



VIDYUT

Voyage with Youth...

September Edition



Council of Electrical Engineers



MENTOR'S MESSAGE

When you're an engineering student, you have a lot of stress in your life. For someone to live this way, with the condition that affects their life, for them to be committed to something and want to live life to the fullest, it really puts things in perspective.

Our department encourages the students of the electrical engineering department to take an active part in curricular and co-curricular activities, with an initiative to enhance the knowledge of the students of the revolutionary and ever-changing electrical world and to be recognized as a centre of excellence to produce competent and ethical Electrical Engineers capable of finding solutions to societal challenges. We strive to empower students with quality education and achieve academic excellence through Planning, Leadership, Brilliance, Inspiration, and Effectiveness and provide unique opportunities for students of the Electrical Engineering Department to showcase their undiscovered talents.

The Council of Electrical Engineers has a prime focus on creating and fostering a spirit of understanding among the people of the Department of Electrical Engineering, SGSITS. It also focuses on providing a forum for the open discussion of all matters through departmental magazines and newsletters.

Apart from this, The Department also focuses on the Mental Health and Well being of the pupils. Despite the fact that it's been a concern for a while, mental health has not received enough attention. Understanding mental health can be difficult, and it frequently goes unnoticed. People who are suffering from depression or anxiety must get expert assistance as relationships with family and friends may be impacted. Regular checks are necessary to ensure that a person's mental health is not neglected in the same way as physical health. Physical and mental health are closely related to one another. Given that each person's experience of mental health differs, it is crucial to concentrate on these difficulties.

Dr H. K. Verma
Head Of Department
Department of Electrical Engineering

FROM THE EDITOR'S DESK

Dear Reader,

We are delighted, humbled and excited to announce the launch of the inaugural issue of the Electrical Engineering Department Magazine, "Vidyut - Voyage with Youth." This is my chance to thank our authors, editors, and anonymous reviewers that have volunteered to make the dream of this magazine come true. The primary objective of "Vidyut - Voyage with Youth" is to inform users about events taking place in their own Electrical Engineering Department. The magazine's topics include, but are not restricted to Cultural events, Technological Information, Training and Placement Talks, and Interactions with Former Students and Notable Alumni.

Welcome to "Vidyut - Voyage with Youth" family. I envision a highly promising future for Vidyut to serve research and the scientific community even better with your help as authors, reviewers, and editors. Additionally, we have always wanted to incorporate themes from fundamental and advanced electrostatics in order to help the reader have a better comprehension of them. Since many real-world problems are complex in nature, we especially appreciate submissions that adopt a diverse and integrative approach and can show near-term practical utility. In the long run, we will enrich more lives and, as a result, our communities.

I will end by extending an invitation to everyone to contribute their innovative works and research to Vidyut. We are committed to publishing all findings, techniques, resources, and critiques in order to greatly enhance the discipline of Electrical Engineering and its applications. We look forward to hearing from you soon and appreciate any additional insight. Please contact magazineclubeedept@gmail.com with any queries, comments, or complaints. Thank You. I appreciate your time and consideration. We hope you will find Vidyut entertaining, enlightening and eloquent.

Vranda Totla
Editor-In-Chief

PLACEMENT GRABBERS!

"All our dreams can come true, if we have the courage to pursue them"

We are delighted to inform you that technocrats produced from EED have proved to be an ideal workforce. The collective effort from both the department and students made it possible .

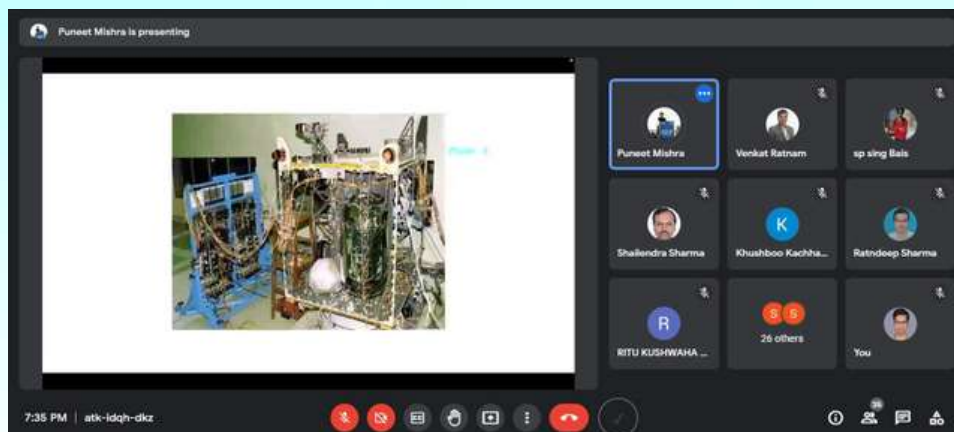
This is manifested in some stats of key graduates from the year 2021 are given below:-

S.N O.	COMPANY NAME	NO. OF RECRUITS
1.	Vedanta Resources PLC	10
2.	Deloitte India	7
3.	Accenture Services Pvt Ltd	3
4.	Cognizant Technology Solutions India Pvt Ltd	7



Organisational units within IEEE are based on geography and technical concentration, and the two complementing structures are dual and parallel. It is in charge of a different organisational body called IEEE-USA, which develops recommendations for laws and implements initiatives for the good of American members, the industry, and the general public. IEEE is a platform connect with students and professor worldwide.

It helps in various domain such as higher studies, technical knowledge update on emerging fields and placements.



The institute has initiated the IEEE students branch in the year 2016. Presently there are 20 active IEEE student members.

In an academic year, many activities are conducted by this student branch such as celebration of IEEE day, Energy Conservation seminars, Poster making, Quizzes and Workshops.

Dr Shailendra Kumar Sharma branch counselor of students branch in the year 2016.

EED EVENTS 2022

- One technical visit was organized by sb on 26/03/22
- Webinar on opportunities in space sector and making of satellites at organized on 31 March 2022 **Mr. Punit Kumar Mishra** head satellite antennae characterization, test and design section at **UR Satellite Centre**.

KNOW YOUR MENTORS

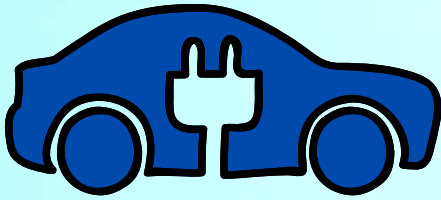


Dr. Arun Parakh

ASSOCIATE PROFESSOR

Dr. Arun Parakh is a Associate Professor in the Department of Electrical Engineering at Shri G.S. Institute of Technology and Science, Indore (MP). He obtained his Diploma in EE from Shri Vaishnav Polytechnic Indore with honors in 1992, B.E.(Hons.) in Electrical Engg. From SGSITS Indore in 1996, ME from Computer Science Dept. SGSITS in 2003 and Ph.D. in Computer Science and Engg from IIT Delhi in 2016. He worked as a Web Developer and Software Engineer. For the last 18 years, he is involved in teaching and research in the areas of digital systems design, electronic design automation and embedded systems. Further he has chaired session in international conference at Innsbruck, Austria and presented research paper in Shanghai, China. He is member of board of study at RGPV, Bhopal. He is actively involved in different administrative roles and responsibilities at the level of department, institute, govt organizations and society.

“ My PhD work at IIT Delhi was focused on Performance Enhancement of Compute Intensive Application which are mainly having significant data level parallelism using modern GPUs equipped with configurable cache. Several experiments were conducted and customized traditional framework of Map-Reduce on GPUs to take advantage of dynamic configurability of cache memory . This work also extended to implement applications of different characteristics on heterogeneous GPUs to optimize the performance. The work was recognized in the international conferences and international journals at Shanghai (China), Innsbruck(Austria), Pune (India). Hardware Platform was used in this work includes Nvidia GPUS GTX690, GTX590 and GTC9800 ”



EV SERIES 1.0

"The ultimate promise of electric vehicles is a cleaner environment. That cannot be achieved if the strain on the power grid requires additional investment in non-renewable resources to deliver the energy."

INTRODUCTION

Electric vehicles (EV) can help to reduce CO₂-emissions and the dependence on petroleum products. Conventional cars with internal combustion engines (ICE) are still a major source of air pollutants such as carbon dioxide (CO₂), nitrogen oxides (NO_x), black carbon (BC) and fine particulate matter. In India the problem of air pollution is in serious proportions in some of the major metropolitan cities of India and vehicular emissions have been identified as one of the major contributors in the deteriorating air quality in these urban centers. The problem has further been compounded by the concentration of large number of vehicles and comparatively high motor vehicles to population ratios in these cities. They aren't 100% eco-friendly as they require electricity, but they generate most of it from a thermal power plant that works on coal and emits carbon. In India, around 25% of electricity is from renewable sources like solar, hydraulic, or wind power plants, and the remaining 55% is from thermal power plants. Thus, EVs will not reduce but shift the pollution from cities to remote plant areas. So, this report is an attempt towards making electric vehicles more sustainable by renewable resources.

BATTERY ELECTRIC VEHICLES

Battery electric vehicles (BEVs) are powered entirely by electric motor and use rechargeable batteries for the energy storage. The main components of the electric drive system include battery pack, gearbox, inverter, and induction motor. Batteries can be charged externally by connecting BEVs to grid electricity. Additionally, the regenerative braking mechanism converts mechanical energy into electric charge, which is also supplied to the battery.

ADVANTAGES OF EV:

1. No Gas Required:

Electric cars are entirely charged by the electricity you provide, meaning you don't need to buy any gas ever again. Driving fuel-based cars can burn a hole in your pocket as prices of fuel have gone all-time high. The average American pays about 15 cents a mile to drive a gas-powered vehicle, whereas many electric cars run on five cents a mile.

2. More Convenient:

The electric vehicle is easy to recharge, and the best part is you will no longer need to run to the fuel station to recharge your car before hitting the road! Even a normal household socket could be used for charging an electric car.

3. Safe to Drive:

Electric cars undergo the same fitness and testing procedures test as other fuel-powered cars. An electric car is safer to use, given their lower center of gravity, which makes them much more stable on the road in case of a collision.



That's why renewable energy for EV charging is so critical. Using renewable energy to power the EV charging infrastructure eliminates the strain on the grid and the environment simultaneously, especially when paired with smart EV charging.

Smart EV charging increases the ability to control the charging process, distributing power between charging sites and campus requirements and among the individual charge points within a charging station.



HARISH K. CHATTERJEE

(B.Tech. '85 Elec. Engg.)

He is currently Vice President of manufacturing at **Raymond** and he is also associated with Wool Research Association (President), Wool Export Promotion Council (Chairman), **Gujarat Chamber of Commerce & Industry (Corporate member)** & Nodal Officer for Textiles for **Bureau of Energy Efficiency**.



VISHESH SHRIVASTAVA

(B.Tech. 2013 Elec. Engg.)

Vishesh Shrivastava currently works as Scientific Officer at **BARC**, over eight years of experience in **Electrical system design of nuclear facility** – Selection and Sizing of electrical equipment, Fault current analysis, Qualification and Testing procedure for safety-related electrical equipment.



RAJIV CHETWANI

(B.Tech. '89 Elec. Engg.)

Rajiv Chetwani is currently working as the Director, Directorate of Information Systems & Management, ISRO HQ, Bangalore Programme Director, IT & ITeS, ISRO, Department of Space. His total experience as a Director is of 5 years and 11 months.



A GUIDE FOR ASPIRING ELECTRICAL ENGINEERS

In terms of placement, it is important to consider the following points. Using these bullets as a guide can help prepare you for your dream companies:

→ Knowledge of current/in-demand technologies

- IoT & Embedded Systems
- PLC & SCADA
- Robotics
- E-Vehicles and Renewable Energy Sources

→ Internship/Trainings

- Try to contact through LinkedIn, Alumni and Company Employees.
- Referrals from college faculties.
- Research internships from various institutes i.e, IITs/NITs/IITs.
- Training from PSUs/Electrical Boards/Sub Stations.

→ Projects

- Core academic subject-based projects
- Projects based on software i.e., MATLAB, Proteus, Pspice, etc.
- Projects inheriting modern tech stacks.

*"Skill is only a Rumour
until it reaches the muscle"*

AN ENTHUSIASTIC INDUSTRIAL VISIT

A report by Deepika Brahmane

SGSITS, Indore organized an industrial visit for 3rd year undergrad students to Shakti pumps. A batch of 30 students along with 2 faculty members started their journey to gain practical knowledge about the industry and how that company build its empire from scratch. This company is the largest manufacturer of submersible pumps for domestic, industrial, horticulture and agricultural use. This company is Listed in Bombay stock exchange and national stock exchange of India. Also, Shakti pumps limited is India's leading solar pumps manufacturer and exporter. The industry had many things that made students enthusiastic and had machines that were used in daily life. Like, they explained whole borewell system used in our houses, the type of circuit connection in it is either star or delta type. Solar water pumping system was also an attraction for the students, this system operates on power generated using solar photovoltaic system.



"Interaction with the workers there was also very influencing. Also, the manager there talked about how Shakti pumps limited started from scratch with very little amount of money and now they have a turnover of 4000 crores every year which also motivated students. After this industrial visit the students very really inspired by the technology used there and also the students were very enthusiastic regarding new innovations."

A STEP TOWARDS BECOMING SELF-SUSTAINED

A report by Rishabh Tiwari



SGSITS, organised a social visit to Jimmy McGilligan Centre for sustainable development on 10 September 2022. A batch of 15 students accompanied by 4 faculty members started their journey to explore the ways of becoming self-sustained. This centre is run by Padma Shri awardee Janak Palta McGilligan, who is also the cofounder director. This centre is Indore-based non-governmental organisation working for sustainable community development. The centre was built on half an acre of land consisting of large variety of biodiversity including medicinal plants, flowers, fruity trees, dogs and cows. There was a kitchen based on solar energy for cooking which used Shelfer dish as solar cooker. There were large varieties of solar cookers available from small sizes to larger ones and from fixed to easily portable ones. Solar driers were also an important attraction to the students as it would dry up the edibles without making them lose their nutrients and colour.

Interaction with a Padma Shri awardee was very motivating, influencing and knowledge giving to the students. She shared her life experiences and her struggle during the journey. The students were highly influenced by the hybrid solar wind system that was installed at the centre for generating clean energy for daily use.

ELECTRICAL

THE MOTHER BRANCH OF ENGINEERING

-Paarth Parikh,

Whenever we hear **Electrical Engineering**, there are many other branches embedded in our minds. We can see the usage of Electrical Engineering in many different domains, which we don't even imagine using. We all have been looking towards Indore Metro for the past 2-3 Years of building, what we all see is the Civil or Mechanical work happening, but the soul of the project will be Electrical and that is kind of Relevant but not seen and thought about.

Power Grids Significance is lost in the fast-moving world of the Internet and Social Media, but just think If you lack Electricity for 2 days at home, what will happen ?? **Electronics** is a Branch, derived from Electrical and is seen connecting the world in a way like never before. Understanding of Control systems, Network Theory, Electromagnetic Theory and other domains are required compulsorily for learning and usage of Electronics.

In **Electronics and Instrumentation Engineering** also, we see extensive usage of ElectroMagnetic Field Theory, Electromagnetic Waves, Control Systems and other domains Electronics and Instrumentation are also derived from Electrical.

Branches like **Biomedical Engineering**, are basically for Designing of Medical Systems, which uses Electrical and Electronics Extensively.

Well, these branches were derived from Electrical.

We can also see the usage of Electrical in other prominent Branches, when we see **Computer Science Engineering**, We might think of Only Coding and Computer Systems but when you think of Code, a billion transistors are storing the Codes and those Transistors are designed with the help of Electrical Engineers, Power Circuit of a Computer System is also extensively designed by Electrical Engineers.

Speaking of Other Core Branches, **Mechanical or Civil**, they might not require Electrical in their core works, but we see a thousand Electrical Equipment being used in the Construction work of any of these Branches. These Branches when merged with Electrical Engineering results in the Creation of our world.

We can reinstate our Statement as, "**Either you came from Electrical, or You are made from Electrical**", that's the valuation of the Electrical Branch in Other Branches.

JUPITER DRONE

This is an interesting drone concept launched in 2021 by Anton Weaver with 360 degree camera that looks like a sphere shaped magical ball. Jupiter's drone has a monolithic orb shape that disobeys both the laws of gravity and drone design. It utilizes a single propeller to move around in the air, stay upright and even twist and turn in mid-air . The presence of a unique dual fisheye 4K , 18 MP still image camera allows it to capture everything it sees around 360degre. It has 4 propellers on either corner and a relatively aerodynamic design with legs for taking off and loading. There is battery mounted on top and it has sensor at the bottom that detects proximity allowing it to land perfectly. The outer shell protects the internal propeller so well, and it acts as a general shelter as the drone flies around filming you. The drone strange shape almost gives it the appearance of an all seeing eyeball that levitates around everywhere.

PRO'S

With its internal fan, Motor and control veins, it's safe to hold.

CON'S

It has a flight time of only 12 minutes.



CONCLUSION

The normal drones will be replaced in the most attractive and yet more smarter way by jupiter drone . The energy of the drone will be saved as it can capture 360 degrees by staying at one position.

Li-Fi



"What it's the magic of light it can make our world a greener, safer, cleaner & moreover a brighter place to live."

Li-Fi is a wireless communication technology which utilizes light to transmit data and position between devices. The term was first introduced by Harald Haas during a 2011 TED Global talk in Edinburgh. Li-Fi is a light communication system that is capable of transmitting data at high speeds over visible light, ultraviolet, and infrared spectrums. In its present state, only LED lamps can be used for the transmission of data in visible light.

HOW IT WORKS?

An overhead lamp fitted with an LED with signal-processing technology stream data embedded in it's the beam at ultra-high speed to the photodetector. A receiver dongle then converts the tiny changes in amplitude into an electrical signal, which is then converted back into a data stream and transmitted to a computer and mobile device.

ADVANTAGES :

Li-Fi could make a huge impact on the IOTs too, with data transferred at much higher levels with even more devices able to connect to one another.

DISADVANTAGES :

It has limited range and has limited compatibility since it is a new device and not many devices are compatible .

CONCLUSION

Li-Fi will make our lives more technology-driven in the near future.

Beyond Studies...



NSS SGSITS National Service Scheme "NOT ME, BUT YOU"



- Multiple drives to Orphanages & Old Age homes took place in the past two months.
- " Nukkad natak" based on teachers day celebration.
- On the occasion of teachers day the event took place to propagate social message and create awareness among the masses, on 5th of September 2022.
- Paarth Parikh (B tech 3rd year) played as main lead in" Nukkad Natak" organised on the occasion of Teacher's day.

NCC SGSITS

*“National cadets corps”
To develop Leadership, Discipline, Ideals
of selfless service among the youth .*



- Anti drug (Nasha Mukti) webinar held on 10th September 2022.
- A Runathon took place in Indore in which NCC cadets were involved.
- Independence Day Celebration.
- Mahee Jain (B tech 3rd year) performed as a vocalist on the occasion of Independence day.
- Sadhna Yadav (B tech 2nd year) gave a dance performance on the occasion of Independence day.

CLUB KSHITIJ

"Where academics meet aesthetics"
official cultural club of SGSITS, Indore.
(Dance, Drama, Singing)



•-KARWAAN गुजराते लम्हों का

Happened on 2nd September 2022.

A retrotastic event to pay tribute to late singers and their remarkable legacy.

- Hardik Yadav, Divyanshi Tahkit & Amaan Khan (B tech 3rd year), Akshi Dhurvey (B tech 2nd year) gave a performance as dancers in KARWAAN, EE Department.
- Mouli Sharma (B tech 2nd year) performed as a vocalist in KARWAAN , EE Department.
- Aniruddh Sharma (Btech 2nd year) gave a flute performance in KARWAAN, from EE Department

UPCOMING EVENTS

There are chances of a grand event based on Navratri (Garba Night) in October.

सफ़र

- गौरव बड़गैयाँ

सफ़र सफ़र की बात है, कोई मिलता कोई बिछड़ता है।
रात भी होती निरंतर, दिनकर भी हर पल चढ़ता है।

सरिता सर्वदा बहती है, भला काँटा घड़ी का रुकता है?
फिर क्यूँ तीर अतीत का, छाती चीरे तो दुखता है।
खड़ा हुआ है ठूठ सा, हरा-भरा जो था कभी,
थी हठ से भरी जवानी, बूढ़ा होने पर झुकता है।

था ननिहाल महल जिसका, मामा अश्व कहलाते थे।
माँ के गुस्सा जाने पर, नाना दीवार बन जाते थे।
गुजर गया वह समय खेल का, यह सोच के इतना सड़ता है।
सफ़र सफ़र की बात है, कोई मिलता कोई बिछड़ता है।

होती संभले देर नहीं, भेड़चाल अपनाता है।
दौलत-शौहरत के मोह में, इंसान नहीं बन पाता है।
रिश्ते-नाते सब टूट गए, खुद अपने हमसे रूठ गए।
आती धन-दौलत काम नहीं, केवल मलाल रह जाता है।

रतन सा पाला पोसा जिसने, अब उन पर ही बिगड़ता है।
हृदय में बसता था गुलाब, अब काँटों सा गड़ता है।
उठ जाने पर सिर से साया, फिर अपनी नाक रगड़ता है।
सफ़र सफ़र की बात है, कोई मिलता कोई बिछड़ता है।

मिलते हैं कुछ मित्र अनोखे, हमदम प्रतीत से होते हैं।
चक्र जो चलता काल का, वो अतीत से होते हैं।
यादें उनकी आँखों में रहती, अश्रु विलाप हो जाते हैं।
'तू - तड़ाक' चलती थी जिनसे, वो तुम से आप हो जाते हैं।

फिर होती है इश्क-मोहब्बत, जो हर जवाब बन जाती है।
कीमत उसकी बेहिसाब, वो लाजवाब बन जाती है।
मिल जाए किस्मत से वो, विश्वास नहीं कर पाता है।
जो ना मिल पाए वो अगर, नाती-पोतों में गाता है।

और देता है बस एक कथन, प्यार-व्यार ना करना तुम।
देदो मुझको एक वचन, उसके पीछे ना मरना तुम।
कथन संभाले पोता दादा का, दृढ़ से आगे बढ़ता है।
पर मायाजाल यह प्रेम का, वो भी यह गलती करता है।

सफ़र सफ़र की बात है, कोई मिलता कोई बिछड़ता है।
रात भी होती निरंतर, दिनकर भी हर पल चढ़ता है।

ऐसे हम स्वतंत्र हो

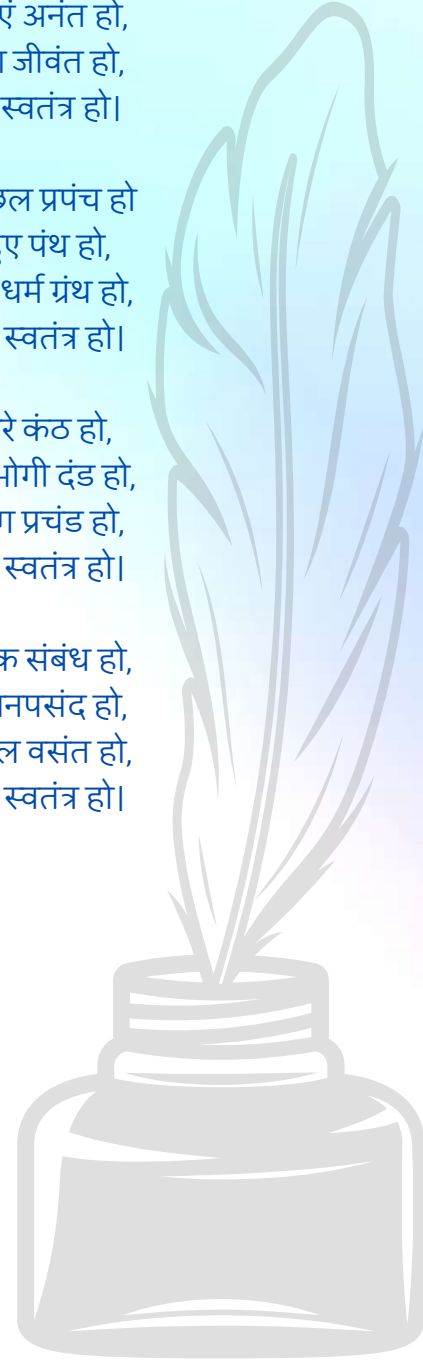
- अनिरुद्ध शर्मा

आशंकाओं का अंत हो,
संभावनाएं अनंत हो,
हर चेहरा जीवंत हो,
ऐसे हम स्वतंत्र हो।

न कोई छल प्रपंच हो
न बटे हुए पंथ हो,
जीवन में धर्म ग्रंथ हो,
ऐसे हम स्वतंत्र हो।

सत्य भरे कंठ हो,
ना कोई भोगी दंड हो,
प्रगति वेग प्रचंड हो,
ऐसे हम स्वतंत्र हो।

वास्तविक संबंध हो,
भविष्य मनपसंद हो,
प्रत्येक पल वसंत हो,
ऐसे हम स्वतंत्र हो।



GREEN HYDROGEN.. Mirai of energy

-Mohit Singh Chandel

Human civilization is developing very fast and their energy requirement too growing up in a very fast pace in last few decades , there is sudden surge of energy requirement . Global energy demand is expected to increase by 48% in the next 20 years owing to the precipitous increase in the global population, Currently, 80% of the energy demand is met by fossil fuels. And this problem inspires us to find alternative sustainable source of energy that is Hydrogen energy.

To read the full article, Visit:

Green Hydrogen proves to be an exceptional alternative to traditional fossil fuels and can be used as fuel cells. Presently, the fuel cell electric vehicles trend is going under a revolution. It is 100% sustainable and does not emit any polluting gas either during the process of Electrolysis or while being used.



India's 'Necklace of Diamond' Countering China's 'String of pearls'

-Ashutosh Manwathkar

The String of Pearls is a strategy deployed by China, by building a network of commercial and military bases and ports in many countries.

The term refers to the network of Chinese military and commercial facilities and relationships along its sea lines of communication, which extend from the Chinese mainland to Port Sudan in the Horn of Africa.

To read the full article, Visit:

Theories like the String of Pearls affect the relation between China and India and is a serious threat to the India's security in Indian Ocean and territorial integrity in such a way that as a responsible and aware citizens of India we must know all about it.



EXAM DATES & EVENTS

S.No.	EXAM	DATE
1	UPSC CIVIL SERVICES MAINS	24-25 SEPTEMBER
2	MP VYAPAM GROUP 1	12 OCTOBER
3	SSC CPO PAPER 1	9-11 NOVEMBER 2022
4	SSC JE PAPER 1	14-16 NOVEMBER 2022
5	GATE	5,6,12,13 FEBRUARY 2023
6	CAT	27 NOVEMBER 2022
7	XAT	8 JANUARY 2023
8	BHEL-RECRUITMENT	31 OCTOBER,1,2 NOVEMBER 2022
9	IIT JAM	12 FEBRUARY 2023
10	IES PRELIMS	19 FEBRUARY 2023
11	CLAT	18 DECEMBER 2022

KNOW OUR TEAM



Dr. H.K. Verma
Head of Department
Faculty Coordinator



Prof. R.S. Mandloi
Assistant Professor
Faculty Coordinator



Paarth Parikh
III Year
Executive Editor



Vranda Totla
III Year
Editor-in-Chief



Mahikshit Purohit
III Year
Managing Editor



Kareena Pathan
III Year
Creative Director



R to L-III Yearl

Jinesh Sanghvi, Saksham Dariya, Anirudh Sharma, Ishika Agarwal,
Kirty Pandey, Plaksha Lahavasia, Deepika Mangrol, Gaurav
Badgaiyan, Dhruva Agrawal, Siddharth Kheroniya.

SGS INSTITUTE OF TECH. AND SC.

