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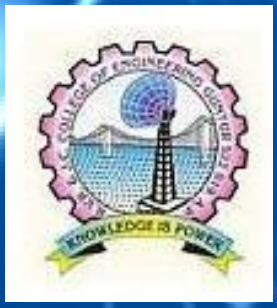
ELECTRO-MOTTO

Magazine of

ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT



R.V.R. & J.C.COLLEGE OF ENGINEERING
(AUTONOMOUS)
Chandramoulipuram, Chowdavaram, GUNTUR – 522 019.

From the Principal

It is always a pleasure to be a part of a team which strives to bring out the talents of students and staff. Electrical and Electronics department of RVR&JC College of Engineering has always been striving to keep itself ahead of the competition. The essential purpose of a magazine is to inform, engage, inspire and entertain a diverse readership including alumni, parents, students, faculty, staff and other friends of the college by telling powerful stories that present a compelling, timely and honest portrait of the college and its extended family. This Magazine has made an earnest attempt in this direction and brought out certain aspects to the eyes of the public so that they may understand and know the EEE department even better.

Dr.A.Sudhakar

From the HOD of EEE

I am happy to note that the magazine brought out in our EEE department is of good quality and taste. Hearty congratulations to the editorial team. It is a matter of great pleasure for me to go through the wonderful contributions made by the students. This magazine is intended to bring out the hidden literary talents in the students and to inculcate leadership skills among them. The outside world will come to know about the caliber of our students through this magazine. I extend my thanks to all the contributors for their articles, poems and drawings.

Dr.K.Chandrasekhar

ABOUT THE DEPARTMENT:

The Department of Electrical and Electronics Engineering has been established during the academic year 1994 - 1995 with an intake of 60 students. The intake has been enhanced to 120 from the academic year 2004 -2005 and 180 from the academic year 2013-2014. Department was accredited twice by National Board of Accreditation of AICTE first in the year 2002 with A-Grade for five years, in the year 2007 for three years and in 2012 for two years.Accreditation by NBA for 5th time in 2017.We have over 10 laboratories with advanced equipment and facilities for supporting our teaching and research. It is envisioned to strengthen the quality of its faculty, research and teaching facilities, as well as student's academic performance.

Our vision:

The vision of the department of Electrical & Electronics Engineering is "To impart education leading to highly competent professionals in the field of Engineering who are globally competent and to make the Department a Centre forExcellence".

Our Mission:

The mission of the department of Electrical & Electronics Engineering is "The Integrated development of professionals with knowledge and skills in the fields of specialization, ethics and values needed to be employable in the fields of Electrical Engineering and contribute to the economic growth of the employing organization and pursue lifelong learning**".**

Achievements:

The Department of Electrical & Electronics Engineering standing among all the other branches of our college.

- Accredited "A" grade for three years by NBA, AICTE New Delhi in the year 2017 for three years.
- Accredited "A" grade for two years by NBA, AICTE New Delhi in the year 2012 for two years.

- Accredited "A" grade for three years by NBA, AICTE New Delhi in the year 2007 for three years.
- Accredited "A" grade for five years by NBA, AICTE New Delhi in the year 2002 for five years.
- College Accredited by APSCHE, Hyderabad in academic Audit Grade. It is informed that it is the Second best among the private Engineering Colleges in Andhra Pradesh.
- P.G. Course M.Tech. In Power Systems Engineering was started in 2004 with an intake of 18students.
- The Students of the department excels in the University Examinations by being University I Rank Every Year.
- The Department is the winner of CZARS Title (Overall Championship) thrice in the years 2008, 2014, 2016 within the college.

Program Educational Objectives:

I. To facilitate the students to become Electrical & Electronics Engineers who able to competent, innovative and productive in addressing the broader interests of the organizations & society.

II. To prepare the students to grow professionally with proficient soft skills.

III. To make our graduates to engage and excel in activities to enhance knowledge in their professional works with ethical codes of life & profession.

Program Outcomes:

Engineering Graduates will be able to:

PO1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **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.

PO4. **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.

PO5. **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.

PO6. **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.

PO7. **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.

PO8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **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, and give and receive clear instructions.

PO11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12**. Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs) of EEE Department:

PSO 1: Graduates of the program must demonstrate knowledge and hands on competence in developing, Testing, Operation and Maintenance of Electrical & Electronics systems.

PSO 2: Graduates of the program must demonstrate knowledge and hands on competence in Modern Engineering tools to engage in life-long learning and to successfully adapt in multi disciplinary environments.

PSO 3: Graduates of the program must demonstrate knowledge in Project Management techniques, environmental issues and Green technologies.

SMART GRID INFRASTRUCTURE IN INDIA

Frost & Sullivan has projected that the majority of the investment will be for transmission enhancement products and solutions like superconductors, Flexible Alternating Current Transmission Systems (FACTS), High- Voltage Direct Current (HVDC), automatic recovery systems etc. This area is expected to grow at a CAGR of 5%-6% over the next decade. The next largest investment is expected to be in electric charging infrastructure and customer side systems like batteries, inverters, energy billing systems, smart Grid-to-Vehicle charging (G2V) etc. The electric charging and customer side systems products and solutions are expected to grow at a CAGR of 13.6% through CY 2030. Advanced metering infrastructure, which was the key component across pilot smart grid projects, is expected to grow faster, with a CAGR of 34% through 2025 and CAGR of 20% until 2030. India is expected to install more than 250 million smart meters by 2025. Other products and solutions of smart grids like distributed grid management, wide-area monitoring and control, and ICT integration are expected to grow at a CAGR of 16%, 19%, and 23% respectively.

India has unique challenges compared to other countries in implementing smart grid projects. Key challenges identified by Frost & Sullivan include:

Diverse stakeholder-related challenges: The scope of smart grid projects and associated stakeholders are not uniform, including transmission- and sub-transmission-related smart initiatives driven by PGCIL (Power Grid Corporation of India Limited), smart meter rollouts managed by over 120 distribution companies that are under huge financial stress and other initiatives driven by NSGM (National Smart Grid Mission).

Technology gaps and project implementation challenges: Smart grid projects have higher capital costs due to lack of experience of the bidders, who end up allocating disproportionately high costs toward contingencies. There is a lack of awareness when it comes to the usage of relevant technology solutions.

- Cost and capital-related issues: Commercial terms for many smart grid bids and qualification requirements are complex and difficult to fulfill, even by reputed power sector players.
- Lack of long-term asset management: Long-term maintenance of smart assets is a challenge.

To address the above-mentioned challenges, companies have to position themselves as an end-to-end solution and service provider for smart grid projects through strategic partnerships – and offer integrated solutions and service offerings, including Operation and Maintenance (O&M) support for smart grids. Addressing challenges of utilities in the process of digitalization and having the long-term vision to integrate the smart grid into the smart ecosystem will be the key for companies operating in this space.

As per Frost & Sullivan's analysis, power utilities will be the single largest target segment for smart grid products/solutions, which require integrated smart grid solutions and service offerings along with O&M support. There is a need for utility 3.0 transformation and platform solutions that cater to specific smart grid needs like energy trading/exchange, smart meter standard interoperability, etc. Another area of focus will be enabling two-way communication between supply and demand and an IT-based Electric Vehicle (EV) operating interoperability platform for industrial, residential, commercial, EV infrastructure.

Currently, suppliers of products and solutions for the smart grid industry are dominated by platform providers primarily IT solution providers that form a consortium with communication system integrators and equipment suppliers. Key components required to cater to smart grid projects are device/product manufacturing, system integration, software/platform development, and communication technology providers.

There is abundant scope for leading global players and companies from Asia, Europe, and North America that have participated in pilot smart grid projects and grid upgradation projects. International companies are looking for Joint Ventures (JVs) to participate in large-scale smart

grid projects to be rolled out in the coming years. Apart from large meter manufacturing companies like Schneider Electric, L&T, Genus Power, HPL India, Itron India, Secure Meters, Landis + Gyr, Elster, etc., large system integrators that constitute key bidders in almost all smart grid projects, including Hitachi, GE, Siemens, Capgemini, Wipro, Cyan, Accenture, CDAC, Cisco, Enzen, Analogics, Synergy, Chemtrols and Fluentgrid, either have JVs or tie-ups with product/solutions or software developers to provide complete solutions for smart grid projects. Apart from the private companies, ECIL (Electronics Corporation of India Limited), a government of India enterprise, is also involved in the implementation of smart grid projects.

Companies catering to public and private utility companies need to provide the complete package of smart grid products and solutions, including wide-area monitoring and control, ICT integration, transmission enhancement, distribution grid management, advanced metering infrastructure, electric vehicle charging infrastructure and cyber and network security solutions. Smart grid solutions for industrial customers require distribution grid management, EV charging infrastructure, customer-side systems, and cyber and network security solutions. Residential and commercial building end-users need only EV charging infrastructure and customer side systems and solutions like smart appliances, routers, in-home displays, building automation systems, energy management systems, etc., as part of smart grid projects. Prosumers are the latest emerging customer segment for smart grids in India, creating huge opportunities in the Indian smart grid space over the next decade.

The smart grid products and solutions market is driven by government initiatives like large-scale smart metering roll-out – and implementation of advanced metering infrastructure; a government target of achieving 175 GW of renewable energy capacity by 2022, which is further expected to grow to 500 GW by 2030; 100 smart city projects supporting smart grid initiatives; and the government's intention to replace all conventional electricity meters with prepaid smart meters in the next three years, which is a sub-component of the smart grid project.

As per Frost & Sullivan's analysis, to achieve success in the smart grid industry, companies need to adopt the following strategies:

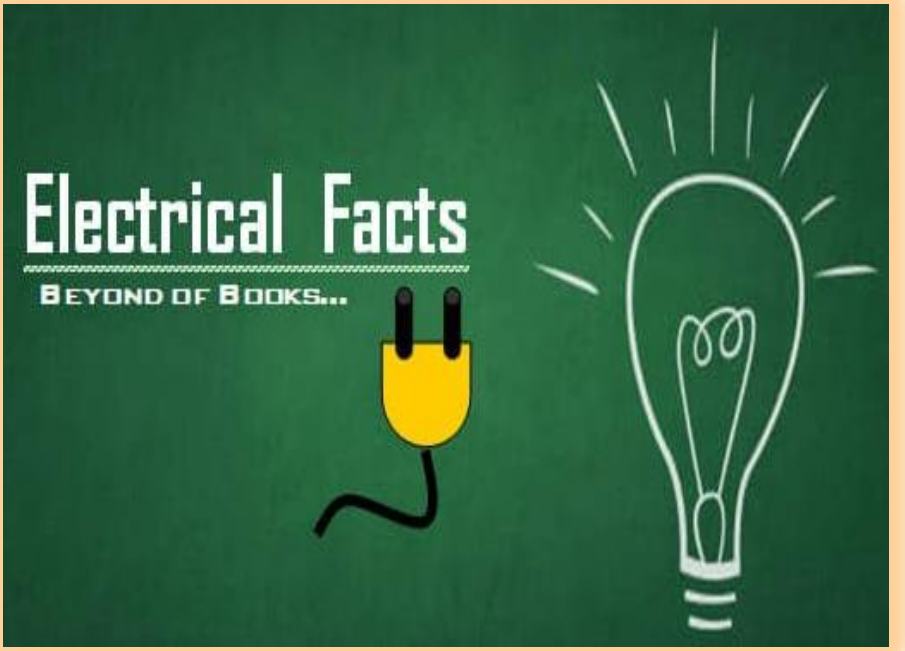
Identify your target geographies (where to sell) for the near and long terms. In the near term, the focus should be on:

- National grid operator Power Grid Corporation of India Ltd (PGCIL) and National Smart Grid Mission (NSGM)-driven projects.
- Progressive state utilities driving smart grid initiatives (Gujarat, Maharashtra, Telangana, Tamil Nadu, and Karnataka).

- Private distribution utilities like Reliance Infrastructure (Delhi) and Tata Power (Mumbai) and CESC (West Bengal).

In the long term, the focus should be on non-utility business segments like industries, residential and commercial EV charging infrastructure, etc.

Cool Facts About Electricty



- Bhadla Solar Park is the world's largest solar park located in India which is spread over a total area of 14,000 acres in Rajasthan, India. The park has total capacity of 2.245 MW. In 2018 it had commissioned India's cheapest solar power.
- Electricity travels at 6,696,000 miles per hour.
- Electricity plays an important role in the way your heart functions. Muscle cells in the heart are contracted by electricity that runs through your body. Electrocardiogram (ECG) machines are used in hospitals to measure the electricity flowing through a patient’s heart, displaying a line that spikes with every heartbeat.
- The typical lightning bolt packs 100 million volts.
- The average taser emits 50,000 volts.
- A spark of static electricity can measure up to 3,000 volts.
- Electric eels can produce shocks of 500 volts or more.
- The first successful electric car was built in 1891 by American inventor William

Morrison.

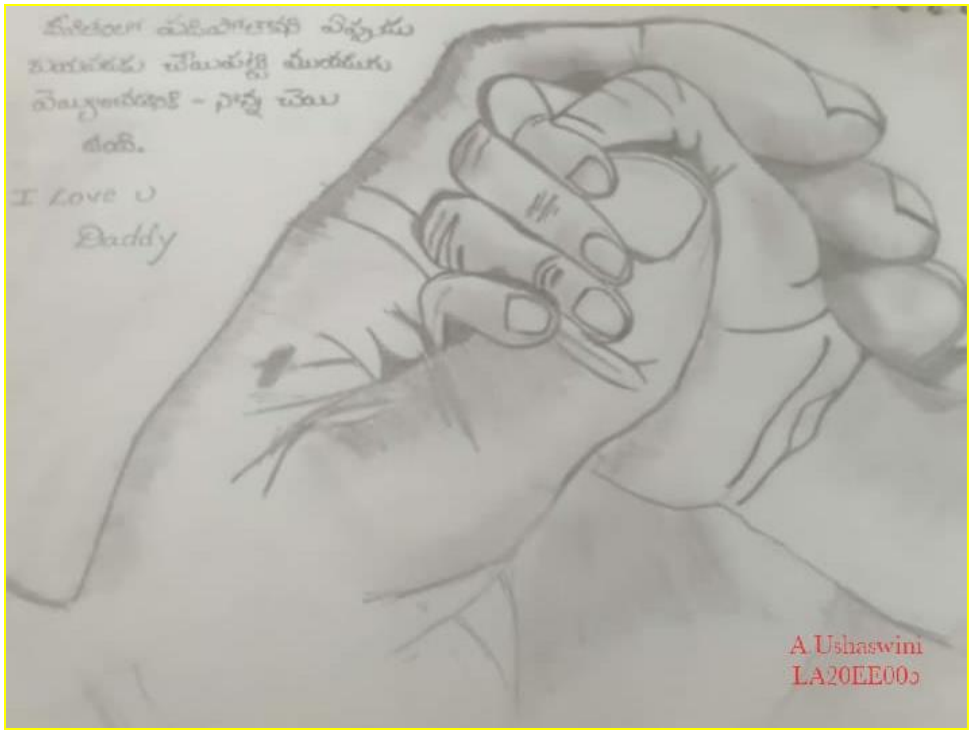
- Benjamin Franklin didn't discover electricity, but he did prove that lightning is a form of electricity.

- Ever wondered why birds that sit on power lines don't get electrocuted? If a bird sits on only one power line it's safe. If the bird touches any part of its body to another line, it creates a circuit, causing electrocution.
- Electricity is sometimes used as electroconvulsive therapy (ECT), where patients are given electrically induced seizures in order to treat psychiatric illnesses.
- In the 1880's, there was a "war of currents" between Nikola Tesla and Thomas Edison. Tesla helped invent AC current and Edison helped invent DC current, and both wanted their currents to be popularized. AC won the battle because it's safer and can be used over longer distances.
- Iceland is the country that uses the most electricity annually. Their consumption is about 23% more than the U.S.

- The first street in the world to be lit by electric light bulbs was Mosley Street, Newcastle upon Tyne, in 1879.
- A spark of static electricity can measure up to 3,000 volts.
- A typical microwave oven consumes more electricity powering its digital clock than it does heating food
- The internal skin has the very low resistance. It's resistance range would be 300-1000 ohm. Our outer skin is a very bad conductor because of the dead and dry cells lying over the tissues depending on individual person the resistance would vary from 1000 to 100,000 ohm.
- The world's biggest light bulb is located in Edison, New Jersey. It's 14 feet tall, weighs eight tons, and sits on top of the Thomas Edison Memorial Tower.
- Electricity is present in our bodies; our nerve cells use it to pass signals to our muscles

Electrical Bike

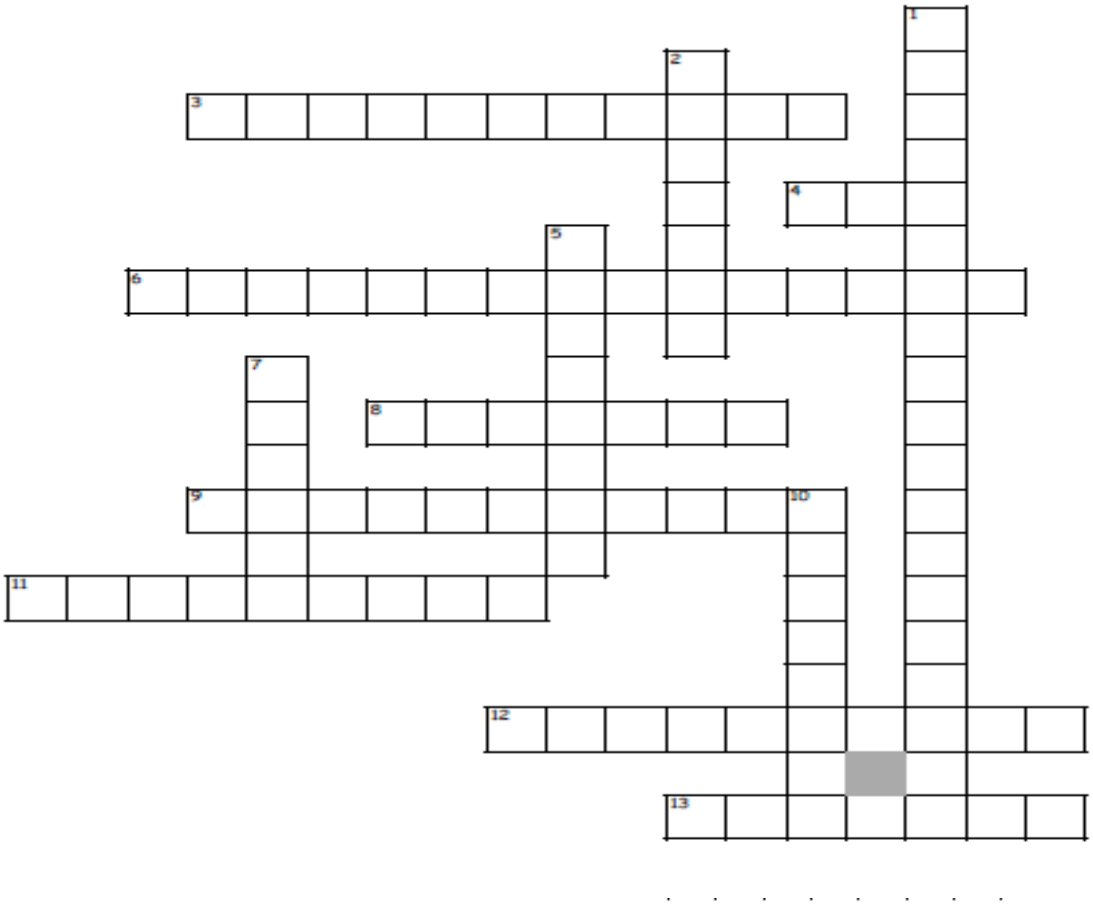
Electrical Bike fabricated and participated in SIEP E-Bike Challenge 2020, Vijayawada Competition by EEE students along with the students of other departments.



Avulamanda ushaswini
LA20EE005
II/IV EEE Student

P . Navya Teja ,
Y18EE100 , EEE-B sec

Electrical Cross Puzzle



Across

3. a form of energy resulting from the existence of charged particles

4. an atom or molecule with a net electric charge due to the loss or gain of one or more electrons

6. a closed circuit in which the current divides into two or more paths before recombining to complete the circuit

8. an electromotive force or potential difference expressed in volts

9. A device used to transfer electrical energy from one circuit to another

11. a force that acts at a distance due to a magnetic field

12. a hindrance to the flow of a charge

13. a flow of electric charge

Down

1. the difference of electrical potential between two points

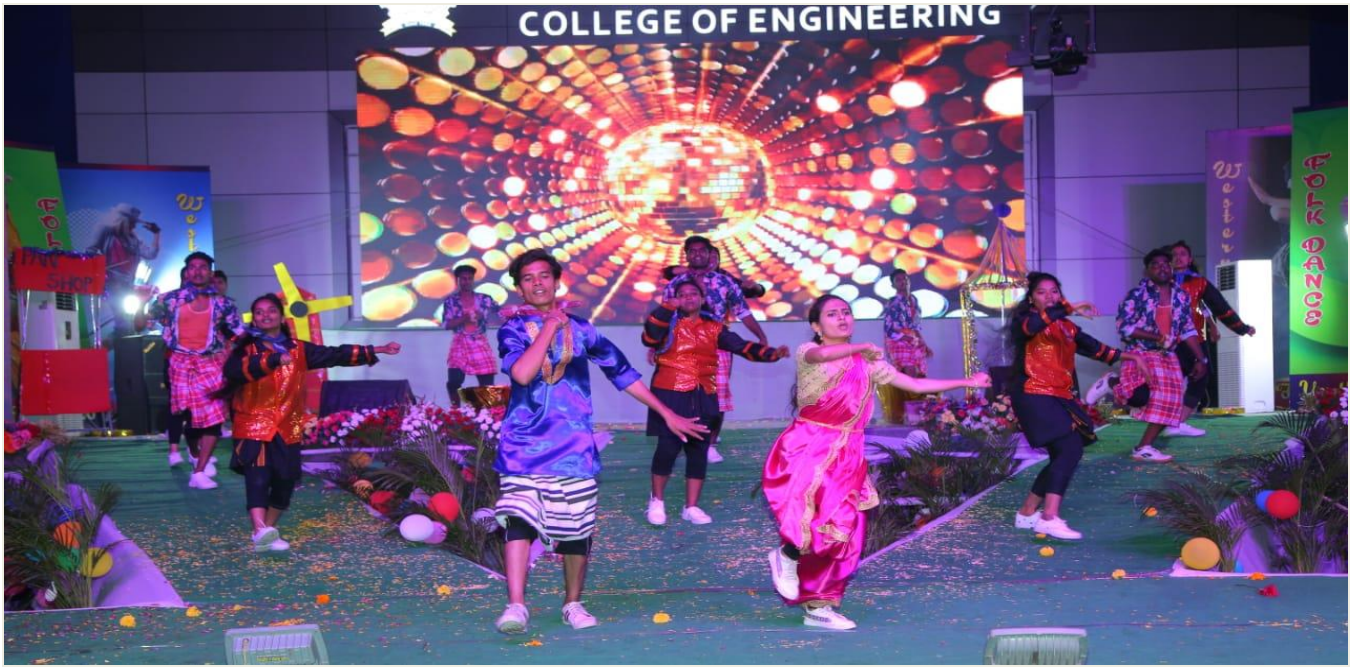
2. the complete path around which an electric current flows

5. a stable subatomic particle that is found in atoms with a charge of negative electricity

7. is a characteristic of a unit of matter that expresses the extent to which it has more or fewer electrons than protons

10. an electronic component that is designed to offer a desired amount of resistance to the flow

EEE Students in cultural programs



Round wise winners (EEE) in 2K20 CZARS

ఈనాడు
epaper.eenadu.net

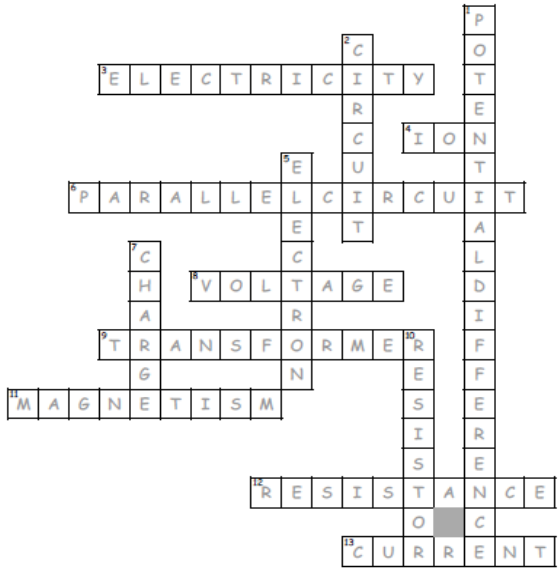
వాహనాల తయారీ పోటీల్లో ఆర్వీఆర్‌జేసీ ప్రతిభ

చౌడవరం (గ్రామీణ గుంటూరు), న్యూస్‌టుడే: నగర శివారు చౌడవరంలోని ఆర్వీఆర్‌అండ్‌జేసీ ఇంజినీరింగ్ కళాశాల విద్యార్థులు ఇటీవల కేఎల్ విశ్వవిద్యాలయంలో జరిగిన ఛాంపియన్ ఆఫ్ ఛాంపియన్-2020 పోటీల్లో ప్రతిభ చూపినట్లు ప్రిన్సిపల్ కోట శ్రీనివాసు మంగళవారం తెలిపారు. ఎలక్ట్రికల్ కారు, బైక్ తయారీలో బహుమతులు సొంతం చేసుకున్నట్లు వెల్లడించారు. ఎలక్ట్రికల్ కారు 2.7 టన్నుల బరువు లాగి మొదటి బహుమతి సాధించినట్లు వెల్లడించారు. ఇదే కారు గుజరాత్‌లోని అహ్మదాబాద్‌లో జరిగిన ఆరావళి వాహనాల తయారీ పోటీల్లో ద్వితీయ స్థానం పొందిందన్నారు. ఎలక్ట్రికల్ బైక్ జాతీయ స్థాయి పోటీలకు అర్హత సాధించిందని, ఇది గంటకు 90 కిలోమీటర్ల వేగంతో వెళుతుందన్నారు. ఒకసారి చార్జి చేస్తే 150 కిలోమీటర్లు దూరం వెళ్లడం దీని ప్రత్యేకతగా తెలిపారు. ఈ విజయాలను పురస్కరించుకొని మంగళవారం కళాశాలలో అభినందన కార్యక్రమం ఏర్పాటు చేశారు. ఈ సందర్భంగా వాహనాలను రూపొందించిన ఈఈఈ, మెకానికల్ విద్యార్థులను కళాశాల అధ్యక్ష, కార్యదర్శులు రాయపాటి శ్రీనివాస్, గోపాలకృష్ణ, కోశాధికారి కొండబోలు కృష్ణప్రసాద్, రిజిస్ట్రార్ శ్రీనివాసరావు, ఎలక్ట్రికల్, మెకానికల్ విభాగాధిపతులు చంద్రశేఖర్, రవీంద్ర, అధ్యాపకులు సుధీర్ అభినందించారు.

ప్రతిభ చాటిన విద్యార్థులతో కళాశాల కార్యదర్శి గోపాలకృష్ణ తదితరులు

Date : 04/03/2020 EditionName : ANDHRA PRADESH(GUNTUR CITY, GUNTUR WEST) PageNo : Page 01

Solution for Electrical Cross Puzzle



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