



J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

ACCREDITED BY NAAC & NBA, APPROVED BY AICTE & PERMANENTLY AFFILIATED TO JNTUH (BHASKAR NAGAR, YENKEPALLY, MOINABAD
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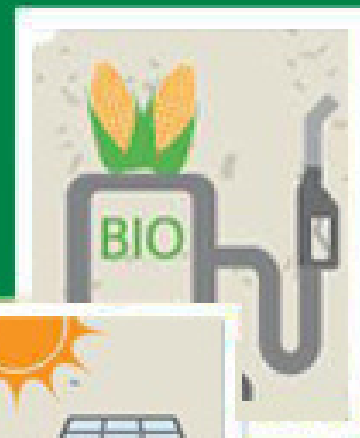
ANNUAL TECHNICAL MAGAZINE

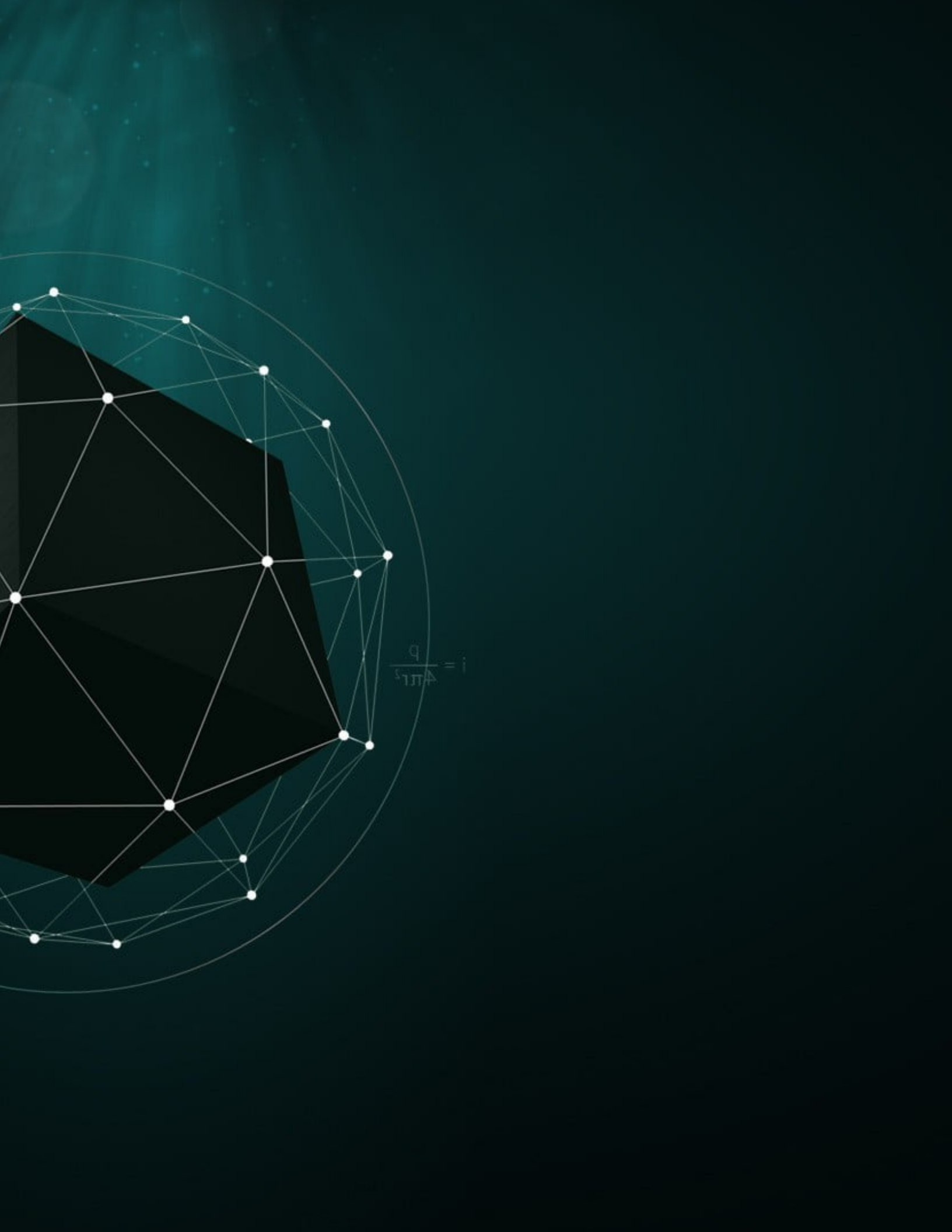
JUNE 2023

Department of
**ELECTRICAL AND
ELECTRONICS
ENGINEERING**

hodeee@jbiet.edu.in

www.jbiet.edu.in





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TECHNOLOGY**



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ANNUAL TECHNICAL MAGAZINE

DEPARTMENT OF
**ELECTRICAL AND ELECTRONICS
ENGINEERING**

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"Sarasvathi Namastubhyam, Varade Kaamaroopini
Vidyaarambham Karishyaami, Siddhir Bhavatu Mey Sada"



*“ Everything is easy when you are busy
But nothing is easy When you are lazy ”*

-SWAMI VIVEKANANDA



LATE SHRI J.BHASKAR RAO GARU

(B.COM, LLB)

FOUNDER CHAIRMAN

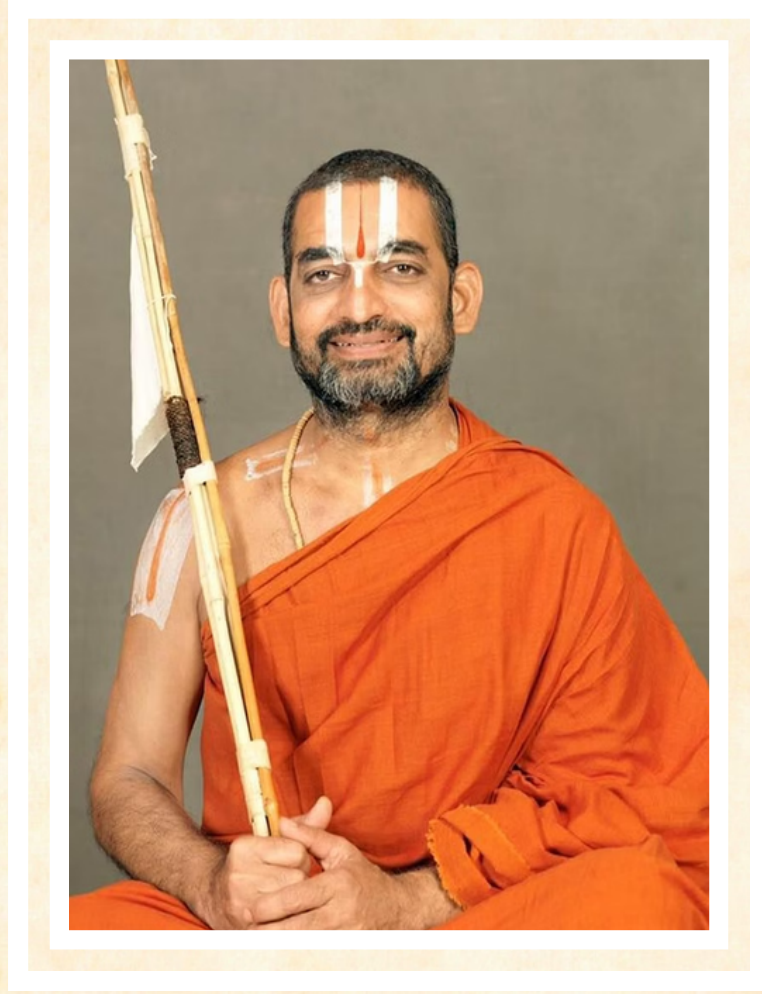
J.B. EDUCATIONAL SOCIETY





SMT. J VASUMATHI DEVI
CHAIRPERSON
J.B. EDUCATIONAL SOCIETY





SRI SRI TRIDANDI SRIMANNARAYANA RAMANUJA
CHINNA JEEYAR SWAMI





ABOUT COLLEGE

- **As one of the top ten most preferred institutions in Telangana, JBIET continues to strive to impart technical (engineering) and professional education of very high standards.**
- **JBIET aims to mold young learners into globally competitive professionals who are professionally deft, intellectually adept, and socially responsible.**
- **The expert faculty at JBIET inculcate the best values and principles, ascribing to a modern curriculum; while the students imbibe pragmatic perception and a pro-active nature, which spurs them towards exploration and advanced inquiry, resulting in valuable insights.**
- **The Placement record of JBIET over the years is proof of our right efforts in enabling the best in class engineering, technical and professional education to aspirants.**

Fbiet

VISION

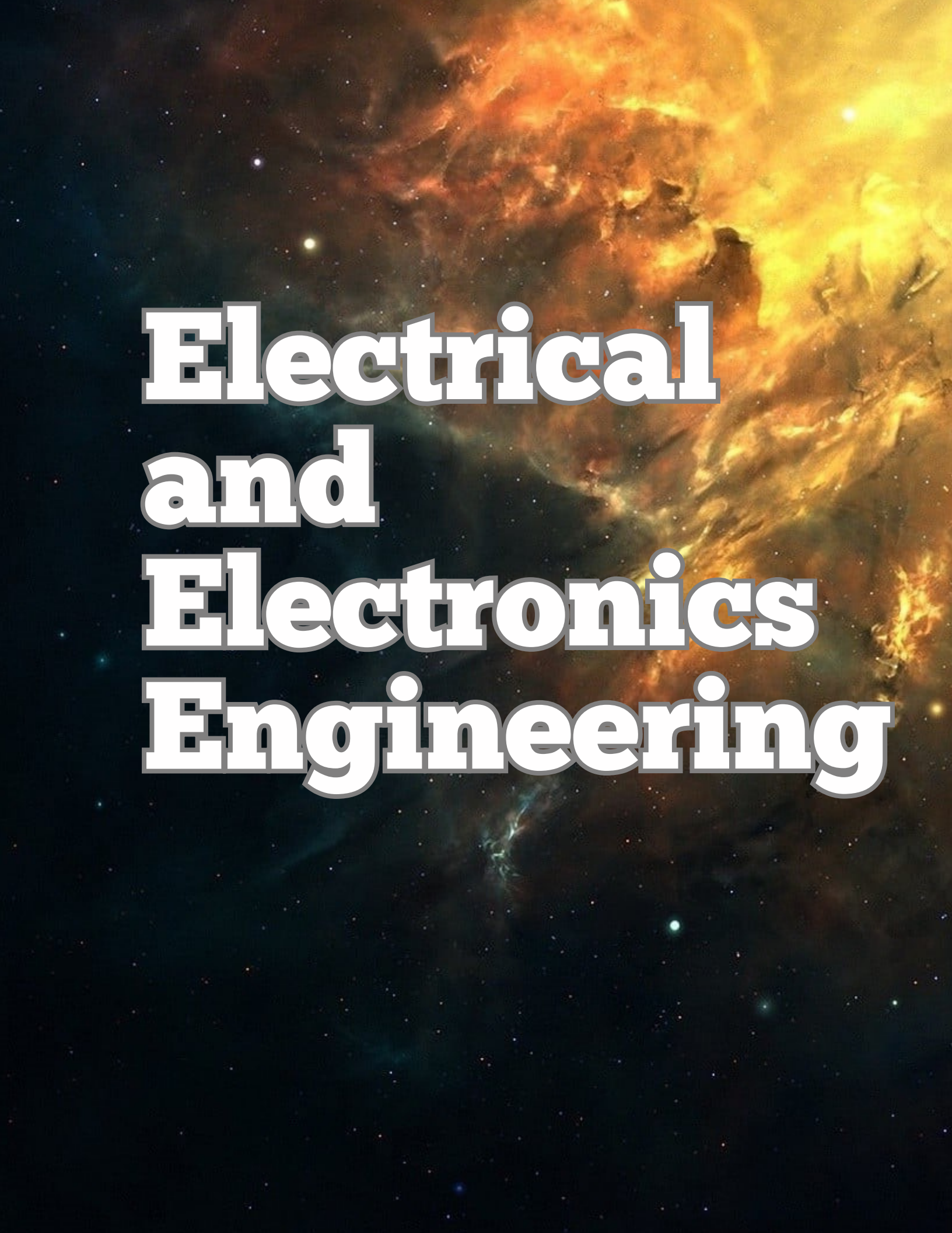
To be a centre of excellence in engineering and management education, research and application of knowledge to benefit society with blend of ethical values and global perception.

A background image showing a hand holding a pair of glasses, with a blurred landscape in the background.

Jbiet

MISSION

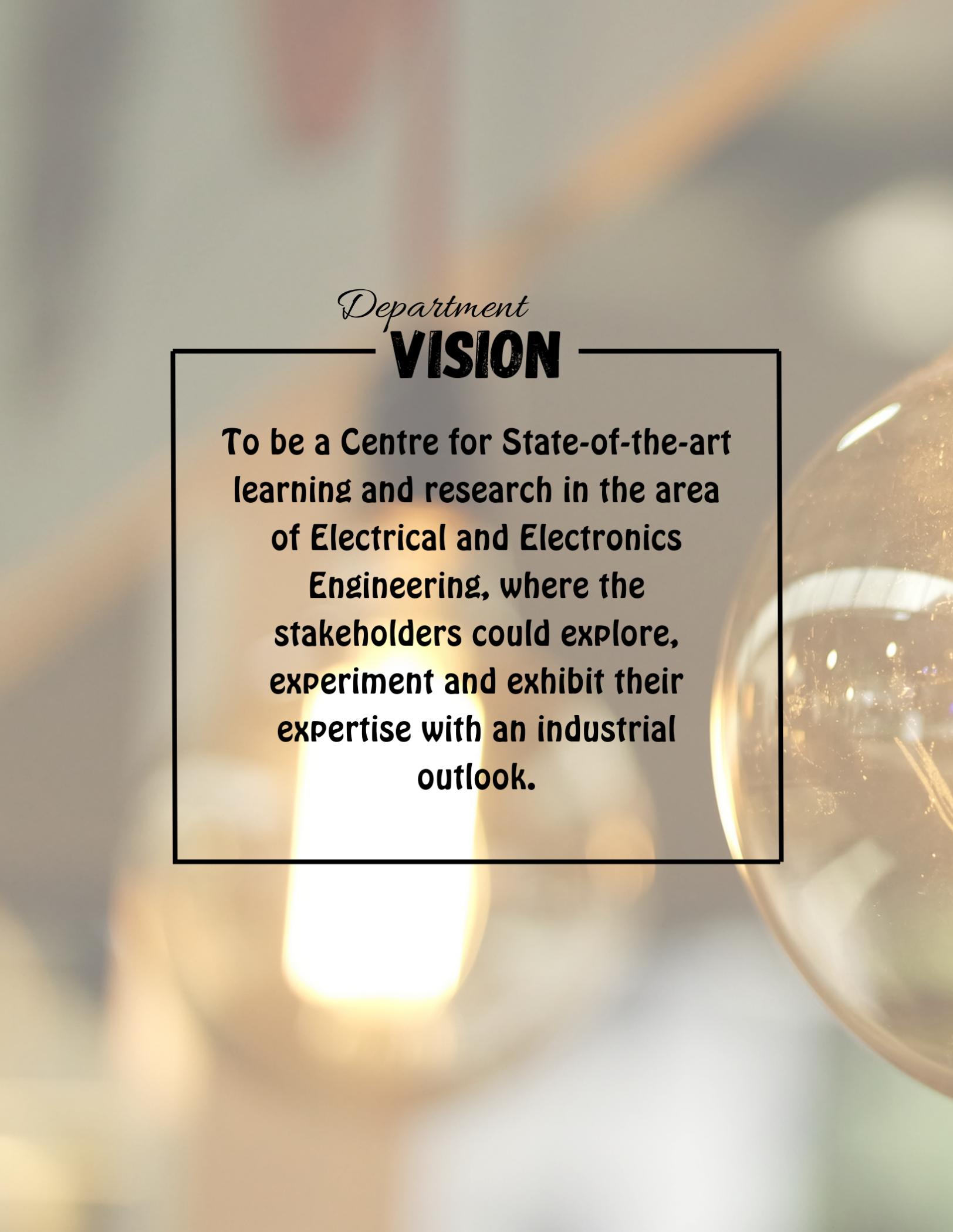
- To provide world class engineering education, encourage research and development.
- To evolve innovative applications of technology and develop entrepreneurship.
- To mould the students into socially responsible and capable leaders.

The background of the image is a deep space scene. On the right side, there is a large, bright nebula with swirling clouds of gas in shades of orange, yellow, and red. The rest of the background is a dark, black space filled with numerous small, distant stars of varying brightness and colors, including some blue and white points of light.

Electrical and Electronics Engineering

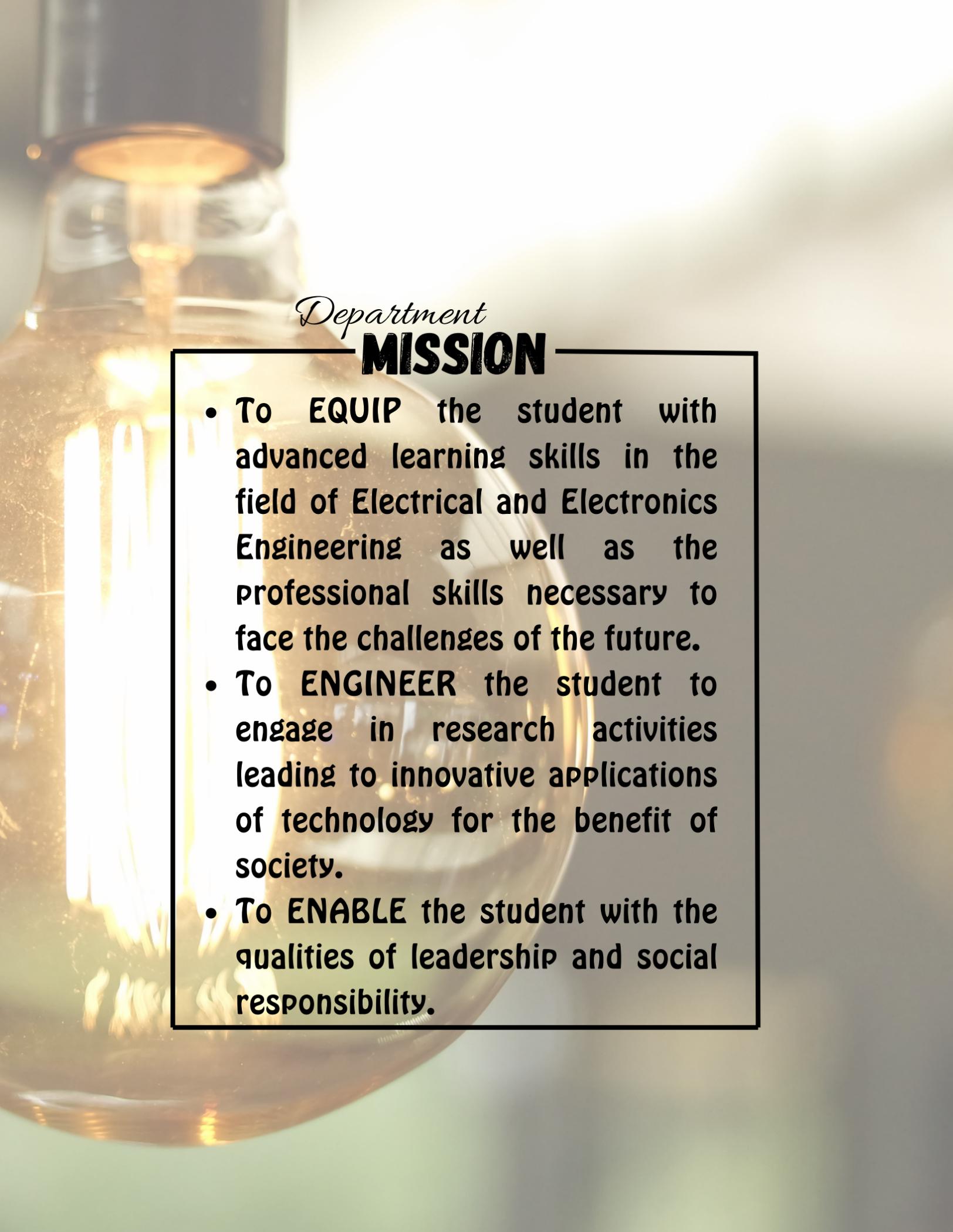
ABOUT DEPARTMENT

- The Department of Electrical and Electronics Engineering was established in the Academic Year 1998-1999 with a sanctioned intake of 60. With its strenuous effort shown in academics and extra-curricular activities, the Department magnified gradual growth in its intake to 120 in the Academic Year 2007-2008. In its long haul, with a vision of providing finest Post Graduate Program, the Department introduced M.Tech in Electrical Power Systems with an intake of 18 in the Academic Year 2004-2005. To add jewel in the crown, the Department inaugurated IEEE students' chapter in the Year 2017 and IEI students' Chapter in the Year 2020 for promoting research attitude among the young aspirants. In the quality check of NBA, the Department has been accredited under Tier –I.
- The department is unique in its own ways by promoting excellence in Electrical Engineering and fulfilling its role in the era of new millennium and meets the needs and demands of various industrial sectors. With the intent of instilling research approach among students, the department is heedful in Research & Development projects. In its augmentation, the department involves in collaborative research with industries. Coupled with its gradual proliferation, the department has signed MoUs with leading Industries. The Department has established Centre of Excellence in Renewable Energy Sources for carrying out advanced research.
- With determined hope and optimism, the department has dedicated and well qualified faculty members who manifested to be specialized in Power Systems, Power Electronics, Electrical Drives and Control, Control System, Electrical Machines, Renewable Energy, etc. The curriculum is developed in such a way to meet the industry requirements from time to time, also in synchronization with AICTE model curriculum by covering the emerging areas like Renewable Energy Systems, Embedded System, Electric Hybrid Vehicle, Industrial Automation and Control, Artificial Intelligence etc. Besides, the students are replenished with advanced courses for enhancing their technical skills and programming abilities to get acquainted with new trends in technology and develop overall potential of the students in diversified aspects.



Department
VISION

To be a Centre for State-of-the-art learning and research in the area of Electrical and Electronics Engineering, where the stakeholders could explore, experiment and exhibit their expertise with an industrial outlook.



Department
MISSION

- To **EQUIP** the student with advanced learning skills in the field of Electrical and Electronics Engineering as well as the professional skills necessary to face the challenges of the future.
- To **ENGINEER** the student to engage in research activities leading to innovative applications of technology for the benefit of society.
- To **ENABLE** the student with the qualities of leadership and social responsibility.

SECRETARY'S MESSAGE

Education is the passport to the future, for tomorrow belongs to those who prepare for it today.”. JB Institute of Engineering & Technology was established in 1997 under the aegis of the JB Group of Educational Institutions, Hyderabad. At present, JBIET is a UGC Autonomous Institution and is permanently affiliated with JNTU Hyderabad. The speedy development in the field of information & Technology has accelerated the demand for value-based education in the stream of Engineering, Technology and Management which is qualitative, progressive, and multidimensional in a competitive global environment. We provide quality education beyond the four walls of the classroom to cope with the corporate world. The aim of JBIET is not only to produce mere degree holders but also bright, talented men and women equipped with all-round personality development. Our vision of the institute is to impart quality education with Life Skills in all core disciplines of knowledge by developing global leaders who are passionate, committed, and confident to take initiative in nation-building and create a peaceful environment for work, workers, and the workplace.



SHRI J V KRISHNA RAO
MBA HR-USA
SECRETARY, JBES

CEO'S MESSAGE

I welcome you all to the portals of the J.B. Institute of Engineering and Technology (JBLET), a great institution by all standards. Engineering continues to be a lucrative career for bright minds, as it is only through engineers that the inventions of science can reach the masses, for the overall development and welfare of society. JBLET has been one of the best engineering colleges in the two states of Telangana and Andhra Pradesh. It has been striving hard to not only maintain its standards but also to continuously improve them, to benefit the students in particular and the society at large. The college boasts of well-qualified and self-motivated faculty who have rich experience in academics, industry, and research. The curriculum is regularly revised to keep pace with the industry requirements so that the students pass out as industry-ready graduates. The institute has excellent infrastructure, laboratories, and workshops. The calm and quiet environment on the lush green campus, away from the hustle-bustle of the city, provides a tranquil environment, that so conducive to quality Teaching and learning. The college not only inculcates a Creative and innovative spirit in the minds of our students but also actively encourages them through the Group's JB Institute of Inventors Association of India (JBIIAI). This body provides intellectual support, logistics support, and financial support, right from ideation to commercialization. I would like to wish you all a studious, satisfying, and enjoyable journey in this institute. Remember what Swami Vivekananda said, "Arise, Awake and Stop not, till the goal is reached". Looking forward to moving along with you in your beautiful journey ahead. Come, join us! Wishing you All the Best!



**MAJ GEN Dr S S DASAKA
SM, VSM (Retd)**

PRINCIPAL'S

MESSAGE

As the Principal of JBIET, I am proud to lead an institution that prioritizes providing top-notch technical education to benefit all sections of society. Our founder, Late Sri. J. Bhaskar Rao Garu established JBGEI in response to the demands of the time and the dynamic changes in the technology-driven world. At JBIET, we go beyond traditional education systems by providing holistic development opportunities for our students. Our curriculum is designed in collaboration with industry and university partners, with a focus on employability and life skills training. Our students participate in techno sessions, cultural festivals, technical fests, quizzes, guest lectures, and industry-institute interactions. Our faculty members are well-qualified and experienced in academics, industry, and research, and they are supported by industry experts to ensure that our curriculum meets industry requirements. Our campus is situated in a peaceful and serene environment that provides an ideal learning atmosphere. We encourage our students to showcase their academic talents with high moral values and become responsible citizens of society and humanity. Our alumni are making a mark in distinguished organizations in India and abroad. We are committed to maintaining an academically rich and professionally competent environment that fosters enterprising skills in our students. We believe that JBIET will contribute positively and actively to transforming society. Thank you for considering JBIET for your educational journey, and we wish you all the best!



DR. P.C. KRISHNAMACHARY

HOD'S MESSAGE

It gives me immense pride to say that we are highly proud of the achievements and accomplishments that you have established over these years. The dedication you showed throughout your graduate life is unimaginable. The great walk into your career and life as a whole begins now. In this era of nerve-racking global competition, the choices you have are too many and will leave you perplexed. My sincere advice to all of you is that you need to be thoughtful, and creative and choose a very right path that may lead you to the right destination.

I am very sure that you will be successful there too, as you have been successful here. We truly believe in you and your potential. Never stop learning and never stop winning! Learn from everyone, may it be great or mediocre. Be prepared in such a manner that no matter, how forceful or critical the challenges are; always encounter those with full strength and vigor.

I would like to appeal to my dear students to project you as good ambassadors of our college and never let self-centered motives malign the honesty and ethics you have acquired here over the years. It is your time to earn your name, make your career, and make your Parents and Mentors proud. I am sure your poised character will earn your accolades.

Always keep up the dedication and sincerity and hold your head high –without losing sight of self-respect, integrity, human values, and ethics. Render dedicated service to humanity and lived a happy and peaceful life.

May the Almighty always guide you on your path and bless you. Wish you all the very best in life. Stay connected!



DR P. DURAIPANDY

PROGRAM EDUCATIONAL OBJECTIVES

PEO1	To create an excellent academic learning environment by providing awareness on lifelong learning, apply the technical knowledge in the field of Electrical and Electronics Engineering to pursue higher studies or in their professional career.
PEO2	To demonstrate technical knowledge to analyze, design, develop, optimize, and implement complex electrical systems, gain multidisciplinary knowledge through projects and industrial training, providing a sustainable competitive edge in R&D and meeting industrial needs in the field of Electrical and Electronics Engineering
PEO3	To possess professional and ethical attitudes with effective communication skills, entrepreneurial thinking and an ability to relate engineering issues to the broader social context. Also, develop requisite skills to excel in their chosen profession with an awareness of contemporary issues and the need for life-long learning.

PROGRAM OBJECTIVES

P01: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

P02: Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

P03: Design/Development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

P04: Conduct investigations of Complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

P05: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

P06: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

P07: Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

P08: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

P09: Individual and Teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

P010: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions.

Editorial Team



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FACULTY ARTICLES.





SMART GRID TECHNOLOGY

What Is Smart Grid Technology?

A smart grid is an electrical power distribution infrastructure that provides two-way communication between the utility provider and customers. Digital technologies that contribute to smart grid technology include power/current sensors, controls, data centers, and smart meters.

Some smart grids are smarter than others. In many countries, there are large, focused efforts to transform antiquated electrical distribution grids into smart grids, but this adoption is complex and takes several years if not decades.

Smart Grid Technology & Smart Grid Components Examples

Smart Meters – These are the first step toward building a smart grid. Smart meters provide point-of-use energy consumption data to both the consumer and the utility producer. The consumption and cost information they provide alerts consumers to reduce wasted energy use and helps providers to optimize distribution loads across the grid.



Smart Load Control Switches and Distribution Boards – While smart meters can provide real-time data to utility providers, they don't automatically control the distribution of energy. To optimize distribution during peak usage or to specific regions, electric utilities use power management devices such as smart load control switches and distribution boards. This tech saves significant amounts of energy by reducing unneeded distribution or automatically managing loads that have exceeded their allowed time-of-use limits. Simply put, the smart load control switches can intelligently turn power distribution on and off at the point of use to optimize overall system distribution and consumption efficiency.

Power System Automation – Power system automation is enabled by smart grid technologies that utilize state-of-the-art IT infrastructures to control every step of the power distribution chain. For example, an automated power system utilizes intelligent data acquisition systems (that as smart meters), power control systems (such as smart load control switches), analytical tools, computational systems, and power system algorithms. The combination of these critical components allows for a grid (or multiple grids) to autonomously adjust and optimize itself with limited interaction by humans.

The Importance of Smart Grids

Smart grids are imperative to the reduction of power consumption at a macro-economic level. Many local utility providers and governments offer generous incentives for participation in smart grid adoption because it's both financially and environmentally beneficial. By adopting smart grids, the production of energy can be democratized, thereby eliminating risks of outages, reducing operating costs of power systems, and eliminating unnecessarily



T. Rajesh
Assistant Professor

WIRELESS POWER TRANSFER



A. Shiva Rama Krishna
Assistant Professor

Wireless power transmission is an updated technique of power transmission without using any wires in the medium. A wireless transmission transfers power from the generation station to the consumer without using towers and transmission lines. Wireless Power Transfer (WPT) is the process where electrical energy is transmitted from a power source to an electrical load across an air gap using induction coils. These coils produce an electromagnetic field that sends energy from a charging base station (transmitter) to a coil on a portable device (receiver) with complete galvanic isolation. The receiver coil takes power from the electromagnetic field and converts it into electrical power.

Working of Wireless Power Transfer:

- Wireless power transfer works on the principle of electromagnetic induction.
- A transmitter placed on the generation side generates flux to link with the receiver end.

- It will be used for a permissible distance, by using solar power satellites we can transfer power anywhere in the world.
- In the solar power satellite transmission, We just need to place a transmitter in the form of microwaves. On the earth, for every consumer, we will place a receiver on the roof of the building. Here the receiver receives the microwave and it converts the received waves into electricity.

Wireless Power Transmission through Solar Power Satellites:

Solar power transmission using solar satellites was first introduced in the 1970s. The solar satellites generate power using their solar panels by using the sunrise 24/7. The power generated will be transmitted by a transmitter in the form of microwaves. On the earth, for every consumer, we will place a receiver on the roof of the building. Here the receiver receives the microwave and it converts the received waves into electricity.

Applications of Wireless Power Transmission:

- Wireless power transmission is used in place of transmission lines to transfer power from one place to another place.
- It is also used in distribution systems to transfer power to the consumers.
- It is also mostly used in industries and all electrical applications.
- Advantages:
- By using solar power satellites, we can produce unlimited energy resources.

- We can deliver energy anywhere in the world.
- The cost of distribution and transmission becomes less.
- The power could be transmitted to various places that do not contain the wired transmission.

However, implanted medical devices need to be properly powered and, although the use of lithium-ion batteries allows them to operate autonomously, their replacement requires invasive operations with relative risks to the patient's health. WPT technology can remedy this problem through wireless charging systems. In recent years, the application of WPT technology to the sustainable e-mobility field has had a growing interest in research institutions, especially in Asia. Today, electric vehicles need to be linked, through a connector, to an electrical socket for recharging the batteries. Wireless power transfer allows the elimination of such connectors and enables automatic recharging



VERY LARGE SCALE INTEGRATION

VLSI, which stands for Very Large Scale Integration, is a process used in the design and fabrication of integrated circuits (ICs), which are electronic circuits that are made up of a large number of transistors and other components that are integrated into a single chip. the technology allows for the creation of highly complex and compact ICs that can be used in a wide range of applications, from consumer electronics and computers to communication systems and medical devices.

One of the key advantages of this technology is its ability to pack a large number of transistors and other components onto a single chip, which allows for the creation of highly complex and powerful ICs. This makes it possible to create ICs that can perform a wide range of functions, from simple logical operations to complex algorithms. It also allows for the creation of ICs with high levels of performance, power efficiency, and reliability, which are essential for many applications.



A. LAVANYA

Assistant Professor



Another advantage of VLSI technology is its cost-effectiveness. Because it allows for the integration of a large number of components onto a single chip, it can reduce the number of discrete components that are needed in a circuit, which can help to reduce the overall cost of the circuit. Additionally, it allows for the creation of ICs with high levels of performance and functionality, which can help to improve the overall performance and efficiency of a system.

AI-driven VLSI

Artificial Intelligence (AI) has merged with VLSI, opening up endless possibilities. AI-driven VLSI solutions have gained significant traction in industries like autonomous vehicles, robotics, smart homes, and beyond. The integration of AI algorithms directly into VLSI chips allows for the real-time processing of massive amounts of data, leading to intelligent decision-making and unprecedented levels of efficiency. This trend empowers autonomous vehicles to analyze complex surroundings, robots to navigate dynamically changing environments, and smart homes to adapt to residents' preferences seamlessly. The synergy between AI and VLSI has propelled us toward a new era of intelligent and responsive technologies. IoT and VLSI

The Internet of Things (IoT) revolution is in full swing, and VLSI plays a pivotal role in shaping this interconnected ecosystem. Emerging trends in VLSI focus on designing chips optimized for IoT-enabled devices, ensuring efficient data communication, low power consumption, and enhanced security. These specialized VLSI chips enable IoT devices to communicate seamlessly over the internet, exchanging data with other devices and cloud services. Moreover, with advancements in low-power design techniques, IoT devices can operate for extended periods on battery power, making them more practical and environmentally friendly. VLSI's contribution to IoT is driving the proliferation of smart homes, smart cities, and industrial automation, transforming the way we interact with our surroundings.

The field of VLSI indeed provides a dynamic and intellectually stimulating work environment for engineers and professionals. As a VLSI engineer, you get the opportunity to be at the forefront of designing complex integrated circuits that power a wide range of electronic devices, from smartphones and computers to IoT devices and automotive electronics.

BLOCKCHAIN TECHNOLOGY



K.BABITHA

Associate Professor

- Different types of information can be stored on a blockchain, but the most common use for transactions has been as a ledger.
- In Bitcoin's case, blockchain is decentralized so that no single person or group has control—instead, all users collectively retain control.
- Decentralized blockchains are immutable, which means that the data entered is irreversible. For Bitcoin, transactions are permanently recorded and viewable to anyone.

How Does a Blockchain Work?

You might be familiar with spreadsheets or databases. A blockchain is somewhat similar because it is a database where information is entered and stored. However the key difference between a traditional database or spreadsheet and a blockchain is how the data is structured and accessed.

A blockchain consists of programs called scripts that conduct the tasks you usually would in a database: Entering and accessing information and saving and storing it somewhere. A blockchain is distributed, which means multiple copies are saved on many machines, and they must all match for it to be valid.



The blockchain collects transaction information and enters it into a block, like a cell in a spreadsheet containing information. Once it is full, the information is run through an encryption algorithm, which creates a hexadecimal number called the hash.

The hash is then entered into the following block header and encrypted with the other information in the block. This creates a series of blocks that are chained together.

CONCLUSION

With many practical applications for the technology already being implemented and explored, blockchain is finally making a name for itself in no small part because of Bitcoin and cryptocurrency. As a buzzword on the tongue of every investor in the nation, blockchain stands to make business and government operations more accurate, efficient, secure, and cheap, with fewer middlemen.

As we head into the third decade of blockchain, it's no longer a question of if legacy companies will catch on to the technology—it's a question of when. Today, we see a proliferation of NFTs and the tokenization of assets. As a result, the next decades will prove to be a significant period of growth for blockchain.

STUDENT ARTICLES







Transparent Solar wind

Name: Chatla Karthik

Roll No: 22671A0206

A transparent solar panel is essentially a counterintuitive idea because solar cells must absorb sunlight (photons) and convert them into power (electrons). When a solar glass is transparent, the sunlight will pass through the medium and defeat the purpose of utilizing sunlight. However, this new solar panel technology is changing the way solar cells absorb light. The cell selectively harnesses a portion of the solar spectrum that is invisible to the naked eye, while allowing the normal visible light to pass through. To achieve this technological wonder, the researchers have developed the transparent luminescent solar concentrator (TLSC) rather than trying to do the impossible by creating a transparent photovoltaic glass cell. Solar panel blinds are cleverly combining these two divergent functions. An innovative startup called Solar Gaps has introduced solar panel blinds, which it claims can cut down energy costs by up



70 percent. For every 10 sq. ft. of window space, these solar window blinds can generate 100 watts of power (you could roughly power three laptops with this much electricity). These solar blinds can be installed either inside or outside, and you can control their angle and positioning using an app that will also inform you of the energy generation figures. It includes a setting to automatically optimize the angle of the blinds according to the position of the sun.

WIRELESS CHARGING FOR ELECTRIC VEHICLES

Name: M.Pruthvik Reddy

Roll No: 22671A0213



In recent years with the rapid development of the electrical vehicle (EV) of the new energy industry, higher requirements have been put forward for convenience, safety, and reliability of the charging of electric vehicles. Wireless power charging is done by inductive coupling. Inductive coupling can be done in both stationary and dynamic conditions. By reconfiguring the transformer and altering the high frequency, energy is being transferred with low energy loss and fewer demands on the primary circuit. Sufficient power for the battery can be transferred from the primary to the secondary without sufficient energy loss. Electric power is then transmitted to the chargeable battery which is electrically coupled to the secondary circuit through the air core transformer. In the case of shuttle bus services, buses can be charged when they wait at the bus station. It can also be implemented in rental taxi parking. Thus the battery in electric buses only needs enough charge to go to the next stop. This decreases the battery size and promotes significant cost saving in electric vehicles.

This technology enables efficient opportunities in charging stations, for predefined routes and planned stops reducing the time of charging. Dynamic charging will promote the use of electric vehicles and reduce petroleum fuel consumption. Delays in traffic signals can now be provided with longer periods of charging and even when the electric vehicle is in movement. Bad weather conditions like rain and snow do not affect the charging capabilities of electric vehicles.





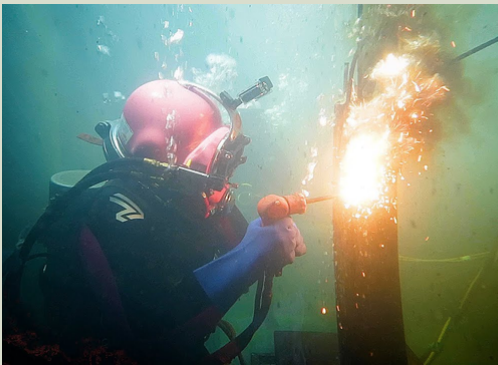
UNDERWATER WELDING

Name: K.Akshay
Roll No: 22671A0210

Wet underwater welding directly exposes the diver and electrode to the water and surrounding elements. Divers usually use around 300–400 amps of direct current to power their electrodes, and they weld using varied forms of arc welding. This practice commonly uses a variation of shielded metal arc welding, employing a waterproof electrode. Wet welding with a stick electrode is done with similar equipment to that used for dry welding, but the electrode holders are designed for water cooling and are more heavily insulated.

A constant current welding machine is used for manual metal arc welding.

Direct current is used, and a heavy-duty isolation switch is installed in the welding cable at the surface control position so that the welding current can be disconnected when not in use. The electric arc heats the workpiece and the welding rod and the molten metal is transferred through the gas bubble around the arc. The gas bubble is partly formed from the decomposition of the flux coating on the



electrode but it is usually contaminated to some extent by steam. Current flow induces the transfer of metal droplets from the electrode to the workpiece and enables positional welding by a skilled operator. Slag deposition on the weld surface helps to slow the rate of cooling, but rapid cooling is one of the biggest problems in producing a quality weld.

Harnessing the Power of Thunder: Storing and Utilizing Thunder as Electricity

Name: M.Vikranth

Roll no: 22671A0214



Thunder, the awe-inspiring sound that accompanies lightning during a storm, is not just a natural phenomenon to marvel at but also a potential source of energy. In recent years, scientists and researchers have been exploring the possibility of capturing and storing the immense energy generated by thunder to convert it into electricity. This article delves into the process of storing and utilizing thunder as electricity, examining its advantages, challenges, and potential solutions.

In recent years, scientists and researchers have been exploring the possibility of capturing and storing the immense energy generated by thunder to convert it into electricity. Energy Conversion: Once lightning is captured, the next step involves converting the kinetic energy of thunder into electrical energy. Capturing and storing this energy can result in a significant amount of electricity generation, making it a potent source for meeting energy demands.

Regions prone to frequent thunderstorms could particularly benefit from harnessing the power of thunder as a local and reliable energy source. Developing technologies that can reliably predict and capture lightning strikes is a hurdle in utilizing thunder as a consistent energy source. If successfully harnessed, thunder has the potential to become a significant contributor to the world's renewable energy portfolio, offering a clean and sustainable source of power for the future.





Solar powered Refrigeration System

Name: K.Sathvika

Roll No:

23675A0201

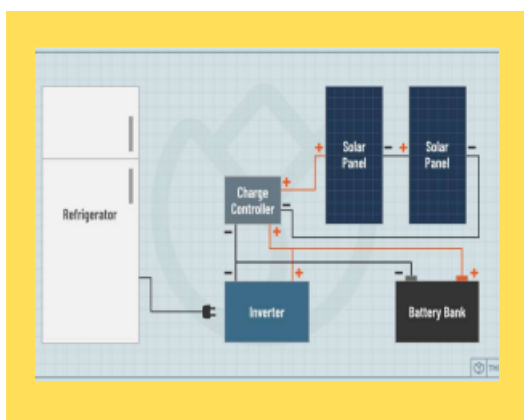
Here are some key characteristics and features of solar refrigerators:

Solar-Powered Operation: Solar refrigerators are equipped with a built-in solar power system, which typically includes solar panels, a charge controller, batteries (for energy storage), and an inverter.

The Solar Power System for the Refrigerator Function A solar power system for a refrigerator works by converting energy from sunlight into electricity, which is then used to power the refrigerator.

Solar Charge Controller: The DC electricity generated by the solar panels is not always consistent in voltage and current.

Battery Storage (Optional): In many solar power systems for refrigerators, batteries are included to store excess electricity generated by the solar panels during the day.



Monitoring and Control: Some monitoring and control systems may include solar power systems that allow you to track the performance of your solar panels, the state of your batteries (if used), and the overall power consumption of your refrigerator.

Backup Generator (Optional): Some solar power systems may also include a backup generator or other power source, especially if the refrigerator is critical, and there's a need for uninterrupted power supply during extended periods of low sunlight.

AERIAL ROBOTICS

Name: Kadambu
Nandhini
Roll no: 23675A0240



Robotics integrates many fields that deal with specific aspects of robotics.

For example, within mechanical engineering, the term robotics refers to the construction of the physical structures of robots, while in computer science, robotics focuses on the study of robotic software.

The goal of robotics is to design machines that can help and assist humans.

The field of robotics develops machines that can automate tasks and do various jobs that a human might not be able to do.

Robots can be used in many situations for many purposes, but today many are used in dangerous environments (including inspection of radioactive materials, bomb detection and deactivation), manufacturing processes, or where humans cannot survive

Such robots attempt to replicate walking, lifting, speech, cognition, or any other tasks mainly performed by a human.

Many of today's robots are inspired by nature, contributing to the field of bio-inspired robotics.

Robots are widely used in manufacturing, assembly and packing, transport, earth and space exploration, surgery, weaponry, laboratory research, and mass production of consumer and industrial goods.





ELEXSA

(ELECTRICAL AND ELECTRONICS EXPORE STUDENTS ASSOCIATION)

“ELEXSA” The departmental Technical club was inaugurated on 28.6.2023.

Club

VISION

Empowering minds, illuminating paths uniting electrical and electronics enthusiasts to ignite innovation and advance technology together.

Club

MISSION

Empowering Tomorrow's innovators: Fostering the growth and development of electrical and electronics exploring students through hands-on learning and collaborative opportunities.

Illuminating the path of discovery: Inspiring a passion for exploration and innovation in the field of electrical and electronics through engaging events, knowledge-sharing, and mentorship.

Revealing of Faculty Co-ordinators and Student Co-ordinators.



STUDENT CO-ORDINATORS



A. Gayathri



R. Anvesh



N. Ashrith



V. Vignesh

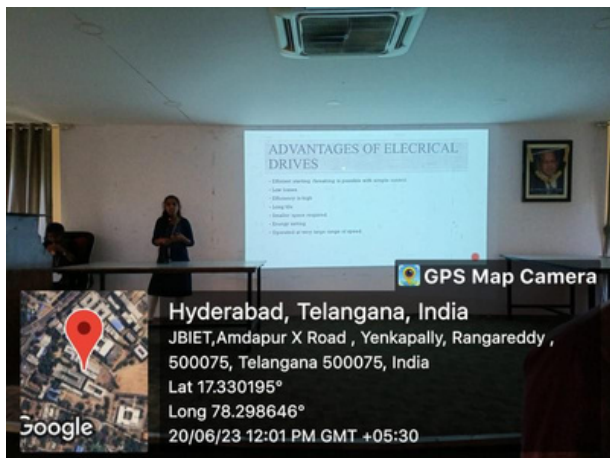


G. Bavana



**EVENTS PLANNED TO BE CONDUCTED IN NEXT SEMESTER
BY THE STUDENT CO-ORDINATORS.**

- 1) Industrial visit (To any substation/Power plant).**
- 2) Workshops (For about 2 days along with practical sessions)**
- 3) Seminars /Guest lectures /Expert lectures.
(Related to Electrical domain by Industrial Expert)**
- 4) Talent Hunts (Like Quiz, Essay writings, etc).**
- 5) Events that support women Empowerment.**





PROGRAMS ORGANISED



1. Entrepreneurship Event
2. IPCS lecture
3. IPR-EEE
4. Matlab Guest lecture
5. Paper Presentation contest
6. Project contest
7. Seminar on patent drafting

Expert lecture on **ENTERPRENUERSHIP**

The Department of Electrical and Electronics Engineering conducted an Expert Lecture on “ENTERPRENUERSHIP” for B. Tech students on 27th September 2023.

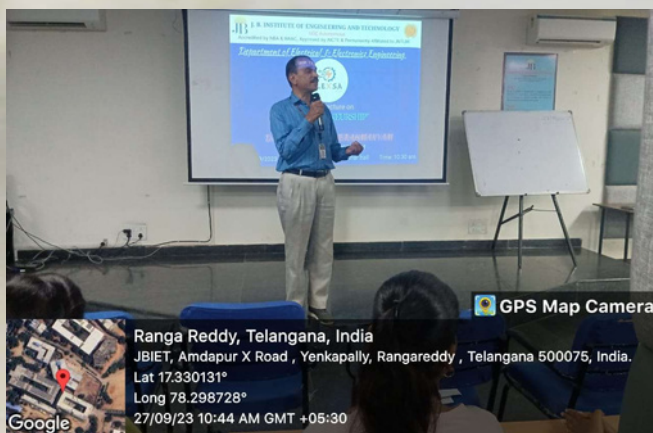
Resource Person: Dr. Pudukodu Subrahmanyam
Associate Professor & The Head Of Business Administration.

The insightful expert lecture explores the following:
What is Entrepreneurship and discussion about the importance of business and startup for new graduates are discussed in this session. The Speaker of the session Dr. Pudukodu Subrahmanyam presented an Expert Lecture on “Entrepreneurship”. He discussed the basic concepts of Entrepreneurship and discussion about the importance of business and startups. He inspired the students by lively interacting on topics such as:

1. Opportunity recognition
2. Innovation
3. Resourcefulness
4. Leadership
5. Risk-taking
6. Networking
7. Salesmanship
8. Financial management
9. Adaptability
10. Persistence etc

He emphasized career opportunities and growth in business careers. He projected on comprehending the theoretical concepts and relating to the practical aspects of patents. Also, the feedback about the session was collected from all the participants to improve the session that will be conducted in more future. The sample details collected from the participants and enclosed.

This Expert Lecture is arranged with the motive of sharing the knowledge and practical experience of Dr. Pudukodu Subrahmanyam, who is an Associate Professor & The Head of Business Administration, at JBIET. The overall organization and deliverance of the Expert Lecture were helpful and satisfied the students. The objective of the Expert Lecture was achieved. The overall session discussion benefited the 102 students who were presented. This Expert Lecture would help the participants conduct the classes effectively and also it would help them with career building and future plans.



Expert lecture on **INDUSTRIAL AUTOMATION**

The Department of Electrical and Electronics Engineering conducted an Expert Lecture on "INDUSTRIAL AUTOMATION" on 3rd June.

Resource persons: 1. Mr. Trived Balivada, Operations Manager, IPCS Hyderabad

2. Mr. Md. Abdul Mahboob Khan, Automation Expert

The insightful expert lecture explores the following:

1. The importance of Automation
 2. Components involved in Industrial Automation like
 - a) Importance of Automation
 - b) PLC
 - c) SCADA
 3. Explanation of Types of PLC involved in Industrial Automation
- The objective of the Industrial Lecture was achieved.

The overall session benefited 30 students.



Seminar

INTELLECTUAL PROPERTY RIGHTS

A seminar on "Intellectual Property Rights" was conducted on October 7, 2023. The event was conducted virtually. The seminar aimed to highlight the importance of IPR in engineering and provide valuable knowledge on patents, copyrights, trademarks, and their practical applications.

Mr. N. Nagarajan, a renowned expert in the field of intellectual property rights, served as the resource person for the seminar. He covered a wide range of topics during his presentation:

- **Introduction to Intellectual Property Rights:** Introducing the concept of intellectual property rights and explaining their significance in various industries, including engineering. He emphasized the role of IPR in protecting innovation and fostering creativity.
- **Understanding Patents, Copyrights, and Trademarks:** The seminar delved into the specifics of different types of intellectual property rights, including patents, copyrights, and trademarks. Mr. N. Nagarajan provided a comprehensive overview of the distinctions between these forms of protection, ensuring that attendees gained a clear understanding of each.
- **Importance of IP Rights in Engineering:** Highlighting the relevance of IPR in the field of engineering, elucidated how engineers and innovators can leverage intellectual property rights to safeguard their inventions and innovations. He showcased real
- **Case Studies:** The seminar included case studies that illustrated the practical applications of intellectual property rights. These real-life examples helped attendees grasp the complexities of IPR in various contexts and industries.

- **Practical Applications:** Mr. N. Nagarajan concluded his presentation by discussing practical strategies for protecting intellectual property. He offered insights into the patenting process, copyright registration, and trademark filing, empowering participants with knowledge that they could apply in their projects and endeavors.

CONCLUSION: The "Intellectual Property Rights" seminar organized was a valuable and informative event. Attendees gained a deeper understanding of the significance of IPR in the field of engineering and its practical applications. The department expresses its gratitude to Dr.P.Duraipandy, who served as the convenor, Dr.J.Kartigeyan, who acted as the coordinator, and Mr. N. Nagarajan for their contributions that led to the success of this seminar. The knowledge acquired during this event is sure to positively impact the participants' future endeavors and foster innovation and creativity within the field of electrical and electronics engineering



Guest Lecture

INTRODUCTINON TO MATLAB

The Department of Electrical and Electronics Engineering conducted an Expert Lecture on “PATENT DRAFTING AND FILING” for students of UG and PG on 7th January 2023.

Resource Person: Dr. P. Durairandy,
Associate Professor & Head of the Department.

The insightful expert lecture explores the following:
The importance and process of Intellectual Property Rights is discussed in this session.
The Speaker of the session Dr. P. Durairandy presented the keynote address on “Introduction to MATLAB Programming”. He discussed the major elements of maintenance in MATLAB with the best suitable real examples which are essential for the understanding of efficient Programming. He projected a clear understanding of the importance of MATLAB.



Seminar on **PATENT DRAFTING AND FILING**

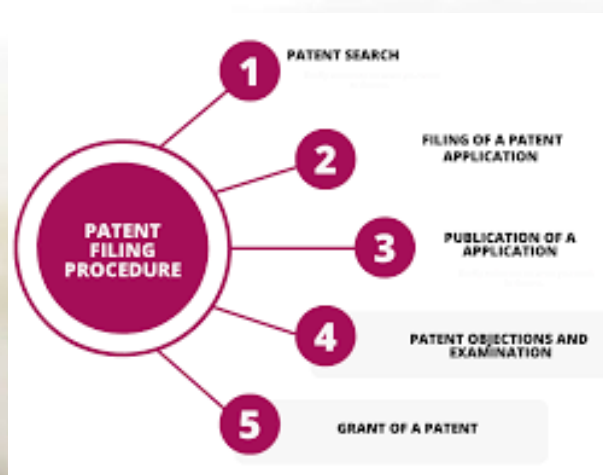
The Department of Electrical and Electronics Engineering conducted an Expert Lecture on “ENTERPRENUERSHIP” for B. Tech students. On 27th September 2023.

Resource Person: Mr. N. NAGARAJAN Technical Director & Lead Patent Analyst NSKD Techno Research & Innovation Solution.

The insightful expert lecture explores the following:
The importance and process of Intellectual Property Rights is discussed in this session. The Speaker of the session Mr. N. NAGARAJAN presented the keynote address on “PATENT DRAFTING AND FILING”. He discussed the major elements of maintenance in Intellectual Property Rights with the best suitable real examples which are essential for the understanding of efficient patent filling. He projected a clear understanding of the importance of patent filling.

He inspired the audience by lively interacting on topics such as:

- Patent Persons Involved.
- How to file a Patent.
- Procedure to apply patent – domestic to international patent – forms.
- Difference between Design patent and Product patent.
- Difference among Invention, Innovation and discover



One Day Webinar

HOW TO BECOME A GOOD ENTREPRENEUR

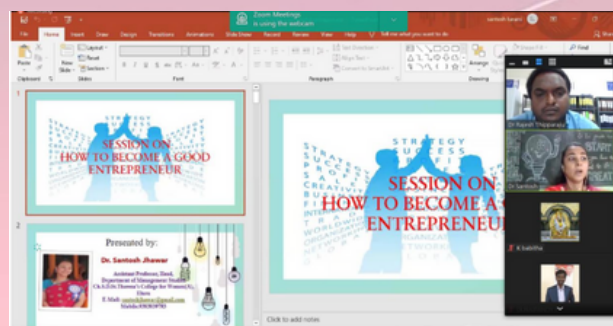
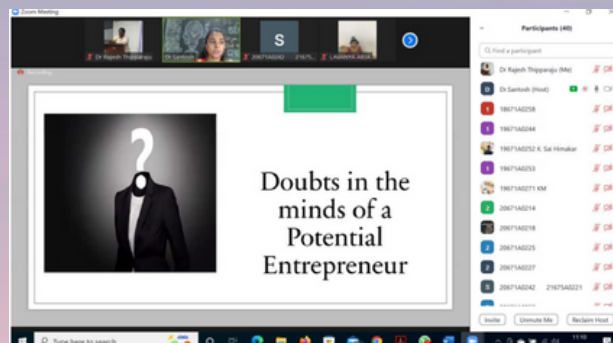
The Department of Electrical and Electronics Engineering conducted an Expert Lecture on “HOW TO BECOME A GOOD ENTREPRENEUR ” for B. Tech students on 28th July 2022.

Resource Person : Dr Santhosh Jhavar, HOD, MBA. CH. S. D. ST. Theresa's College for Women (A).

The insightful expert lecture explores the following: What is Entrepreneurship and discussion about the importance of business and startup for new graduates are discussed in this session. The Speaker of the session Dr. Pudukodu Subrahmanyam presented an Expert Lecture on “Entrepreneurship”. He discussed the basic concepts of Entrepreneurship and discussion about the importance of business and startups. He inspired the students by lively interacting on topics such as:

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2. Innovation
3. Resourcefulness
4. Leadership
5. Risk-taking
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7. Salesmanship
8. Financial management
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He emphasized career opportunities and growth in business careers. He projected on comprehending the theoretical concepts and relating to the practical aspects of patents. Also, the feedback about the session was collected from all the participants to improve the session that will be conducted in more future. The sample details collected from the participants and enclosed.



Contest **PAPER PRESENTATION**

An overview of the Project Contest is as follows:

This Project Contest was organized as a part of Technical Fest – INFOQUEST'23. The following are the Projects displayed in the Project Contest.

1. Modelling of BLDC motor & IOT based Vehicle accident detection and Rescue system for Electric Vehicle Solar tracking system using LDR
 2. Protection strategy for wireless charging Electric Vehicle
 3. IoT based Green-house monitory system
 4. Smart Glove for Women Security
- The best Projects were awarded 1st and 2nd Prizes. The objective of the Contest was achieved



Contest PROJECT PRESENTATION

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3. IoT based Green-house monitory system
4. Smart Glove for Women's Security.

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The objective of the Contest was achieved.





WORKSHOP'S ORGANIZED

Two day workshop **INDUSTRIAL AUTOMATION**

The Department of Electrical and Electronics Engineering conducted the work shop on “INDUSTRIAL AUTOMATION” for, Students of UG and PG courses.

Resource Person: **TRIVED BALIVADA**

Co-ordinators: Mr. K. Giri Babu, Assistant Professor. Mrs. A. Lavanya, Assistant Professor. Convener: Dr. P. Duraipandy, Associate Professor & Head of the Department

The course content delivered in a Seminar is as follows: The importance and process of Intellectual Property Rights are discussed in this session. The Speaker of the session **TRIVED BALIVADA** presented the keynote address on “**TWO DAY WORKSHOP ON INDUSTRIAL AUTOMATION**” He discussed the major elements of maintenance in **MATLAB** with the best suitable real examples which are essential for the understanding of efficient Programming. He projected a clear understanding of the importance of **MATLAB**.



One day workshop **INDUSTRIAL AUTOMATION**

The Department of Electrical and Electronics Engineering conducted the work shop on “INDUSTRIAL AUTOMATION” for, Students of UG and PG courses.

Resource Person: Mr.Mahmood Khan - Project Manager, IPCS Global Private Ltd, Hyderabad, Telangana.

Co-ordinators: Mr. A. Shiva Rama Krishna - Assistant Professor, Department of EEE.

Convener: Dr. P. Duraipandy, Associate Professor & Head of the Department

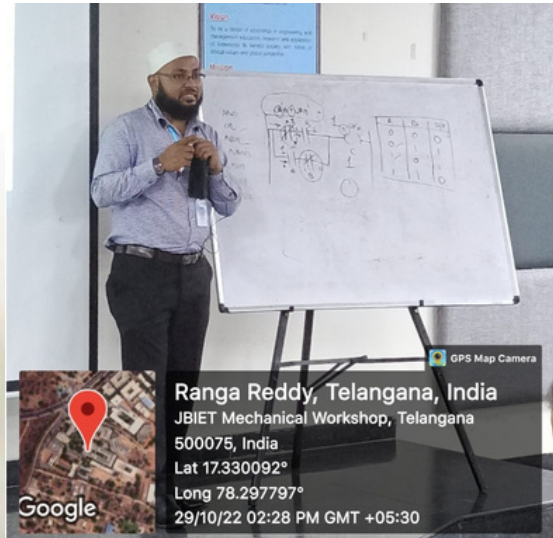
The course content delivered in a Seminar is as follows:

The importance of Industrial Automation is discussed in this session.

The speaker of the session Mr.Mahmood Khan, presented the keynote address on One Day Workshop on ‘INDUSTRIAL AUTOMATION’. He discussed the major elements of operation and maintenance in Industry with the best suitable real examples which are essential for understanding efficient automation. He projected a clear understanding of the importance of Automation in various sectors to improve accuracy. He inspired the audience by lively interacting on topics such as:

- Automation
- Programmable Logic Circuits
- Scada
- Operation, Maintenance and Troubleshooting
- Humans Versus Robots

He discussed equipment failures in industries. He emphasized career opportunities and growth in Industries. He projected on comprehending the theoretical concepts and relating to the practical aspects of the Industry Sector.



One day workshop

POWERTRAIN IN E.V

The Department of Electrical and Electronics Engineering has conducted the Workshop on "Powertrain in Electric Vehicle" for the II & III year students of Under Graduate program

On: Saturday 18th March, 2023

Resource Person: Mr. Jyoti Ranjan Singh, Skyy Rider Institutions.

Venue: Placement Seminar Hall, J. B. Institute of Engineering and Technology.

Co-ordinators: Mr. B. Chandra Singh, Assistant Professor
Ms. K. Babitha, Assistant Professor
Convener: Dr. P. Durairam, Associate Professor & Head of the Department

An overview of the Workshop is as follows: Salient points discussed in the Workshop are:

- Basic idea and working principle of Electric Vehicle.
- Different components used.
- Animation Videos.
- Different parts in an Electric Vehicle.
- Mechanism of Motor rotation & Brake System.
- Classification of Electric Vehicle.
- Different fuels used along with energy carriers.
- Working with Battery Electric Vehicle & Hybrid Electric Vehicles.
- Different types of batteries.

The objective of the Workshop was achieved. The overall session benefited 30 Students



INDUSTRIAL VISITS

- **Nagarjuna
Sagar Power
Plant,
Telangana**

Industrial **NAGARJUNA SAGAR HYDRO POWER PLANT** *visit*

The Department of Electrical and Electronics Engineering has conducted the Industrial Visit to “Nagarjuna Sagar Hydro Power Plant” for the III year students of Under Graduate program

On: Saturday 19th November, 2022

Venue: Hydro Power Plant, Nagarjuna Sagar, Pylon, Nalgonda Telangana – 508202.

Coordinators: K. Babitha, Assistant Professor K. Laxmi Prasanna, Assistant Professor

Co-Convenor: Mr. D. Veeranna, Assistant Professor Mr. A. Shiva Rama Krishna, Assistant Professor Convenor: Dr. P. Duraipandy, Associate Professor & HOD, EEE

An overview of the Visit is as follows: Nagarjuna Sagar Hydro Power Plant in Nalgonda has a power generation capacity of 815.6 MW with 8 units. The first unit was commissioned on 7 March 1978 and the 8th unit on 24 December 1985. The right canal plant has a power generation capacity of 90 megawatts with 3 units of 30 megawatts each. The left canal plant has a power generation capacity of 60 megawatts with 2 units of 30 MW each. Mr. Rama Krishna, Protection Engineer at Power Plant guided the Students about:

- The dam works
- The key factors used in working on Plant
- The process involved in water pumping and storing tanks
- The Control Room and Control Panel where the entire operation and control of the Power Plant.

The substation and Dam are monitored Students had a close look at many electrical components at the substation. They also came to know how power is transmitted from generation to different transmission lines.



NAME TO FAME

The background of the page is a photograph of a large group of graduates wearing black academic caps and gowns. The focus is shallow, with the foreground caps in sharp detail and the background blurred into a soft green and white bokeh. The text 'NAME TO FAME' is centered in the upper half of the image.

STUDENTS PLACED IN SKILLDUNIYA



Cheryala Lahari
19671A0204



**Choppari Tharun
Kumar**
19671A0207



**D.Chandrashekara
chary**
19671A0209



G. Heman Hananiah
19671A0212



Jadi Harinivas
19671A0218



K. Rama Krishna
19671A0220

Congratulations!

STUDENTS PLACED IN SKILL DUNIYA



Kavya
19671A0218



K. Vamshi Krishna
19671A0222



R. Shiny Sushmita
19671A0231



P. Ajay
19671A0234



B. Vandana
19671A0246



E. Sai Teja
19671A0250

Congratulations!

STUDENTS PLACED IN SKILLDUNIYA



M. Yashwanth
19671A0256



M. Divya
19671A0257



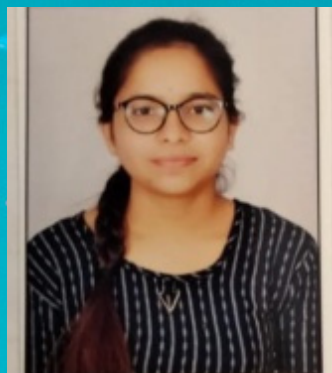
P. Ushaswini
19671A0263



P. Addhiramm
19671A0264



U. Vamshi
19671A0270



P. Soni
20675A0209

Congratulations!

STUDENTS PLACED IN SKILLDUNIYA



P. Ajay
20675A0203



E. Vamshi
20675A0212



P. Nithin
19671A0260



Y. Nikhil Sai
20675A0214



S. Neharika
20675A0218



M. Shivaram
20675A0220

Congratulations!

STUDENTS PLACED IN SKILLDUNIYA



D. Sravan Kumar
20675A0225



A. Shiva Krishna
20675A0236



Y. Sai Karthik
20675A0226

Congratulations!

STUDENTS PLACED IN TOSHIBA



T. Vinay Kumar
20675A0216



N. Harish
20675A0204



C. Karthik Goud
19671A0206



CH. Nivas
20675A0207



S. Tharun
20675A0211

Congratulations!

**STUDENTS PLACED
IN
EIDIKO**



K. Manoj Kumar
19671A0253



E. Akhil
20675A0215

Congratulations





ANNUAL TECHNICAL MAGAZINE



JUNE 2023



J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY UGC AUTONOMOUS

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Bhaskar Nagar, Yenkapally (V), Moinabad(M), P.O. Himayathnagar, R.R. District, Hyderabad-500007