

ELECTRICAL
DIGEST

ELECTRICAL ENGINEERING
SOCIETY



**Electrical
Engineering
Department**

Institute of Engineering & Technology,
Lucknow

**SESSION
2018-19**



“

**Our virtues and our
failings are
inseparable, like
force and matter.
When they separate,
man is no more.**

”

~ Nikola Tesla

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MESSAGE



Prof. Kuldeep Sahay
HOD, EED

**“ Efforts and courage are not enough without purpose and direction.”
-John F. Kennedy**

Good educational institutions are needed for the upliftment of society by harnessing the hidden potential of its students. Each step ahead ignites the young minds and moulds the pupils into good human beings. In this 21st century, the education scenario is changing at a neck-breaking pace. The new ventures started, are geared to expand the horizon of education. Communication skills, Academic and Cultural writing, ability enhancement and soft skills introduced in the academic year 2018-19. We have initiated internship programmes by collaborating with market giants.

Placement drives were also arranged during this session. Today overall development of individual is the supreme goal of education. This requires tremendous self-motivation on the part of all concerned, and is eventually fulfilling both for the student and the faculty. Each issue of “Electrical Digest” magazine is a milestone that marks our growth and gives life to our thought and ambitions. It unleashes a wide spectrum of innovative skills ranging from writing to editing and even in designing the magazine. I congratulate the entire editorial team of Electrical Department for the hard work and dedication in making this dream come true. I wish all students, faculty and non-teaching staff a very bright future.

MESSAGE



**Dr. Nitin Anand Shrivastava,
Faculty Advisor EES**

"A burning desire is the starting point of all accomplishments"

Long back during my undergraduate studies, I was asked to deliver a speech in the class and I came across these words in a book while preparing for the speech. Though there are thousands of proverbs and statements by great personalities of this world, but I feel that the above quoted lines are more apt for the occasion. The occasion is that Electrical Engineering Society is publishing its annual magazine "Electrical Digest". This publication of the annual magazine marks the culmination of a wonderful year 2018. From times immemorial, human species have had a desire to express their feelings through some kind of symbols. Eventually, with the advent of different civilizations, languages were developed and writing became an art. Great revolutions and wars have been fought with words expressed through language. Therefore, it is very essential that the inherent writing skills of every individual must be nurtured. This publication is a very vital platform for the students as well as faculty members to express their ideas, share and gain wisdom. I am very hopeful that in the coming times, this magazine will be instrumental in bringing a positive and long lasting transformation in the lives of the writers as well as the readers. I am very thankful to all the students and faculty members who have taken the time to write articles for the magazine. My best wishes to all the editorial board members, society members, staff and students with a hope that we will live up to the hopes of great personalities of our world and be the change that we wish to see in the world.

MESSAGE



**Prof. Bharti Dwivedi,
EED**

"Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time." ~ Thomas A. Edison

It is a matter of pride that the students of Electrical Engineering Department are following the legacy and are coming up with 2018-19 issue of the department's annual magazine "Electrical Digest". Four years of stay in IET campus helps the students in exploring their hidden talents and honing them up in order to improve their personalities. Publishing of this magazine is undoubtedly instrumental for the same. I appreciate the efforts of faculty in-charge, members of the editorial board and contributors and wish them all the best.

MESSAGE



**Dr. Satyendra Singh,
Associate Professor**

I am delighted to commend the team that took the initiative to produce this issue of "Electrical Digest", the department magazine for the session 2018-19. It is great to discover a lot of articles, poems and content that definitely demonstrate that our students have the skills to express their talent. I hope that everyone would continue to give their full efforts to maintain the dynamic and continue to enhance the standards of the magazine. I wish the students, faculty and staff members all the very best for years the ahead.



**Dr. Anurag Tripathi,
Associate Professor**

I am immensely pleased to know that our department is coming out with the annual magazine "Electrical Digest". Efforts such as this will provide an opportunity for the staff and students to showcase their talents in technical writing, essay and poetry writings, among others. Such value additions are very much essential and fundamental for the young technocrats, engineers and scientists, who the college produces, to demonstrate their ideas for a developed India. I warmly appreciate and congratulate the editorial team and the entire members of department for their unrelenting efforts in compiling this magazine.

MESSAGE



**Dr. Seethalakshmi,
Associate Professor**

I am very happy that our Department of Electrical Engineering is releasing its annual magazine "Electrical Digest" for the academic year 2018-19. The Department magazine is a forum which could suitably be used for recording events, fond memories and creative writing. It enables us to know the hidden talents among the student brought out through their articles. I am sure that this magazine will be informative and resourceful. I owe my hearty appreciations to the editorial team for their sincere efforts to make the release of this magazine a reality. I wish them the Very Best in all their future endeavors.



**Dr. Arunima Verma,
Assistant Professor**

I am delighted to learn that this year's edition of "Electrical Digest" is ready to release. I would like to congratulate the team of active students and faculty leadership for their efforts to ram-up various department activities under the aegis of Department Society- EES. EES conducts many programs aimed at fostering a professional interest towards the domain of study among all members of the department and "ELECTRICAL DIGEST" is one of the means to publish various creative Articles from members of department.

MESSAGE



**Dr. Sachin Singh,
Assistant Professor**

Education is not the acquisition of understanding, but the training of life and character skills. This is an ennobling process of growth and development. I can say boldly that we excelled in every effort we took. It gives me a sense of pride and great satisfaction to know that we are about to publish the 2018-19 edition of our departmental annual magazine - "Electrical Digest". The magazine depicts the technical and creative expertise of the department. I congratulate the faculty and students for continuing this effort that is a true exposition of their capabilities.



**Dr. Pushkar Tripathi,
Assistant Professor**

The general need for student development today is holistic. Not only should students concentrate on learning, but they should also implement what they learn. Students today not only require academic teaching, but also life skills to assist them cope with life problems. Students must actively participate in multiple extracurricular activities organized within the department and also at intra and inter-institute level but not at the expense of their academics. It gives me great contentment to know that the Electrical Engineering Department's Annual Magazine "Electrical Digest" for the session 2018-19 is ready for publication. I applaud the editorial team for their efforts in bringing out this magazine and also the members of the Electrical Engineering Society for the hard work and dedication that they have put in.

MESSAGE



**Mr. Sachin Kumar,
President, EES**

It is a matter of pride to pen down this message for "Electrical Digest", our department magazine. Education is a process aimed at a systematic attempt at human learning. At Electrical Engineering society, we are endeavoring our best to develop into such engineers who are equipped to tackle the challenges of the global business environment.

Electrical engineering is no more just a component in modern technology; it is the basis of the assessment of a country's progress. It is one of the most knowledge-intensive and interesting fields of study. It is the field that is most crucial to tackling national problems of illiteracy, healthcare and safety which imparts it with tremendous potential in India. Electrical Engineering society endeavors to create a community of students driven by a passion for learning and continuously challenging what they have learnt. We start the academic year with the fresher's introduction, which provides the incoming batch of our department an opportunity to have fun while getting to know their peers. Talented seniors engage with students and pass on their pearls of wisdom through our interactive sessions.

We aim to connect students better with the resources and other students so that they can create a better society with their love for technology.

To all the students in the department, I would like to say work on your profile. Learn as much as you can. Work on developing yourself, your personality and interpersonal skills. Learn new things. Join internships, societies available in the college and try to build a social network. It will provide you with a holistic approach for an all-round development. This will give you a real-life understanding of what it is to be an engineer. You will learn the difference between an academic engineering environment and workplace engineering environment. In your third and final years of college, it is the perfect time that you apply all that you have learnt throughout these years that is Deployment of your Knowledge. Make your own creations. Be innovative. Develop something new. You can make your own team and work in a start-up. Also, this is the time when multiple organizations visit our college. You can sit for placements and get placed in the field that you love. It's a perfect time now to chase your passion. I heartily wish that students are able to compete with each other in a healthy environment and bolster each other. I wish that this legacy may continue for the betterment of our society and country. My best wishes are with all of you. May each and every one of you succeed in life and achieve your dream goal. You have chosen a field where you get to experience a real sense of accomplishment. Engineers are people from different backgrounds and cultures that have come together to build the next version of our world. That is what you have signed up for, and I for one can't wait to see what you build.



ABOUT ELECTRICAL ENGINEERING SOCIETY

EES is the oldest technical society of IET Lucknow. The department of electrical engineering in Institute of engineering and technology, Lucknow is one of the oldest department established in 1984.

Electrical Engineering Department has the vision to develop a world-class centre for research in the area of Advance Power System Engineering with special reference to Smart Grid and Renewable Energy Resources.

Along with the research in the above field, it is desired to extend testing and consultancy to field board and other field related organization of Indian northern zone. Thus, with an initial aid from the World Bank, the department dreams as a well-developed self-sustained centre of excellence in the field of power engineering. To accomplish the dreams of Department, Electrical Engineering Society (EES), the first established society of IET Lucknow, came into existence by the electrical engineering department.



Tesla Hall

Inauguration of Tesla Hall: EES Library & Meeting Room



On 24th November 2018, the meeting room and library of EES, the Tesla Hall, was inaugurated by the hands of Alumni of the 1993 batch of the department in presence of Prof. Bharti Dwivedi ma'am. The inauguration was scheduled on the occasion of Convergence'18, the Silver Jubilee program of 1989-93 batch of the institute. The work of the library was started after it was announced in the Teacher's Day program. By the hard work of the Library Committee and other active members of EES from 2nd and 3rd year, the library has again come to a state to operate for the welfare of the students of the society.

The Tesla Hall is equipped with a conference table, projector, White-Board, computer, printer etc for hosting important meetings and conferences. There are over 1,000 books available in the library that can be used by faculty or students for reference as per their convenience.

Special thanks to HOD sir, Prof. Kuldeep Sahay for providing curtains and a round table along with cousin chairs for the hall. Also, head sir has agreed to give a desktop and a printer for the library. The society has also arranged a whiteboard, a clock and sheets for the windows from its fund. From next semester onwards, the books shall be issued from the library to the members of the society. Inaugurated by the hands of alumni, we hope that the hall becomes a centre for interaction for the new and old members of the society.



Workshop & Activities

UPPCL Substation Visit

EES organized two days visit to the 400KV UPPCL substation for second-year students on 25th and 26th February 2019



EES organized two days visit to the 400KV UPPCL substation for second-year students on 25th and 26th February 2019, to learn about various components of the substation and their physical arrangement. The students were able to interact with the engineers of UPPCL as well as learnt the technicalities involved in power transmission and distribution. Great Thanks to Er. Dinesh Kumar Tiwari sir, Er. Pankaj Tiwari sir and Er. Rajesh sir for mentoring the students. We would also like to show our gratitude towards Prof. Dr. Bharti Dwivedi Ma'am and Dr. Nitin Anand sir for being constant support. The visit turned out to be very fruitful as the students were able to link the theoretical knowledge with the practical. Also, the visit boosted the enthusiasm of the students towards the subject. EES ensures that more education and training visits will be done for department students.

About UPPCL

Uttar Pradesh Power Corporation Limited (UPPCL) is the company responsible for electricity transmission and distribution within the Indian state of Uttar Pradesh. Uttar Pradesh Power Corporation Limited (UPPCL) procures power from state government owned power generators (Uttar Pradesh Rajya Vidyut Utpadan Nigam & Uttar Pradesh Jal Vidyut Nigam Limited), central government owned power generators (NTPC Limited & THDC Ltd) and Independent Power Producers - IPP (mostly private power companies) through power purchase agreement for lowest per unit cost of electricity.



The main Power Transformer that steps down the voltage from 440KV to 33KV as depicted in Picture 1, the main switchyard at UPPCL Sarojnagar Sub-Station as depicted in Picture 2 and the students with the various switching and monitoring instruments inside the control room as depicted in Picture 3.

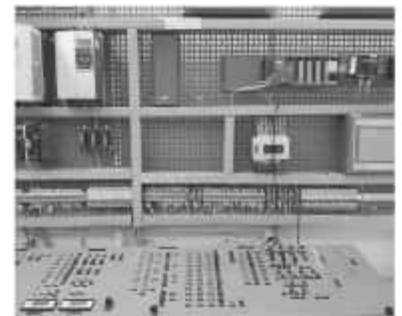
Scan QR Code to read more about UPPCL visit!



Training at L&T



EES organised a three-day training program for B.Tech 3rd-year students on 'Introduction to Industrial Electrical Systems' at Switchgear Training Center, Larsen & Toubro Limited (L&T), Lucknow. The training was conducted in two batches 25-27 February 2019 for the first batch and 28 February - 2 March 2019 for the second batch. The training program comprised of overview of Indian Power System, classroom sessions as well as hands-on experience in workshop giving exposure to a wide range of Low Voltage Switchgear like contactors, thermal overload relays, motor starters such as Star Delta starter, circuit breakers such as Air Circuit Breaker(ACB), Vacuum circuit breaker(VCB), MCB, MCCB, RCCB, Isolator, MPCB, HRC fuses, basic overview of soft starter, drives etc. The students benefited a lot from the training as they got to learn the practical industrial application of the theory they have studied. Great thanks to Er. Saurabh Kumar Jha sir and Er Shweta Ma'am for their mentorship of the first batch and Er. Dinesh Kumar Tiwari sir and Er. Pankaj Tiwari sir for mentoring the second batch. Special thanks to Mrs Sabiha Ahmed ma'am, manager of the training centre, who was very kind and interactive to the queries of students.



The various parts of contactor as depicted in Picture 3, the various switch-gears and auxiliaries developed by Larsen and Toubro Ltd. as depicted in Picture 2 and the students experimenting on Star-Delta motor starter as depicted in Picture 3.

ABOUT L & T

Larsen & Toubro Limited, commonly known as L&T Limited is an

Indian multinational conglomerate company headquartered in Mumbai, Maharashtra, India. It was founded by two Danish engineers taking refuge in India. The company has business interests in basic and heavy engineering, construction, realty, manufacturing of capital goods, information technology, and financial services.

Expert Lecture

Expert Lecture on Career Challenges and Opportunities in UPSC.



Electrical Engineering Society(EES) has successfully organised a seminar on Career Challenges and Opportunities In UPSC for Engineering Student, on 6 April. In the present scenario, the engineering students find themselves more vibrant than ever. An engineering student of today is highly likely to convert himself into an administrator or a bureaucrat of tomorrow, so a span of opportunities are circling the engineers. Following the latest trend, we can easily infer, that UPSC produces its toppers and highest ranker from students of engineering cult more than students of art and humanities. Pondering over the above EES decided to mark a session for those students who want to turn their career towards the civil services in future. EES invited Mr T.N. Kaushal as the guest speaker for the session. He has completed his term as Indian Foreign Services(IFS), and Indian Revenue Services (IRS) through very prestigious UPSC examination, previously he was selected for the post of SDM through PCS examinations. Mr Kaushal guided students on various aspects and preparation strategies and planning for UPSC. About 150 Students from all the branches and years were present and attended the seminar. All the necessary expenditures required for the seminar was borne by TEQIP -III. Faculties of Electrical engineering Dr Nitin Anand Shrivastava, Dr Arunima Verma and Mr Saurabh Jha were present during the seminar. With a short introduction of the Guest Speaker by the anchor and customary welcome greeting by Dr Arunima Verma, the session started with questions by curious students, which were answered by Mr T.N. Kaushal. In the session lasting for 2 hours, a lot of questions regarding UPSC were asked by students. Comparing of the programme was done by Akarsh Kumar Shukla, 3rd year EE student.



Students from various branches and years attending the expert lecture as depicted in Picture 1, Dr. Arunima Verma felicitating Mr. T.N. Kaushal as depicted in Picture 2 and Er. Saurabh Kumar Jha felicitating Dr. Arunima Verma as depicted in Picture 3.

ABOUT MR T.N. KAUSHAL

Mr. T.N. Kaushal is a Motivator, Author, Former IFS (Indian Foreign Service), IRS (Indian Revenue Service) and SDM (Sub-Divisional Magistrate). He is currently guiding UPSC and competitive exam aspirants realise their dreams.

FEATURAMA:

START-UP AND INNOVATION

DREMZO



Founded by the endeavours of Prakhar Pandey (EE3rdYear), Abhishek Pandey (CSE 3rdyear), and Aaditya Rai (CSE 3rd year), **Dremzo** is an online fitness portal connecting people with fitness centers across Lucknow. **Dremzo** was started in April 2019 with an aim to bring convenience to the life of people while giving appropriate importance to their health. **Dremzo** launched its website on 10th June 2019 and currently has tie-ups with more than 40 Gyms across 15 localities in Lucknow. **Dremzo** also allows instant online booking and is constantly working towards bringing better offers for its users with the vision to bring every possible fitness option to its platform for one-stop fitness of their consumers.



The startup **CampyEx.com** was founded in the year 2019 by efforts of final year students Sachin Kumar and Dilip Agrahri. It is an online service providing company in different categories like fruits, daily care stationary, books, beverages, juices, snacks, electronics items and on demand requirements at very low or without delivery charges with very fast delivery services. Students residing in campuses face the problem of daily going to market wasting time, buying at high prices and getting poor quality, especially girls who have to leave their hostels to seek for daily required items. Targeting to campuses, the startup was launched with the aim to solve this problem and make it one-stop destination for fulfilling students' need with very fast speed at prices lower than market.





TECHNICAL ARTICLES

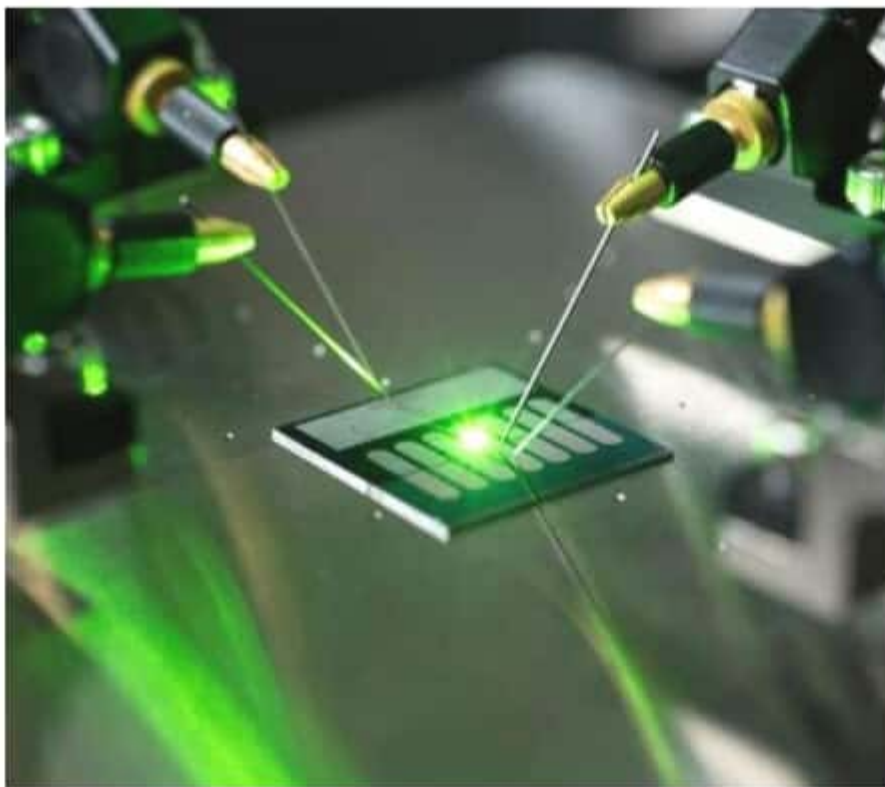
CONTEMPORARY, INGENIOUS, INVENTIVE

"My brain is only a receiver, in the Universe there is a core from which we obtain knowledge, strength and inspiration."

-Nikola Tesla

Optical Rectenna

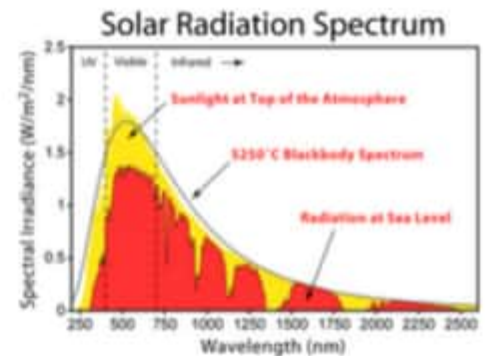
Ekanshi Raj Shukla



Researchers led by Baratunde Cola, an associate professor in Georgia Tech's School of Mechanical Engineering, have developed the first known optical rectenna - a technology that could be more efficient than today's solar cells and less expensive.

Rectennas, which are part antenna and part rectifier, convert electromagnetic energy into direct electrical current. The basic idea

has been around since the 1960s, but Cola's team makes it possible with nanoscale fabrication techniques and different physics. "Instead of converting particles of light, which is what solar cells do, we're converting waves of light," he explained. Key to this technology are antennas small enough to match the wavelength of light (about one micron) and a super-fast diode — achieved in part by building the antenna on



one of the metals in the diode.

Cola describes the process:

- Carbon nanotubes are grown vertically off a substrate.
- Using atomic layer deposition, the nanotubes are coated with aluminum oxide to serve as an insulator.
- Extremely thin layers of calcium and aluminum metals are placed on top to act as an anode.

As light hits the carbon nanotubes, a charge moves through the rectifier, which switches on and off to create a small direct current. The metal-insulator-metal-diode structure is fast enough to open and close at a rate of 1 quadrillion times per second.

From a performance perspective, the devices currently operate just under 1 percent efficiency. Yet because theory matches lab experiments, Cola hopes to increase broad-spectrum efficiency to 40 percent (which compares to 20 percent efficiency for silicon solar cells). Other important benefits: The optical rectenna works at high temperatures, and mass production should be inexpensive. The technology also can be tuned to different frequencies, so the rectenna can be used as a detector or in energy harvesting.

The researchers are now focused on lowering contact resistance and growing the nanotubes on flexible substrates for applications that require bending.

How Li ion battery works and its Future

Vineet Kumar
B.Tech 3rd Year
1605220059



From portable devices such as mobile phones, tablets and laptops to electric vehicles Li - ion batteries are used and its applications getting extended to storage for grid power harnessed by the renewable energy resources, military and aerospace applications. These have become the batteries of choice today in countless consumer electronics and electric vehicles of Tesla as well as other global

conglomerates. Lithium ion cells have undergone a remarkable development regarding energy density, power density, lifetime, safety and costs since their market introduction in the early 1990s. It was developed by John Goodenough, Rachid Yazami and Akira Yoshino in the 1980s, building on a concept proposed by M. Stanley Whittingham in the 1970s, and it was commercialized by Sony and Asahi Kasei in 1991. Since its

invention, many types of research had been conducted to improve the efficiency, energy density, life cycle, reliability and self-discharge. First, let us understand how a lithium cell works. Let us take example of Daniell cell which uses simple principle of electrochemistry.

The Daniell cell consists of a zinc rod dipping in a solution of zinc sulphate, connected by a wire to a copper rod dipping in a copper sulphate solution. Spontaneous oxidation and reduction reactions generate electric current, with electrons passing from the zinc rod to the wire and from it to the copper rod, originating a current along the wire. During the functioning of the battery the following transformations are observed: the zinc rod goes under corrosion and its mass reduces(oxidation); consequently, the concentration of ions Zn^{2+} increases in the half cell; the copper rod receives a deposit of molecules of metal and its mass increase. Consequently, the concentration of ions Cu^{2+} in the solution decreases (reduction). Connecting a load between the terminal of electrodes through wire chemical energy can be converted into electrical energy and this leads to discharging of the battery. When we apply the electricity through the electrodes of cell the same thing happening in a reverse manner and the cell gets charged. By the way, Daniell cell is not rechargeable.

Let's come to our LI-Ion battery. Lithium-ion cells work differently from the traditional cells and its construction is more complex than these cells. Both electrodes depend on an intercalation mechanism rather than redox reactions. Lithium is stored in the electrodes much like water is stored in a sponge. Li + ion moves through the electrolyte and enters into other electrode becoming Li when an electron is available; Li exits an electrode and becomes Li + ion when it can give up an electron. Intercalation involves the insertion of lithium ions into the crystalline lattice of the host electrode without changing its crystal structure. These electrodes have two key properties: Open crystal structures, allowing insertion or extraction of lithium ions in the vacant spaces and the ability to accept compensating electrons.

Glass Battery

Rahul Kushwaha
1805266005



On his 96 birthday today, John Goodenough and his research team's latest findings are the subject of much speculation. He, fellow scientist Maria Braga, and his research team have created a battery claimed to be three times as energy dense as existing lithium-ion contemporaries, but exhibiting the counterintuitive property of improving with repeated charging cycles.

Goodenough's career began in 1943 with the award of his Bachelor's degree in mathematics from Yale University, followed his master's and Ph.D. in physics from the University of Chicago in 1951 and 1952 respectively. He worked at MIT and in 1976, left to become head of Oxford University's Inorganic Chemistry Laboratory from 1976 to 1986.

Construction and electrochemistry

The battery was invented by John B. Goodenough, inventor of the lithium cobalt oxide and lithium iron phosphate electrode materials used in the lithium-ion battery (Li-ion), and Maria H. Braga, a senior research fellow at Cockrell School of Engineering at The University of Texas. The paper describing the battery was published in *Energy & Environmental Science* in December 2016.

The battery is constructed using an alkali metal (lithium or sodium foil) as the positive electrode (anode), and a mixture of carbon and a redox active component, as the negative electrode (cathode). The cathode mixture is coated onto copper foil. The redox active component is either sulfur, ferrocene, or manganese dioxide. The electrolyte is a highly conductive glass formed from lithium hydroxide and lithium chloride and doped with barium, allowing fast charging of the battery without the formation of metal dendrites. The publication states the battery operates during discharge by stripping the alkali metal from the anode and redepositing it at the cathode, with the battery voltage determined by the redox active component and the capacity of the battery determined by the amount of the alkali metal anode. This operating mechanism is radically-different from the insertion (intercalation) mechanism of most conventional Li-ion battery materials.

Advantages

A lithium- or sodium-glass battery should have about three times the energy storage capacity of a comparable lithium-ion battery. Glass battery charges in "minutes rather than hours because it has a far greater capacity to store energy. The technology could run through thousands of charge-discharge cycles, and keep performing in both extremely cold and hot weather from -20°C to 60°C . When charged quickly, the battery avoids the formation of needle-like dendrites on the anode. The battery can also be made using low-cost sodium. Glass batteries have a much shorter charging time. These kind of batteries experience safer, faster-charging as well as have long-lasting rechargeable batteries.

Electrical Fun Facts

Pracheta Pathak
B.Tech 1st Year
1805220042



1) Albertville, France's electricity is powered by Beaufort cheese. Since whey is unnecessary to make Beaufort cheese, bacteria is added to the whey. This transforms the whey into biogas. This gas is then fed through an engine which heats water to 90°C (194°F) to generate 2800 MWh/yr of electricity.

2) In 2005, an Australian man wearing a nylon jacket and wool shirt built up 40,000 volts of static electricity, resulting in burned carpets, melted plastic, and a massive evacuation.



3) Coordinated power shut off events like Earth Hour, Live Earth, and Planet Aid may actually increase carbon dioxide emission as power companies struggle to cope with fluctuating electricity usage.

4) There is a pedal powered cinema in which one person on a cycle can generate enough power to show a film to an audience of hundreds. It is used in schools in Africa where they do not have electricity.

5) Huge amounts of renewable energy can be stored over a long period of time by using Pumped Storage Hydropower, where water is pumped up a hill with renewable electricity then sent back down the hill to generate on demand clean electricity at up to 80% efficiency.



6) Sometimes during a week, electricity prices can drop below zero in Europe.

LITERARY SECTION

FABLE AND FANTASY

"The universe is made of stories, not of atoms."

— Muriel Rukeyser



हिन्द मेरा आजाद रहेगा!

हिन्द मेरा आजाद रहेगा
शिक्षा की बदहली से,
युवाओं की लाचारी से,
आतंक के जंजीरों से,
'कश्मीर'; की लकीरो से,
कि हिन्द मेरा आजाद रहेगा।

हल्दी घाटी के राणा का,
राजगुरु के प्राणों का,
भगत सिंह के अरमानों का,
भारत माँ की संतानों का,
याद हमें बलिदान रहेगा,
कि हिन्द मेरा आजाद रहेगा।

इस देश के किसान का,
अम्बेडकर के संविधान का,
'स्वामी जी'; के स्वाभिमान का,
कलाम के विज्ञान का,
इस मुल्क पर आभार रहेगा,
कि हिन्द मेरा आजाद रहेगा।

अयोध्या के श्रीराम का,
वृंदावन के घनश्याम का,
अर्जुन के धनुष महान का,
महाभारत के संग्राम का,
हर घर मे सदैव गुणगान रहेगा
कि हिन्द मेरा आजाद रहेगा।

निशान्त जायसवाल
विद्युत अभियान्त्रिकी प्रथम वर्ष
1805220040

MELODY OF SILENCE

Silence has a lot to share with us but we, in our own rush, are unable to listen it. In Present time it is really necessary now for everyone to walk some steps towards spirituality because that's the only thing that can give internal rest to our mind and soul that's really necessary to maintain one's efficiency. When we think about silence in spirituality it is somehow related to internal peace. I know, a lot of people in this generation feels that discussion on spirituality is a waste of time. They believe in physical work, so make this topic a little bit interesting for those with the help of a small exercise.

Anyone who is reading this is either a student ,a worker, a job holder or anything else. Basically everyone is busy in his own work. Sometimes when we get frustrated from work, we all likely to have a rest or a picnic. So if I say to you that you should take rest from your daily routine for one day and you should sit on a dark room and think what you would like to think other than your daily work, then what would you think? Take a minute and just think. As far as I know you may have a lot of things but you are not concentrated upon any one of them in this short time.



Here silence plays it's vital role. It provides you a environment for thinking. About many feeling and things you can concentrate yourself like your habits, wishes, fears, mistakes, doubts, problems, struggle, violence, sorrow, happiness, pride, enemies, friends, jealousy, honors, praise, pity, love, illusions, dreams, freedom, knowledge, blessings, sacrifice and infinite emotions that can't be explained, you can analyse in silence. You can reach to the real you. Silence is the best thing to develop your own personality. You feel complete in the Melody Of Solitude. There is a feeling of Satisfaction. The actual relax you can only find in the deep breath of silence. Everyone, at least once in his lifetime, think about a question that " Who am I ?" The answer one get is complete silence, actually this is the exact answer. The conversation between you and your soul is complete silence. That's why the Bliss of Solitude is everlasting.

To express this Melody I have some poetic lines-

**Wishes in every breathe
Is Silence
Love in Infinite
Is Silence
Words less knowledge
Is Silence
Aim less mercy
Is Silence
Work without body
Is Silence
Smiling with Nature
Is Silence**

Nihal Omar
Btech EE 2nd Year
1705220029



वो आएगा

वो आएगा
जैसे निराशा के बीच, कभी
चेहरे पर आ जाती है हंसी
किसी भिखारिन की चौखट पे
जैसे आता है एक सिक्का
जैसे गर्मी की छुट्टियों में
गांव आते हैं बच्चे
वो आएगा उसी तरह
जैसे दीवार में आता है झरोखा

वो देखेगा आकाश को
हवा को छुएगा
पानी को निहारेगा
और एकाएक मुड़कर, चला जायेगा
जैसे जवानी से चला गया बचपन
जैसे गांव से चली गयी मिट्टी
जैसे हवा से जा रहा ऑक्सीजन
उसी तरह जाएगा
जैसे आदमी से चली गयी आदमीयत.

Akarsh Kumar Shukla
EE 3 rd Year
1605220003

80-20 Principle

by Gaurav Chaudhary
EE 1st Year, 1805220028

The 80/20 rule is one of the most helpful concepts for life and time management. Also known as the Pareto Principle, this rule suggests that 20 percent of your activities will account for 80 percent of your results. It was named after its founder, the Italian economist Vilfredo Pareto, back in 1895. He noticed that people in society seemed to divide naturally into what he called the "vital few," or the top 20 percent in terms of money and influence, and the "trivial many," or the bottom 80 percent. Later, he discovered that virtually all economic activity was subject to this principle, in that 80 percent of the wealth of Italy during that time was controlled by 20 percent of the population. We can take Pareto's 80/20 rule and apply it to almost any situation. Here's what you should do in order to effectively apply the 80/20 rule to setting SMART goals which will boost your overall productivity. First, take a piece of paper and write down ten goals. Then ask yourself: If you could only accomplish one of the goals on that list today, which one goal would have the greatest positive impact on your life? Then pick the second most important goal. What you'll find is, after you complete this exercise, you will have determined the most important 20 percent of your goals that will help you more than anything else. You should continue to work at those goals that you've chosen as the most valuable all the time.



Vilfredo Pareto
Italian engineer

OUR TOPPERS



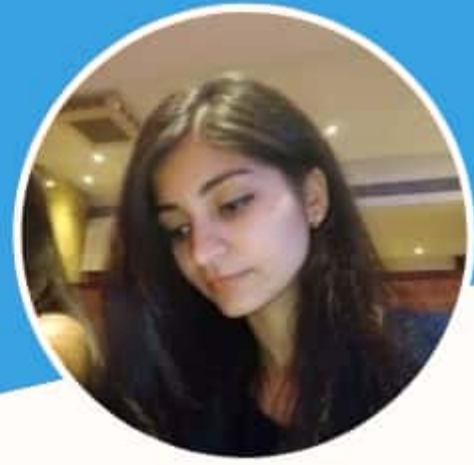
Ritik Kumar Gupta
1st Year



Nihal Omar
2nd Year



Krishna Meerendra
3rd Year



Nishi Katiyar
4th Year

OUR STAR PERFORMERS

The key to success in any competitive exam is to go through each and every topic of the syllabus, give proper test series and learn from the mistakes and try to build up confidence.



Gaurav Mishra
AIR - 22 GATE, 2018



Akansha Singh
AIR - 256 GATE, 2018

A beautiful life doesn't just happen it is built daily by sacrifice, hard work and humanity. Believe in yourself and constantly work towards it.

Always believe in yourself. Have a passion for your goal. If you are passionate towards your goal then definitely you are going to achieve your goal.



Ekta Tibrewal
AIR - 256 GATE, 2018



Aspirations

- A good teacher student relation so that no student feel hesitation to tell about his problems regarding life, education, weaknesses and to every teacher.
- Electrical department has been very supportive towards the students. Most of the students from Electrical 2020 batch have been iconic faces in the college throughout their b-tech journey. 2020 batch started the EES once again just to focus on special requirements of the currently hiring organisations. I hope our juniors will continue to take advantage from EES.
- Imparting Technical knowledge. Strengthened e-resource and a functional departmental library.
- EES can help us to get an industrial training/internship.

Thank You



ELECTRICAL FAMILY



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FLASHBACK



ELECTRICAL ENGINEERING
SOCIETY

Electrical
Digest

The aim of this magazine is to enrich readers with fresh developments in electrical engineering around the world. It provides them with an insight into the Electrical Engineering Department of Institute of Engineering and Technology, Lucknow.

It reflects not only the students ideas, but also the electrical engineering department faculty members. "ELECTRICAL DIGEST" reflects the qualities of electrical engineering because it is this world's power principle. The learners and teachers produced various contributions to this journal. These contributions took a generous quantity of time and effort.

**TWO THINGS
ARE INFINITE:
THE UNIVERSE
AND HUMAN
STUPIDITY; AND
I'M NOT SURE
ABOUT THE
UNIVERSE.
~ ALBERT
EINSTEIN**



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