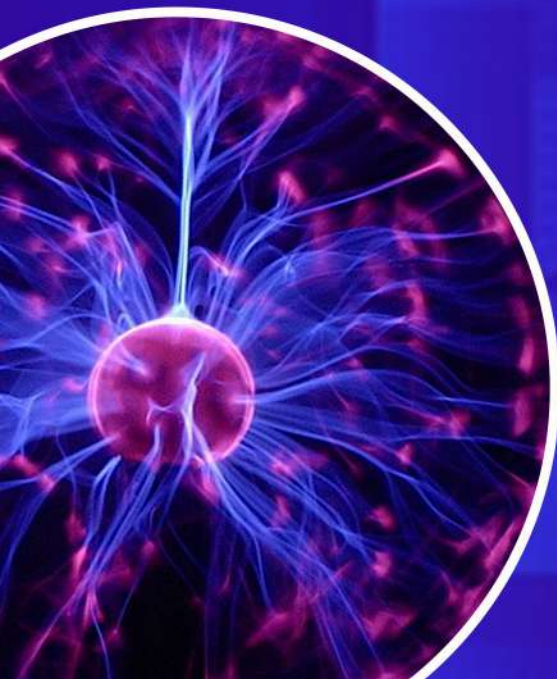




ELECTRI.CT

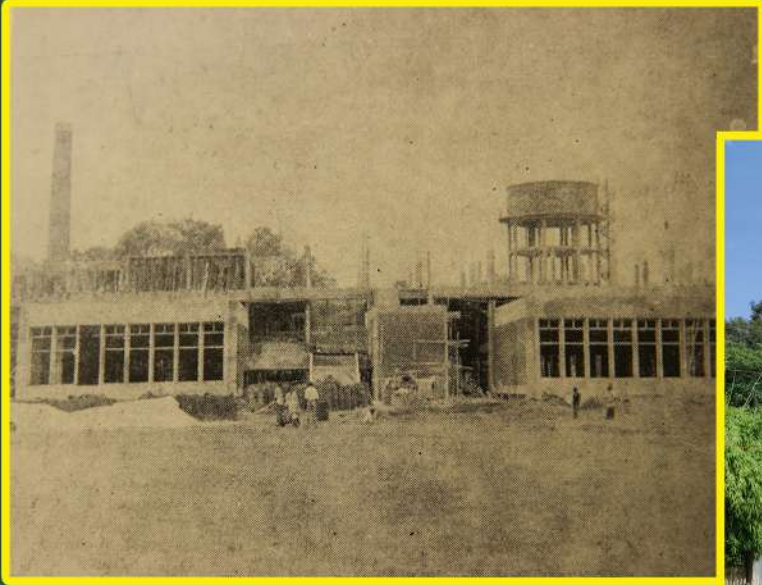
WHERE IDEAS FLOW WITHOUT RESISTANCE

7th
EDITION
AUG-2022



TIME LAPSE

(Since 1948)



Electrical Engineering Department was one of the three branches with which L. D. College of Engineering was established on 20th June 1948. The other two being Mechanical and Civil Engineering. Shri T. N. Tolani was the first principal of the college. The intake capacity was merely 35 in Civil and 15 each in the Electrical and Mechanical branches. The course structure was also very different from the present day. It is noteworthy that few of the faculty members in those times had migrated from Karachi during partition.



VISION

» To foster learning environment for electrical engineering education having high technical skills, ethical values and overall global competence.



MISSION

To provide high quality graduate program in electrical engineering so that it prepares students for:-



- 1. Better employability, startups and entrepreneurship.**
- 2. A professional career with essential technical and managerial skills**
- 3. Collaboration with industry through Research & Innovation.**
- 4. Other avenues for higher education**
- 5. Adapting to change in technology and apply the same for the benefit of society at large.**



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PRINCIPAL'S TALK

Dr. R. K. Gajjar



“College is where life happens between welcome party and farewell party”

If you think controlling your laughter in a classroom amidst pin drop silence is a tough task, ask those who had to control their tears on the last day of college. Well, let me assure you, this is the sentiment shared by all your seniors - our alumni over the last 75 years since the inception of the college in 1948.

LDCE flagged off the 75th anniversary celebrations in the august presence of the Honorable CM of Gujarat, Shri Bhupendrabhai Patel, Education Minister Shri Jitubhai Vaghani, notable alumni, invited dignitaries, faculty and students. The

event was celebrated over a period of three days with various programs. You will get a glimpse of the programs in this issue. The event was a grand success as it brought together the illustrious and meritorious students of LDCE - both past and present. The Hon. CM launched the centennial plan prepared with the help of our alumni, faculty and students of course. The government, alumni and our partners pledged donations for the development of the institute. The celebrations will continue through the year with various events. We will keep you posted about the events in the coming issues.

I am delighted to share that the three programs of Electrical, Mechanical and Civil Engineering are re-accredited till June-2025. Two more UG programs – Computer Engineering and Rubber Technology

are in the pipeline and awaiting the NBA visit. I am sure they will come through with flying colours.

LDCE is ranked 3rd across the nation in ARIIA 2021 (Atal Ranking of Institutions on Innovation Achievements) by Ministry of Education, GoI. Our publications, patents, research projects and startups are increasing. Reputed national and multinational companies have visited the campus among which some prominent recruiters are L&T, Accenture, TATA Group, Hitachi, Ford, SIEMENS and IBM.

Team LDCE, with its students, faculty and alumni, is forever committed to realize the vision of LDCE. The departmental magazine - 'ELECTRI.CT - where ideas flow without resistance', gives the students an opportunity to exhibit their talent, teamwork, exchange knowledge and information and of course interact with the illustrious alumni of the department.

This platform in its own way contributes to achieving our centennial plan.

I extend my warm wishes to the department and hope they keep marching forward tirelessly towards excellence.



HOD's DESK

Dr. K. P. Badgujar



Dear Readers,

I am glad to present to you the 7th edition of Electri.CT.

The department is constantly striving for the excellence and this edition covers all our efforts for the same.

In the last six months, the department is enriched with joining of two professors. The department has successfully defended the National Board of Accreditation visit and I am immensely happy to share that we are now accredited till June 2025. The department is also contributing to the LDCE@75 celebrations. So this year will be very much important for all of us. Lets all promise to contribute and participate as much as possible for the year long celebrations of our platinum jubilee year. The faculty as well as students are very much excited for the year long events.

The magazine, as usual contains the regular contents, along with few noteworthy events
I appreciate the efforts of the student editorial team as well as the faculty team of Dr. U. L. Makwana, Prof. N. V. Sinha, Prof. H. N. Raval and Prof. M. R. Vasavda for the timely publication of the magazine.

— Best wishes

FACULTY VISION

" Science is discovering the essential truths about what exists in the Universe, engineering is about creating things that never existed. "

- **Elon Musk**



Greetings on our Independence Day!

It is with great happiness and pride that we bring to you the 7th edition of our department magazine "Electri.CT - where ideas flow without resistance". Happiness stems from our activities / achievements that have been accomplished by the family of students and faculty since we spoke last. Pride is evoked by the sentiment of being a

part of the celebrations as our college enters its 75th year which also coincides with our nation's celebration of the "Azadi ka Amrutmahotsav".

Our department has been further enriched with two senior and experienced Professors, Dr. K. P. Badgujar and Dr. D. P. Maheshwari. Their vision and dynamism will surely spur us in our quest for excellence. Today we also take the opportunity to wish everyone ahead of Engineer's Day which is celebrated on 15th September every year to commemorate the birth anniversary of Sir Mokshagundam Visvesvaraya, who was an engineer and reputed statesman. He was the Chief Engineer of Krishna Raja Sagara dam in Mysuru, and he is remembered till date for his contribution as one of the Chief Engineers of the flood protection system designed for Hyderabad.

On a lighter note, you may accomplish the most difficult of tasks, however, your family members will not consider you an engineer unless you repair any of the home appliances. Happy Engineers Day!

We always strive to make our newsletters more than just newsletters by being informative, and using them as a platform to showcase the multifaceted talent of our students and faculty. Having said that, we are open to any ideas that will help us improve our newsletter. We would like to thank all the students and faculty who have contributed to the newsletter. We appreciate the student editorial team who have done a commendable job. We hope that you will enjoy reading this issue. Once again, Team Electri.CT values your contribution and looks forward to your continuous support in the coming issues.

Happy Reading!

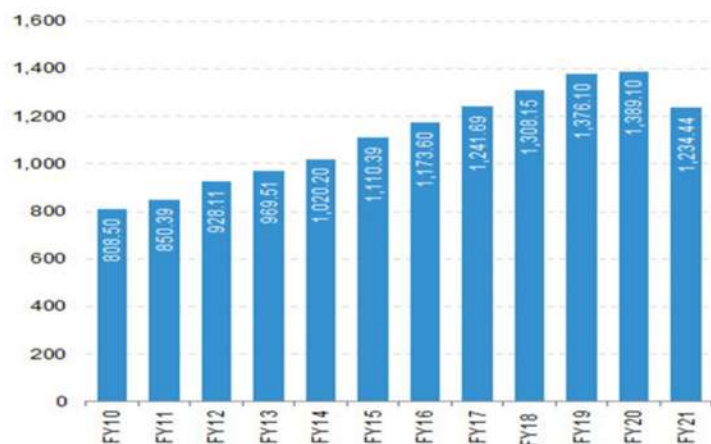
In case of Bulk Power Transfer, Electricity is still Holding the Position of Master Key in 21st Century.

By Dr. K.A.Bhatt, Prof. (Dr.) K. P. Badgujar,
Prof. (Dr.) M.C.Chudasama

Nowadays, engineers around the globe are trying to find innovative ways to improve the efficiency, reliability, and performance of energy transfer between two points located far apart. Based on reported literature, it is to be noted that energy consumption of country indicates its growth rate. Since, inception of bulk energy transfer between two distanced places, electrical energy is considered as the one of the best options available compared to other forms of energy.

In past, Gold and Land was considered to be pride of a society and countries.

People were used to fight for maximum of it. Conversely, 20th century was dedicated to energy where coal, oil, and electricity were the major role players. Energy is still a major stack-holder in the race of supremacy. This topic is further discussed in below mentioned link.



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Footprints to Write a Research Paper

By

Dr. K. A. Bhatt, Assist. Prof., EED, LDCE

Prof. (Dr.) J.R. Iyer, Professor, EED, LDCE



Research Paper

Review Paper



Need: “ Innovation and Research are the currency of 21st century” -Barak

Obama, former President, USA.

Further, considering the current scenario and need of the hour, our Government has also taken multiple steps for development of the

ecosystem for innovation and research such as:

1) Established Student start up and Innovation policy. 2) Providing financial aids to start-ups and research proposals. 3) Implementation of “Made in India” concept. In order to improve Gross Domestic Product (GDP) and promote industrial development of the country, it is required to encourage research and innovation domains with good pace. However, research without publication stands no-where. Therefore, it is required to tag/mark the research with the name of researcher using hard bound structure, Further, it is also essential that it should be validated by competent authority. Moreover, in order to protect the research under copy write act, it is required to publish the research using reputed publication. This enables the researcher to claim his/her rights and earn fame for novel development. This is the main motivation to write a research paper.

The research papers are broadly classified in two types, (i) review paper and (ii) paper based on newly developed algorithm/novel technique/supported paper to any research. Details of both these types of papers are discussed in details in below mentioned link.

<https://drive.google.com/file/d/1uOwVg11AKZgp6HqRhblF8tNGq6r3EUmp/view?usp=sharing>

Carnival Of 75 Years

LDCE kickstarted the 75th year celebrations on 19 June 2022 with "પૃથ્વી" - a heritage cum experiential walk in and around the campus. The event saw enthusiastic participation by all - students, alumni, faculty and staff members along with their families.

The program started with the speech of our Principal madam. The event was graced by celebrity fitness trainer Ms. Sapna Vyas and Zumba trainer Mr. Paras Dalal and his team.

Everyone enjoyed Zumba dance for about half an hour. The walk was flagged off by our Principal amidst the sound of dhol and bells.



This event provided an excellent platform for bonding between faculty, LAA members, students - both past and present and set the tone for the following events. After completing the walk everyone broke out into an impromptu garba session where all danced to their heart's content. After some rest the next event was વૃક્ષરોપણ - a tree plantation drive where 75 trees were pledged by the alumni.

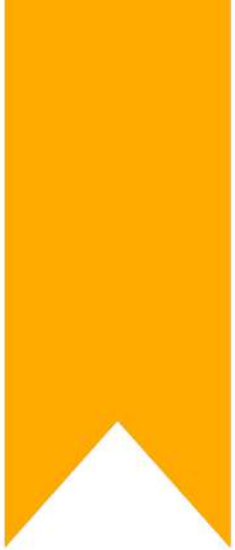
On 20th June which is the Foundation Day of LDCE, a grand function named "સમર્પણ" was held in the august presence of the Hon. Chief Minister of Gujarat Shri Bhupendrabhai Patel, Hon. Education Minister Shri Jitubhai Vaghani, Hon. Minister Dr. Kuberbhai Dindor, other dignitaries, invited guests, alumni, faculty & staff members and students. Two new programs for UG and grant of crores were announced by the Hon CM and Hon Education Minister at the event.





Shri Sanjay Lalbhai - a member of the donor family and other noted alumni who were present also pledged to pitch in their contributions for the development of the institute. The centennial vision was launched earlier

by the Hon. CM and on this day the centennial plan for the next 25 years was launched to help the institute excel in emerging technologies, infrastructure, innovation, teaching-learning and other aspects. All stakeholders aspire to see LDCE as a campus with global standards and enhanced industry - alumni engagement at LDCE@100.



LDCE@75 a journey to success was held on 21st June. All departments invited their alumni to share their experiences and success stories with the current students. Our Electrical

Department invited Retd. Wing Cdr. Shri C. G. Pandya (1961 batch), Shri Nikhil Trivedi, Director Shiralee Electricals (1983 batch), Mr. Nehal Shah, (1983 batch) and Ms Muskan Biala, Graduate Engineer Trainee MG Motors India Pvt. Ltd. (2021 batch). Pandya sir is our seniormost alumni and every year he gives a cash prize of Rs.10000/- to



the first rank holder and Rs.5000/- to second rank holder. All the invited guests shared their memories of their student life at LDCE and also shared their valuable experiences which inspired and motivated all of us to do our best even if the circumstances are trying. This event enthused us all with a renewed sense of vigour and dedication.

KAIZEN-2K22

KAIZEN - 2K22 is our annual open house where industry experts are invited to review students' projects and internships and also give their feedback so that we may improve upon them in future. This year Mr. Darshan Pandya (Darshinal Automation Pvt.Ltd), Mr. Ashvin Patel (SARK EPC Pvt.Ltd), Mr. Shailesh Patel (Topline Switchgear Pvt.Ltd), Mr. Jay Patel (Adaptive Engineering Pvt.Ltd) were invited to evaluate the projects and internships. Each of the invited expert took keen interest in all the work done by the students and gave their valuable inputs. Faculty members and students gained a lot of insight into the latest techniques prevalent in the industry.



The prayer and lamp lighting was followed by welcome speech by Dr. Jyoti Iyer and Dr. M. C. Chudasama.





After the inauguration ceremony the presentations of students commenced in 4 parallel sessions, each session chaired by an invited expert. It was a very warm atmosphere as we all shared lunch and lighter moments together in between the formal presentations.

Some facts and figures of KAIZEN - 2K22 of our department:

Number of student participants: 133

Number of internship presentations evaluated: 102

Number of projects evaluated: 10



At the end of the day, a valedictory function was

organized which also marked the farewell of the final year students. Some of the students also shared their experiences and fond memories. It was a poignant moment as everyone was feeling nostalgic and remembering the good and difficult times they shared with each other, particularly during the pandemic and post the lockdown.



“I feel fortunate myself having such a caring and motivating professor. The guidance and mentorship from them is priceless for me.”

~ PANDEY MANASHI, Passout



In the evening after a group photo session, there was a musical evening and garba session.

The Winners Of KAIZEN-2K22

RANK	Name of Student/Team	Name of Internship/Project	Name of Mentor
1 st	VATHSAL MEHTA	Internship at Prasad GWK Cooltech PVT LTD	Prof. S. N. SHIVANI
2 nd	ABHISHEK GHONIYA MANASHI PANDEY DHURVAL NAI YASH VYAS HARSH SHAH	D Gravity	Prof. FEDRIK MACWAN
3 rd	BAG SUDIP ARABINDA	Internship at OFFICE OF Sr. DEE(TRS) ELECTRIC LOCO SHED VALSAD	Prof. U. L. MAKWANA

NBA



The combined efforts of the students and faculty members helped the Department in successfully facing the NBA visit. The UG program of the Electrical Engineering Department was accredited in 2019 for 3 years.

The expert interacted with the faculty members and also visited the labs.

He took keen interest in student projects and interacted with the students as well. The UG Program is now re-accredited for another 3 years upto June 2025.



STUDENT ACHIEVEMENT

SEM TOPPER



Sem-1



Parmar Kuldeepbhai
SPI:-9.53

Sem-3



Manaswini Joshi
SPI:-9.22

Sem- 5



Purohit Jaydeepkumar
SPI:-9.0

Sem- 7



Ghadiyali Aryan
SPI:-9.17



Yuvrajsingh Dodiya of
Our department
has achieved
"Best NCC Cadet" Medal.
He worked up-to 2 years for this
achievement.



Our 5th semester students Khyati Bodar and Shwetal Shyara represented L. D. College of Engineering at SPIRIT 2022-2023, Ahmedabad Zonal Chess organized by GTU. Khyati was the captain of the girls team.

Now both of them are going to represent LDCE at SPIRIT 2022-2023 Vadodara Interzonal Chess Tournament, which is an immensely proud moment for Electrical department and LDCE.



The pole changer machine was made by our faculty Prof. Mitul Patel and our 5th sem student Abhay Gosai. It is in the machine lab and it has the characteristics of changing speed as per the change in poles in the machine. You don't need to open the whole machine for changing the pole, just change the poles from outside and speed will increase or decrease accordingly.

GROUP ACTIVITY

Doordarshan Robocon India 2022 (DD Robocon) is a National Competition organized by IIT Delhi for Asian-Oceanian college robot competition, organized internationally by Asia-Pacific



Broadcasting Union. In the competition robots compete to complete a task within a set period of time. The contest aims to create friendship among young people with similar interests who will lead their countries in the 21st century, as well as help advance engineering and broadcasting technologies in the region.

Four students from 3rd year, Jatin Khankhal, Harsh Naraniya, Manaswini Joshi, Jay Odedara and Three students from 4th year, Gautam Reshamwala, Jay Shah and Ratnam Shah, from our department were part of the team which represented our college at the National level which was held at IIT Delhi on 16- 17th of July.

“LD SPORTS CLUB” in association with “ROTARACT CLUB OF LDCE” organized the inter-branch cricket tournament in the college. There were around 70 teams across 14 branches.



2nd year and 3rd

year students of the electrical department had participated in that tournament. 2nd year team led by Abhay Gosai and 3rd year team led by Raj Soladhra qualified up to Quarter-final. Though the teams could not win, yet the efforts of all players were laudable.



PLACEMENT CELL

In the graduating batch of 2022, 71 students were placed in various MNCs, PSUs, IT companies through campus drive. Out of these, 28 students have been offered a package of more than 6LPA.

Name: Jeet Joshi Company: Accenture Package :- 6.5 LPA	Name:Gothi Shivam Company: Reliance Package :- 10 LPA	Name:Chauhan Krish Company: Reliance Package :- 10 LPA
Name:Kapdiya Vishvas Company: Reliance Package :- 10 LPA	Name:Patel Keval Company: Reliance Package :- 10 LPA	Name: Lakhani Shubham Company: Reliance Package :- 10 LPA
Name:Bheda Kishan Company: Reliance Package :- 10 LPA	Name:Singh Abhishek Company: Reliance Package :- 10 LPA	Name:Patil Vishal Company: Accenture Package :- 6.5 LPA
Name:Chocha Brijesh Company: Reliance Package :- 10 LPA	Name:Thumar Sachin Company: Reliance Package :- 10 LPA	Name:Dharmik Shiroya Company: Adani Package :- 6.67 LPA
Name:Parmar Manish Company: Adani Package :- 6.67 LPA	Name:Parmar Chirag Company: Adani Package :- 6.67 LPA	Name:Pandya Shivam Company: Adani Package :- 6.67 LPA

अज्ञान को खतम कर,
ज्ञान का सागर पाया
अपने कॉलेज की कृपा से,
ये अनमोल विचारधारा मिल पाया ।

Name:Patel Shahil Company: Adani Package :- 6.67 LPA	Name:Gondaliya Nikunj Company: Adani Package :- 6.67 LPA	Name:Padhariya Gautam Company: Adani Package :- 6.67 LPA
Name:Rupapara Himanshu Company: Adani Package :- 6.67 LPA	Name:Nai Dhruval Company: Adani Package :- 6.67 LPA	Name:Nakum Smit Company: Adani Package :- 6.67 LPA
Name: Hirani Ravi Company: Adani Package :- 6.67 LPA	Name:Odedara Prakash Company: Adani Package :- 6.67 LPA	Name:Raste Parth Company: Adani Package :- 6.67 LPA
Name:Ghadiya Aryan Company: Adani Package :- 6.67 LPA	Name:Khalasi Vatsal Company: Adani Package :- 6.67 LPA	Name:Umaretiya Dhaval Company: GSPL Package :- 6.75 LPA
Name:Dafda Kushal Company: GSPL Package :- 6.75 LPA	Name:Odedara Meru Company: Secure Package :- 5 LPA	Name:Gondaliya Raghuvir Company:Secure Package :- 5 LPA

Some students were also offered handsome packages of 13 to 15LPA. Kudos to all the students and our placement coordinators!!!

μ SUPERCAPACITOR

Micro-supercapacitors are a promising alternative to micro batteries because of their high power and long lifetime. They have been in development for about a decade but until now they have stored considerably less energy than micro-batteries, which has limited their applications.

Now researchers in the (LAAS-CNRS) in Toulouse and the INRS2 in Quebec (Canada) have developed an electrode material that means electrochemical capacitors produce results similar to batteries, yet retain their particular advantages.

This work was published on September 30, 2015, in *Advanced Materials*. With the development of onboard electronic systems and wireless technologies, the miniaturization of energy storage devices has become necessary.

Micro-batteries are very widespread and store a large quantity of energy due to their chemical properties. However, they are affected by temperature variations and suffer from low electric power and limited lifetime.

On the contrary, micro-supercapacitors have high power and theoretically infinite lifetime, but only store a low amount of energy. Micro supercapacitors have been the subject of an increasing amount of research over the last ten-fifteen years or so, but no concrete applications have come from it. Their lower energy density, i.e., the amount of energy that they can store in a given volume or surface area, has shown that they were not able to power sensors or microelectronic components.

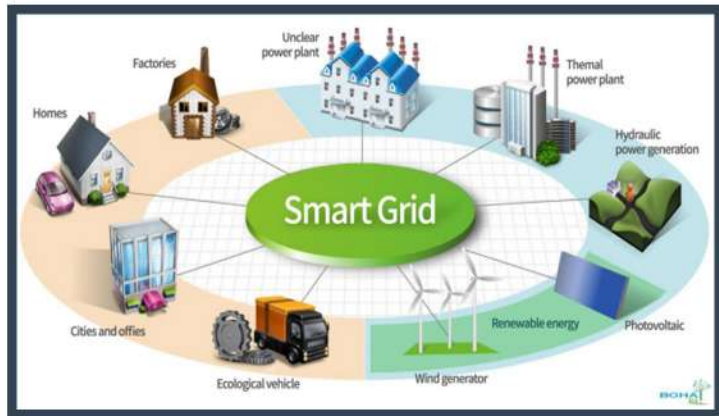
Researchers in the Integration team at LAAS-CNRS, in collaboration with the Institut national de la recherche Scientifique (INRS2) of Quebec, have succeeded in removing this limitation by combining the best of micro-supercapacitors and micro-batteries. They have developed an electrode material whose energy density exceeds all the systems available to date.

The electrode is made of an extremely porous gold structure into which ruthenium oxide has been inserted. It is synthesized using an electrochemical process. These expensive materials can be used here because the components are tiny: of the order of square millimeters. This electrode was used to make a micro-supercapacitor with an energy density of 0.5 J/cm^2 , which is about 1000 times greater than existing micro-supercapacitors, and very similar to the density characteristics of current Li-ion micro-batteries. With this new energy density, their long lifetime, high power, and tolerance to temperature variations. these micro- supercapacitors could finally be used in intelligent on-board microsystems.



Kalpesh B Kela
Associate Professor,
Electrical Department

SMART GRID



Conventional grid system is designed in such a way, that it supports one way communication. If there occurs change in load, then it does not directly affect the generating station and Power Surplus or Power Deficit might occur. Although, with the help of organizations like SLDC and NLDC, it has been easier to give feedback to

Power Generating Station. Conventionally, the system involves very long distance transmission and hence significant amount of generated power gets converted in losses. Also, nowadays, with the help of certain technologies like Solar Rooftops, consumers have been able to generate their own need and if power generated is in surplus, they are also able to supply the power. Due to this system, power flow has been partially double sided. But, our grid system is not manufactured as per this type of 2-way system.

So, in order to resolve the problems, concept of “Smart Grid” has been introduced. It basically supports ‘Two-way Communication’ and also promotes ‘Distributed Generation of Electricity’ with certain components like ‘Smart Meters’ and ‘Throughout Sensors’ in the grid.

Also two sided communication doesn’t only refer to two sided power communication, but also indicates to two side communications of Data, that we get from different sensors’ arrangement. During Implementation, Normal meters will be replaced by Smart Meters, which will be there for measuring Power inflows and outflows, basically, they will monitor overall power need and will show figures in digital mode. Then, Phasor Measurement will

take place and it will measure AC waveform and will communicate with Centre Monitoring System. And then system will work accordingly. Benefits of Smart Grid: It will assure higher efficiency, is also more Reliable and It is very much environment friendly. If we talk about current implementation scenario in India, ‘National Smart Grid Mission’ was approved in 2015 by the Indian Ministry and as of now, it has allocated 14 Major projects across India.



– Jalak Anjariya
200280109127

FIT-Don't Quit

The word "Fitness" means "The quality of being suitable".

After corona & lockdown everyone has realized the importance of immunity and healthy life. During lockdown some people gained weight. Now a days social media is used by people regardless of age. So some want to become fit and have a muscular body, some others want healthy lifestyle or to loose weight. Big concern is people think that only by going to gym they can do all these things.

But only going to gym doesn't matter, important thing is diet and consistency. Some people think Diet is to eat only boiled foods or to eat less. But the real meaning of Diet is the kind and amount of food that a person eats to improve health. You don't have to eat boiled food or less food to loose weight. Instead you have to calculate the calories of the food and eat in a calorie deficient order.



For losing weight activities like walking, jogging, cycling, light exercise or yoga which burns your calories will help, you don't have to go to gym for that. Now we will talk about the social media influencers who tell you to go gym and by watching his / her physique you get attracted and want to go to the gym to build a similar physique. You will get best results initially, say in 2 months of starting gym but it will slow down afterwards. Some get sad because of this and leave the gym. But no one tells you that body building is very expensive. You need sufficient amount of protein to recover your muscle after exercise and much needed thing is consistency. By all this I want to suggest that if you have enough money and time then you take up gym because it takes approx. one & half hrs. of your day. Instead go running (jogging) which requires less time and money.

More importantly it makes you will feel fresh all day.

—Kartik Bhandare
200280109031

EED STARS



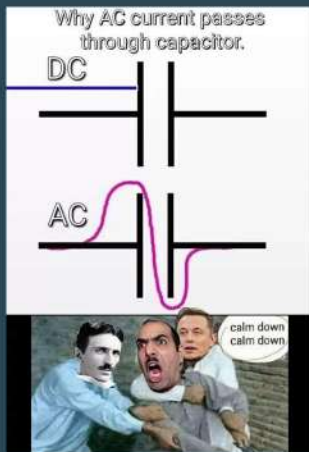
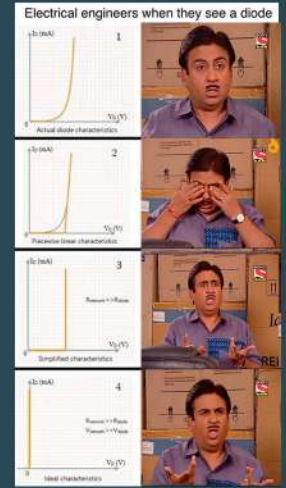
Hir Gandhi (B. E. - Electrical Engineering, 2020 batch) completed his MS in Computer Science & Electrical Engineering from Arizona State University USA. He is currently working with Amazon as a software development engineer in California with a package of Rs.1.5 crore per annum. During his UG he published 3 research papers and honed his skills in programming, machine learning, artificial intelligence. This helped him in getting admission to a good university in the USA and also in getting placed in a renowned company.

Stop dreaming of success, Go and work for it.

Shivam Gothi (2022 batch) secured AIR 827 in GATE and is currently pursuing his M.Tech. from IISc Bangalore. During his B.E. he worked on "Compact Powerful Electron Beam" with Prof. Mitul Patel. Their patent was published on 03/09/2021.



MEME-DOSE



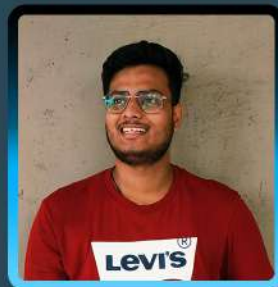
BUILDER'S OF ELECTRI.CT

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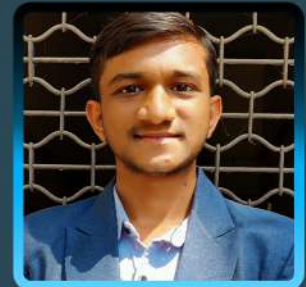
Jalak Anjariya

Art Director



Pranvi Patel

Fact Checker



Harsh Naraniya



// Can We **Generate Electricity** In Space?

If Yes, So Can We Go To **Mars** By **Electric Train**?

