute, Affiliated to RGPV)

Editorial Board

Student Co-Ordinator

Priyanshi Pal
Mahima Chaudhary
3rd year

Faculty Co-Ordinator

Hemant Mehar
Asst Prof, EEE

Department of Electrical & Electronics Engineering

Department Vision & Mission

Vision

The vision of the Electrical and Electronics Engineering is to prepare students to compete globally in their profession, in order to reach the highest level of intellectual attainment and making significant contribution to society.

Mission

- 1. To become an internationally leading Electrical and Electronics Engineering department for higher learning and be self-reliant.***
- 2. To build upon the culture and values of universal science and contemporary education through understanding of Electrical and Electronics Engineering.***
- 3. To be a centre of research and education generating knowledge and technologies, this lay groundwork in shaping the future in the fields of Electrical and Electronics Engineering.***
- 4. To develop partnership with industrial, R&D and government agencies and actively participate in conferences, technical and community activities.***

About Department

Electrical Engineers are the backbone of any country. They provide power for industrial & domestic needs. The department of Electrical & Electronics Engineering was established in the year 2003. B.E. (Electrical & Electronics Engineering) is focus on Electrical Machines, Control System, Power System, Network Analysis. Recently the rapid advance in Semiconductors technology and its application in electrical industry, the branch has introduced adequate number electronics subject like Micro Controller & its Interfacing, Power Semiconductor devices, Power Semiconductor drives, DSP, Advance Communication, Analog and Digital Communication etc. With the emphasis on above areas, the student will acquire analytic and practical skills and hence can serve better in industrial, services and research organizational set ups. The Various laboratories in the department are Basic Electrical Engineering, Electrical Instrumentation, Network Analysis, Electrical Machine, Power System & Protection, Power / Industrial Electronics, Control System, Electronic Devices & Circuits, Microcontroller & Interfacing, Software & Simulation Digital Electronics & Logic Design.

Courses Offered

- 1. B. Tech. (UG Program) in Electrical & Electronics Engineering**
- 2. M. Tech (PG Program) with specialization in Power Electronics**

Department Program Education Objective

PEO 1 Education in the fundamental sciences and mathematics that underlie Electrical and electronics engineering with a general breadth and depth in Electrical and electronics engineering analysis and design.

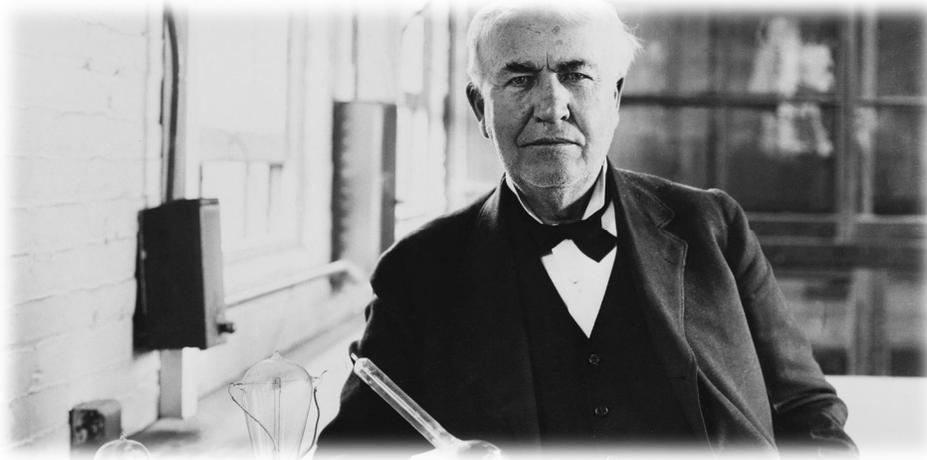
PEO 2 Awareness of current technology and the fundamental background to be able to stay informed and adept at new technologies in Electrical and electronics engineering and to pursue higher studies

PEO 3 The ability to put ideas into practice through effective analysis & problem solving for various Electrical and electronics engineering applications

PEO 4 A broad awareness of the world around them through general education so they are prepared to achieve their potential and make contributions in their Electrical and electronics engineering fields.

PEO 5 The foundation of communications and teamwork skills and professional attitudes and ethics Scientist of the Quarter

Thomas Edison: The Inventor Who Lit Up the World



Thomas Alva Edison, born in 1847 in Ohio, USA, was one of the most prolific inventors in history. His inventions transformed our daily lives and laid the foundation for modern technology. Let's explore his remarkable journey and some of his groundbreaking experiments:

Early Life and Curiosity

Edison didn't have a formal education. He was mostly taught by his mother at home. As a child, he was always curious about how things worked. He conducted small experiments in his basement and set up a little laboratory in his train car.

Key Experiments and Inventions

Electric Light Bulb: Edison's most famous invention is the electric light bulb. He tried thousands of different materials to find a filament that would glow brightly and last a long time. In 1879, he finally succeeded in creating a practical electric light bulb that could light up homes and streets.

Phonograph: In 1877, Edison invented the phonograph, a device that could record and play back sound. This invention laid the groundwork for modern audio recording technologies.

Motion Pictures: Edison also developed early motion picture cameras and projectors. His inventions, like the Kinetoscope and Kinetograph, were crucial in the development of the film industry.

Electric Power System: Edison didn't just invent the light bulb; he also developed a system for generating and distributing electricity. His direct current (DC) electrical system helped bring electric power to cities and homes.

Legacy and Impact

Edison's inventions had a profound impact on society. They brought light to the darkness, recorded our voices and music, and entertained us with moving pictures. His work paved the way for the electrification of cities and laid the foundation for the modern technological era.

Entrepreneurial Spirit

Beyond being an inventor, Edison was also a savvy businessman. He founded the Edison Electric Light Company to promote his inventions and build power stations. His entrepreneurial spirit and determination made him a leading figure in the industrial revolution.

Conclusion

Thomas Edison's life story teaches us the power of persistence and curiosity. Despite facing many failures and setbacks, he never gave up on his ideas. His relentless pursuit of innovation and his ability to turn ideas into practical inventions have left an indelible mark on history. Edison's legacy continues to inspire inventors, scientists, and entrepreneurs around the world, reminding us that with creativity and perseverance, anything is possible.

Students placed On Campus in Session 2020-21

S. No.	Name of Company	Name of Student
1	TCS	Bhavishya Tank
2	TCS / Wipro	Deepak Patidar
3	DTDC	Gourav Yadav
4	Newgen Software Technologies Ltd	Manish Verma
5	Hexaware Technology	Praveen Gawday
6	TCS	Priyanshu Verma
7	Hexaware Technology	Ritika Jain
8	TCS	Rupal Sonwane
9	Hexaware Technology	Sandeep Kumar Singh R
10	DTDC	Shajma Hussain
11	Mylan / DTDC	Md. Ayan Abbasi
12	Mylan / DTDC	Vivek Rathod
13	Amraja Battery	Puran Malviya
14	Wipro	Saurabh Mishra

Result of the Department

Top 5 Students				
S. No.	Roll No.	Name of Students	SGPA	CGPA
1	0808EX181017	Ritika Jain	9.83	9.31
2	0808EX181016	Rishabh Sharma	9.71	8.8
3	0808EX181022	Sandeep Kumar	9.54	8.91
4	0808EX181023	Saurabh Mishra	9.5	8.58
5	0808EX181012	Pranav Mathankar	9.46	8.84

Students Articles

Harnessing the Power of Green Energy: A Sustainable Future

Introduction

In an era where environmental sustainability is paramount, the global shift towards green energy sources represents a crucial step forward. Green energy, also known as renewable energy, is derived from naturally replenishing resources that are not depleted when used. Unlike fossil fuels, which contribute significantly to greenhouse gas emissions and climate change, green energy offers a cleaner, more sustainable alternative.

Types of Green Energy

Green energy encompasses various sources, each with its unique benefits and applications:

***Solar Power:** Solar energy harnesses the sun's radiation through photovoltaic cells to generate electricity. This renewable resource is abundant and widely accessible, making it a cornerstone of sustainable energy solutions.*

***Wind Power:** Wind turbines convert the kinetic energy of wind into electricity. Wind farms, located on land or offshore, are increasingly prevalent across the globe, providing a reliable source of clean energy.*

***Hydropower:** Hydropower utilizes the energy of flowing water, typically in dams or river systems, to generate electricity. It is one of the oldest forms of renewable energy and remains a significant contributor to global electricity production.*

***Geothermal Energy:** Geothermal energy taps into the Earth's internal heat to generate electricity or provide heating and cooling directly. This resource is particularly abundant in regions with volcanic activity or geothermal reservoirs.*

***Biomass:** Biomass energy is derived from organic materials such as wood, agricultural residues, and waste. It can be burned directly for heat or electricity, or converted into biofuels like ethanol and biodiesel.*

Advantages of Green Energy

The adoption of green energy offers numerous advantages:

***Reduction in Greenhouse Gas Emissions:** By replacing fossil fuels with renewable alternatives, green energy significantly reduces carbon dioxide and other greenhouse gas emissions, mitigating climate change impacts.*

Energy Security and Independence: Unlike finite fossil fuels, green energy sources are inexhaustible and often domestically available, enhancing energy security and reducing reliance on imported fuels.

Job Creation and Economic Growth: The transition to green energy stimulates economic growth through investment in infrastructure, research, and development, while creating jobs in manufacturing, installation, and maintenance.

Improved Public Health: Traditional energy sources like coal and oil are associated with air and water pollution, leading to respiratory diseases and other health issues. Green energy helps alleviate these concerns by producing clean, non-toxic energy.

Challenges and Solutions

Despite its benefits, the widespread adoption of green energy faces challenges:

Intermittency: Solar and wind power generation can be intermittent due to weather conditions. Advances in energy storage technologies and grid management are addressing these challenges to ensure reliability.

Infrastructure Requirements: Developing renewable energy infrastructure requires significant investment and planning. Governments and private sectors are increasingly collaborating to overcome these barriers through policy incentives and innovation.

Public Perception and Awareness: Educating the public about the benefits of green energy and dispelling myths about its effectiveness and cost are crucial for widespread acceptance and adoption.

In conclusion, embracing green energy isn't just a choice; it's a necessity for a sustainable future. By leveraging renewable resources responsibly and innovatively, we can mitigate environmental impacts, foster economic growth, and ensure energy security for all. Together, we can pave the way towards a cleaner, greener tomorrow.

Article by

Pranav Mathankar (0808EX181012), 4th Year, EEE

Electrical Safety and Standards in India: Ensuring a Secure Power Infrastructure

Introduction

In India, as in many parts of the world, electricity is the lifeblood of modern infrastructure, powering industries, homes, and essential services. However, with its pervasive use comes the critical need for stringent electrical safety standards to protect lives, property, and ensure uninterrupted supply. This article delves into the landscape of electrical safety and standards in India, highlighting its challenges, regulations, and the ongoing efforts to foster a secure electrical environment. Electricity, while essential, poses significant hazards if not managed properly. Electrical accidents can lead to injuries, fatalities, and property damage. According to the National Crime Records Bureau (NCRB) of India, electrical accidents account for a significant portion of industrial accidents and fatalities each year. Therefore, ensuring electrical safety is not just a matter of compliance but a crucial aspect of public health and infrastructure resilience.

Regulatory Framework

In India, electrical safety standards are primarily governed by the following regulatory bodies:

Central Electricity Authority (CEA): The CEA is responsible for formulating safety regulations and standards for electrical installations and operations at the national level.

Bureau of Indian Standards (BIS): BIS sets standards for electrical equipment, appliances, and materials to ensure their safety, quality, and performance.

Ministry of Power: The Ministry of Power oversees policies and initiatives related to electricity generation, transmission, distribution, and safety standards.

State Electricity Regulatory Commissions (SERCs): Each state has its SERC responsible for regulating the safety and efficiency of electricity distribution within its jurisdiction.

Key Safety Standards and Practices

India adopts a mix of international standards and locally developed guidelines to ensure electrical safety. Some essential standards include:

IS 732 (Part 1): Indian Standard for Wiring Installation covering general requirements and practices for electrical installations.

IS 3043: Guidelines for Earthing to ensure safety against electric shock and lightning.

IEC Standards: India also aligns with international standards set by the International Electrotechnical Commission (IEC) for electrical equipment and safety practices.

Challenges and Mitigation Strategies

Despite robust regulatory frameworks, several challenges persist in ensuring comprehensive electrical safety in India:

Informal Sector and Non-Compliance: A significant portion of electrical installations and operations in India, especially in rural areas and informal sectors, may not adhere to safety standards due to lack of awareness or enforcement.

Aging Infrastructure: The maintenance and upgrade of aging electrical infrastructure pose safety risks, requiring investment and modernization efforts.

Training and Awareness: Enhancing awareness among electrical workers, consumers, and the public about safety practices and standards remains crucial.

To address these challenges, initiatives such as public awareness campaigns, training programs for electrical personnel, and stricter enforcement of regulations are being implemented. Furthermore, advancements in technology, such as smart grids and safer electrical equipment, are enhancing the overall safety and efficiency of India's power infrastructure.

Conclusion

Electrical safety is a shared responsibility among stakeholders, including government bodies, industry players, electrical professionals, and consumers. By adhering to rigorous standards, promoting awareness, and embracing technological innovations, India can achieve a safer and more resilient electrical infrastructure. Continuous efforts in regulatory oversight, education, and infrastructure development will pave the way for a future where electricity is not only accessible but also safe for all.

Article by

Rishabh Sharma (0808EX181016), 4th Year, EEE

e-Awartan Tech Fest – 2021

Department Massage

e-Awartan is an annual tech- fest organized by department of Electrical & Electronics Engineering, IPS Academy, IES, Indore every year. This event is for two days, in which different competitions like paper presentation, project competition, technical quiz and expert lecture organized for the students. The main aim behind to conduct this event is to provide a platform to students, to enhance their skills and knowledge. Such type of events is very helpful for students to show their learning in an academic year. Every year, in month of march-April department conduct this event at IES Auditorium Hall.

About e–Awartan 2022

Department of Electrical & Electronics Engineering, IPS Academy, IES, Indore have organized two days Tech-Fest event “e-Awartan 2022”.

The tech fest was held for two days from 6th May 2022-7th May 2022.

On 6th May 2022, the first day of event starts with technical quiz competition, in which technical questions were asked by students. Students tried their best to score maximum marks in this event. This competition was held online on Google form.

After this event, there was a short break of 15 minutes to prepare for the next event. On the same day, The Model & Project competition event was commenced at 1:30 PM sharp for two hours. There were number of teams who participated in the event with their innovative ideas. The Model & project competition coordinated by Student coordinators under supervision of faculty coordinator.

At the end of the first day of event, results were declared by judges for the two events.

On 7th May 2021, the second day of event starts with Expert talk and then paper presentation competition which started at 11:00 AM sharp.

At the end, result of this event was declared by the judges.

- **TECHNICAL QUIZ**

To develop and enhance technical knowledge of students, IPS Academy, institute of Engineering & Science, Department of Electrical and Electronics Engineering, every year organizes technical quiz competition in tech fest “e-Awartan under ISTE student chapter”. This event provides the student a best platform to showcase their technical knowledge. We always motivate students to participate in these technical activities and provide them platform to express their knowledge related to engineering field.

In the academic Year 2022, event technical quiz competition was held on 6th May 2022.

The event was commenced at 11:00 AM sharp on 6th May 2022.

Event Duration: One Hour

RESULT

Group no.	Name of students	Branch	Year/sem	Result Status
1	Rajeev Tomar	EX	III/VI	Winner
2	Ashish Malviya	EX	III/VI	Runner-up

- **Model & Project Competition**

The main motive of project competition is to provide a competitive atmosphere and encourage students to prepare some good projects that will be helpful for the society as well as give an additional support to their education.

Model & Project competition was held on first day of the event i.e. 6th May 2022.

Competition was started at 01:30 PM.

There are total 10 projects in this competition that is the good figure because of the present situation.

All projects are good and enough technical sound.

On the basis of different criteria, the result of project competition is listed below –

Result of project competition

Held on 6th May 2021

01:30PM-03:00PM

Under e-Awartan 2022

Winner

Single Axis Solar Tracking System (4th yr) Ankit Pandey, Tarun Thakur, Md. Ayan Abbasi, Puran Malviya

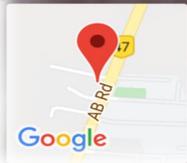
Runner-up

Automatic sanitizer/ Soap Dispenser (3rd yr) Sajal Shukla, Kushgara Soni, Rehan Mansuri





GPS Map Camera



Indore, Madhya Pradesh, India
I.P.S. Academy, Madhya Pradesh 452012, India
Lat 22.656303°
Long 75.822884°
06/05/22 02:59 PM

- **Expert Talk**

Exp

...tion was started at : 11:00



GPS Map
Camera Lite

MR4G+9F3, Bijalpur, Indore, Madhya Pradesh 452012, India

Latitude
22.6558514°

Longitude
75.8264312°

Local 11:55:25 AM
GMT 06:25:25 AM

Altitude 517.8 meters
Saturday, 07-05-2022



GPS Map
Camera Lite

MR4G+9F3, Bijalpur, Indore, Madhya Pradesh 452012, India

Latitude
22.65592816°

Longitude
75.82634189°

Local 01:12:09 PM
GMT 07:42:09 AM

Altitude 515.84 meters
Saturday, 07-05-2022



- **Paper Presentation**

To develop and enhance professional communication, presentation skill and technical knowledge of students, Electrical and Electronics Engineering Department, IPS Academy, Institute of Engineering & Science, every year organizes technical paper presentation competition in Techfest “e-Awartan under ISTE student chapter”. This event provides the student a best platform to showcase their research ideas in front of an esteemed panel of judges. We always motivate students to write and present the paper and provide them platform to express their knowledge related to engineering field.

In the academic Year 2022, event paper presentation competition was held on 7th May 2022. Students were asked to submit the research paper on the topic “Recent Advances in Electrical & Electronics Engineering and Applications” before the event to event coordinators on their Mail ID.

The event was commenced at 2:30 PM sharp on 7th May 2022.

Event Duration: Two Hours

Students were asked to give presentation on PPT. There were four groups who presented their paper on the day of event.

All the participating groups tried their best to complete their presentation on time (7 minutes for presentation as given in rules and regulation of event) and answer the queries raised by judges and students.

The participants presented the papers on topics like A Review on IoT Based Patient Health Monitoring System, Unmanned Aerial Vehicle Employed for Rescuing Human Lives amid Disasters & Conflicts.

In the end, results were declared by the judges.

Department Events During 2020-21

S No.	Date		Type	Topic
1	31/072021	07-08-2021	Refresher Course	Refresher course on laboratories in Electrical & Electronics Engineering
2	09-08-2021	14-08-2021	AICTE Sponsored Short Term Training Program	Smart Grid and Big Data Analysis - Phase- III Dr. Sourabh Pandey (Asst. Prof) IIT Patna Dr. Trapta Thakur (Associate Professor) MNIT Bhopal
3	25-11-2021	25-11-2021	Expert talk	Entrepreneurship and Innovation as Career Opportunity Aditya Nagar, Blacksof, Cofounder & CEO
4	27-11-2021	27-11-2021	Expert talk	My Story-Motivational session by Successful Innovators Mr. Prashant Yadav, Techno Commercial
5	11-12-2021	11-12-2021	Industrial Visit	Exposure and field visit for problem identification substation of IPS Academy Indore
6	10-12-2021	16-12-2021	AICTE-ISTE Orientation/Refresher programme	Recent Advancement in Electrical Vehicle Technology
7	06-05-2022	07-05-2022	Techfest	e-Awartan



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