

JULY 2021

# VIDYUT

NEWSLETTER FOR DEPARTMENT  
OF ELECTRICAL ENGINEERING



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Biannual Newsletter of Department of Electrical Engineering



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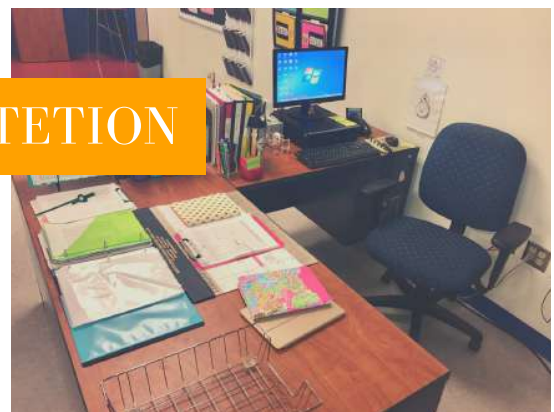


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# VIDYUT

Biannual Newsletter of Department of Electrical Engineering  
Rajarambapu Institute of Technology, Rajaramnagar, Islampur,  
Maharashtra

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From HOD Desk  
Vision, Mission & PEOs  
**PART 1**

VISION , MISSION  
**PART 2**

PEO  
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“DONT  
STOP  
UNTIL  
YOU  
PROUD”

Nelson Mandela

## From HOD Desk

**Dear Friends,**

It's immense pleasure to present this biannual newsletter "Vidyut". Electrical Engineering department is the dynamic and vibrant department with the blend of young and experienced Faculty. Department is actively involved in academic as well as research work



in current areas of Electrical Engineering and multi-disciplinary streams. The department has well-equipped labs with the state of the art software, hardware, and machinery. The faculty members are constantly publishing technical papers in national and international journals and conferences. Also, they are involved in consultancy activities. The department is fortunate to have dedicated teachers, devoted students, and committed supporting staff and expert technical staff. Especially, I congratulate my students to participate in various extra-curricular activities, research work, and competitive exams. My best wishes to all for their bright carrier and successful life.

**Dr. V. N. Kalkhambkar**

## Vision, Mission & PEOs

### **Vission**

Develop globally competent electrical engineers to serve future needs and challenges of the society.

### **Mission**

To impart technical education and research skills in close interaction with industry and society for the development of young minds, sensitive to ethical and environmental issues.

### **Programme Educational Objectives(PEOs)**

**PEO 1:** Apply knowledge and skills to pursue successful career in power sector, manufacturing and process industries.

**PEO 2:** Utilize expertise to become an academican, practicing engineer and entrepreneur to serve the society, ethically and responsibly with concern to environment.

**PEO 3:** Engage in lifelong learning to seek excellence in professional life.



# Department of Electrical Engineering

## BRIEF ABOUT DEPARTMENT:

The Department is established in 2004 and received autonomous status since the academic year 2011-12 for both UG and PG. The curriculum is now choice-based and industry-oriented that supports skill development and industry placement. Advanced subjects like Electric vehicles, Smart Grid, Energy Storage, Automation, Energy Auditing and Management, software courses, foreign languages are included in the curriculum. Department has developed the state of art laboratories like renewable energy lab, software lab, 'Automation & control' lab with PLC trainer kit, SCADA & HMI. Considering the need for competitive exams like GATE, a comprehensive objective type exam is included in the curriculum with all relevant support for developing aptitude and technical knowledge. In the final year 3-track system is implemented that provides a choice for completing projects in industry, Entrepreneurship, or going for undergraduate research for supporting higher studies. Department is continuously involved in energy auditing work to cater the needs of industries.

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“Education is the most powerful weapon which you can use to change the world”

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**Nelson Mandela**

One of the strengths of the Department is paper publication in reputed journals, international & national Conferences by faculty, PG, and UG students. The main features are MOU's with different industries, Industry-Institute interaction for training as well as placement activities, GATE coaching & Guest Lectures. The scope of employment is in various organizations like the TATA Power, GSW, Bharat Forge Ltd., Siemens and Syntel, TCS, Cognizant, KPIT, Capgemini, Wipro, HCL technology, SLK software, torrent power, and Government and semi-government organizations like DRDO, ISRO, PGCL, Railway, Mahadiscom, Mahatransco, and Mahagenco Pvt. Ltd.

# ACADEMIC PROJECTS

UNDER GRADUATE (UG)



**1**

**PROJECT NAME -**

Dual axis solar tracking system using MPPT controller with self-cleaning Mechanism

**FACULTY NAME -**

Dr. V. N. Kalkhambkar

**2**

**PROJECT NAME -**

Designing and development of motor controller for AGV

**FACULTY NAME -**

S. S. Kumbhar

**3**

**PROJECT NAME -**

Design and development of BMS for EV

**FACULTY NAME -**

Dr. H. T. Jadhav

**4**

**PROJECT NAME -**

Automatic Car Jack System

**FACULTY NAME -**

A.R. Thorat

**5**

**PROJECT NAME -**

Drone Technology for Agriculture Applications

**FACULTY NAME -**

P. P. Gupta

**6**

**PROJECT NAME -**

Switched Reluctance Motor Drives for Electric Vehicle Applications

**FACULTY NAME -**

Dr. V. N. Kalkhambkar

**7**

**PROJECT NAME -**

Auduiono based sanitization Robot

**FACULTY NAME -**

Y. N. Bhosale

**8**

**PROJECT NAME -**

Design & Development of Smart inverter for Grid Integrated PV Array

**FACULTY NAME -**

K. M. Nathgosavi

**9**

**PROJECT NAME -**

Implementation of digital pi controller for dc to dc boost converter connected to an EV.

**FACULTY NAME -**

I Srikanth

# ACADEMIC PROJECTS

POST GRADUATE (PG)

rit

1

**PROJECT NAME -**

Analysis of solar PV multi-level inverter for power quality parameters

**FACULTY NAME -**

Dr. V. N. Kalkhambkar

2

**PROJECT NAME -**

Cost Benefit Analysis by Optimal Location of Electric Vehicle Charging Station

**FACULTY NAME -**

Dr. V. N. Kalkhambkar

3

**PROJECT NAME -**

Economic operation scheduling of micro grid with battery swapping stations

**FACULTY NAME -**

Dr. V. N. Kalkhambkar

4

**PROJECT NAME -**

Performance analysis of the grid-connected solar roof top-based generation system in Western Maharashtra region: A case study

**FACULTY NAME -**

Bharath Pulavarthi



“don't  
wait  
for  
opportunity  
create  
it”

George Bernard Shaw

# SPONSORED PROJECTS

POST GRADUATE (PG)



1

**FULL NAME-**

Amol Ashok Nikam

**NAME OF INDUSTRY -**

Adani Electricity Mumbai Ltd

**NAME OF CITY-**

Mumbai

**INDUSTRY GUIDE-**

Sunil Bhujbal

2

**FULL NAME-**

Pratik Sanjay Patil

**NAME OF INDUSTRY -**

Vasant Electric and Mech. Pvt Ltd

**NAME OF CITY-**

Jaysingpur

**INDUSTRY GUIDE-**

Mr. Swapnil Patil

3

**FULL NAME-**

Neha Soni

**NAME OF INDUSTRY -**

Manere Textiles

**NAME OF CITY-**

Ichalkaranji

**INDUSTRY GUIDE-**

Santosh Suryavansi

4

**FULL NAME-**

Varsha Nikhil Shikhare

**NAME OF INDUSTRY -**

Associated Industries Corporation

**NAME OF CITY-**

Shiroli MIDC, Kolhapur

**INDUSTRY GUIDE-**

Mr. Deepak B. Parandekar (CEO)

5

**FULL NAME-**

Rohini Sanjay Mahadik

**NAME OF INDUSTRY -**

Balkrishna enterprises

**NAME OF CITY-**

Palus Sangli

**INDUSTRY GUIDE-**

Snehal Waghate

8

**FULL NAME-**

Nilam Jaysing Patil

**NAME OF INDUSTRY -**

Deltron Power

**NAME OF CITY-**

Ujalaiwadi, Kolhapur

**INDUSTRY GUIDE-**

Mr. Nikhil N. Mane

# R & D ACTIVITIES

UG / PG



**1**

**Title of Project-**

Audit & Repair work of 8.7 kW  
Roof- Top Solar PV system at  
Islampur

**Name of the Faculty-**

Dr. V. N. Kalkhambkar

**Sponsored by-**

Sri Sai Surgical & Maternity  
Hospital , Islampur

**UG/PG-**

R & D (Consultancy work)

**2**

**Title of Project-**

Energy audit of RK Industries.

**Name of the Faculty-**

Dr. V. N. Kalkhambkar

**Sponsored by-**

Arka Sustainable Energy  
Solution Sangli.

**UG/PG-**

R & D (Consultancy work)

**3**

**Title of Project-**

Automatic Ringing bell

**Name of the Faculty-**

Dr. V. N. Kalkhambkar

**Sponsored by-**

Jagruti Vidyalaya, Chikalhol

**UG/PG-**

R & D (Consultancy work)

**4**

**Title of Project-**

Third party inspection of 70  
MLD water supply plant

**Name of the Faculty-**

Mr. A R Thorat

**Sponsored by-**

Water supply Department  
SMKC Plant 70MLD

**UG/PG-**

R & D (Consultancy work)

**5**

**Title of Project-**

Design optimization for solar  
micro inverter for low power  
applications

**Name of the Faculty-**

Dr. H T Jadhav

**Sponsored by-**

RIT - Seed Funding

**UG/PG-**

PG

**6**

**Title of Project-**

Designing and development  
of motor controller for AGV

**Name of the Faculty-**

Mr. S S Kumbhar

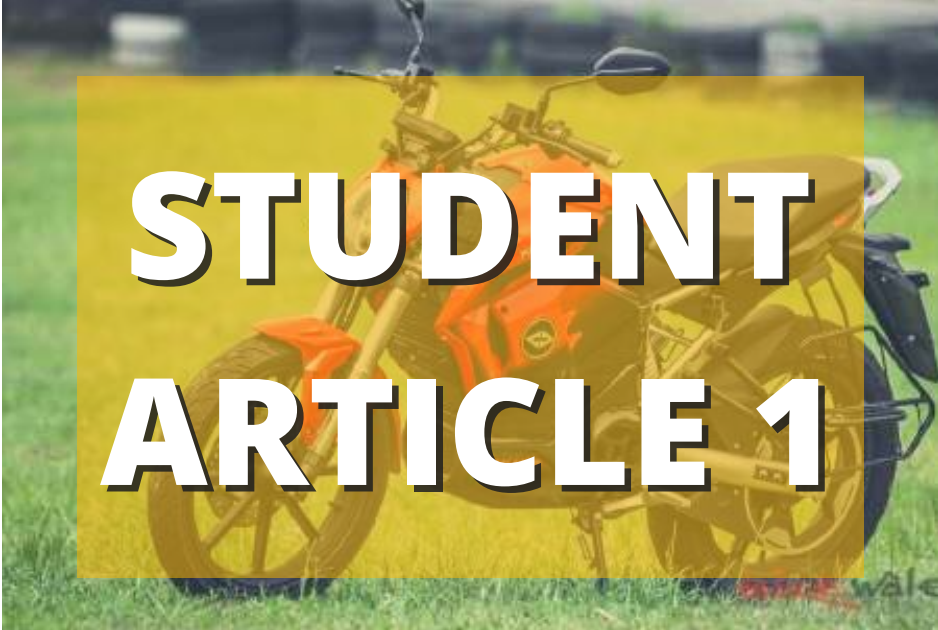
**Sponsored by-**

RIT - NETRA

**UG/PG-**

UG





# STUDENT ARTICLE 1

## ELECTRIC BIKE: KEY FOR INDIAN EV CULTURE

ADITYA A. DESAI (1908058) :

In India 15 to 20 million bikes are sold per year which puts us in the position of the world's largest motorcycle market [1]. in the last 20 years, almost 118.65 million bikes are sold in India. these motorcycles run at an average of 30 to 40 km per liter. some of the surveys say that the average travel per day by bike is around 12 km to 37 km per bike. Considering a minimum example of 12 km a day. if we calculate this number then we found that 9 crore liters of petrol are consumed per day in India [2]. The prices of petrol crossed the century if we elaborate it further then India spends around 900 crore Indian rupees per day on just fuel used by bikes

If observed closely then this number can be drastically decreased by just implementing Electrical Vehicle (EVs) technologies properly in India. EV costs 1/9th than the petrol one that means if we look it closely India will spend less than 100 crores per day on electricity for EV's [3]. that means 800 crores saved per day. Also, there are hilarious environmental benefits.

Then the question is EV is not becoming a trend in India? The answer is simple, the companies are considering India as the same country as others,

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"If you can't  
explain it  
simply, you  
don't  
understand it  
well enough"

---

Albert Einstein





## ELECTRIC BIKE: KEY FOR INDIAN EV CULTURE

ADITYA A. DESAI (1908058) :

which means they are focused on preparing Electric Cars rather than Bikes.. As mentioned above India is not the country that uses cars as a primary major transportation vehicle. This is not the only reason the EV cars are way more expensive than an average Indian can afford. just take the example of tesla the king of the market of EV their entry-level car's cost is around 28 lacks which is already over budget for 80 to 90 percent of Indians in addition to that the Indian government slashes a 200% tax on it which takes the entry-level tesla to the 60 lack price bracket, sadly the price which only 3% Indians can afford [4]. So, I just want to say that if companies invest in the research and development (RND) of ELECTRIC BIKES then it will definitely boost EV culture in India.

Making Electric bikes isn't a new and unique idea in fact companies like 'revolt' already started to make these bikes. and in addition to that, they are able to make this bike affordable. then why they fail? The answer is range. These bikes reach the highest speed of 85 kmph which is good but it gives only 100 km range at that speed which is ridiculous. So, as we discuss earlier average Indian travels 30 to 40 km per day but 40 percent of Indian riders ride more than 70 km's a day. for the 80 km range is not feasible [5]. To counter this revolt came out with the idea of relacing battery at their station this means the time taken for recharging literally becomes zero.

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“DREAM is  
not what you  
see in Sleep,  
It is the thing  
which doesn't  
let you  
SLEEP”

---

DR. A.P.J. Abdul Kalam







## ELECTRIC BIKE: KEY FOR INDIAN EV CULTURE

ADITYA A. DESAI (1908058) :

Since you are fascinated by this revolutionary idea you should consider that it only seems easy but too hard it is to implement properly, in this case, the revolt failed.

After diving deeply into studies of EV and companies' conclusion is that to encourage EV (Electric Vehicle) culture in India companies should first focus on affordable bikes than cars. In the case of bikes for charging the technologies like VOOC (Voltage Open Multi-step Constant-Current Charging) charging and Warp charging should be implemented or simply battery replacement substations should be established. To reduce the cost of establishment all companies should work together to form a standard identical battery that fits in every bike. That is all replacement stations should work for all models of electric bikes. Once the proper market of electric bikes is formed then defiantly no one can beat us to rule the EV culture.

- Aditya Desai(1908058)  
S. Y. B. Tech. Electrical

### References :

- 1:<https://www.statista.com/statistics/318023/two-wheeler-sales-in-india/#:~:text=In%20financial%20year%202021%2C%20two,sold%20some%2021%20million%20units.>
- 2:<https://www.financialexpress.com/auto/bike-news/2wheelers-in-india-need-9-crore-litres-of-petrol-everyday-find-out-what-happens-if-half-of-them-were-electric/1306662/>
- 3:<https://timesofindia.indiatimes.com/auto/news/as-petrol-nears-rs-100/litre-evs-running-at-one-tenth-cost/articleshow/81037998.cms#:~:text=Consequently%2C%20the%20running%20cost%20of, cost%20of%20running%20an%20EV.>
- 4:<https://www.google.com/search?q=total+number+of+bikes+till+in+india&aq=chrome.1.69157j6915912j0i43312j0j46i433j0j1433j0.3342j0j15&sourceid=chrome&ie=UTF-8>
- 5:<https://www.bikedekho.com/revolt-motors/rv-400/specifications>

Special Thanks To -  
Article reviewer- Dr. P. K. Katti

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“Success is not final; failure is not fatal: It is the courage to continue that counts”

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Winston S. Churchill



# STUDENT ARTICLE 2

## THE EVOLUTION OF TECHNOLOGY: PAST, PRESENT, AND FUTURE

SHREYAS R. PATIL (1908057) :

Technology is a boon for the whole world without which there cannot be further developed. Technology is more than computers, cars, or gadgets. It is the entirety of human-made artifacts that extend and amplify our grasp of the world. All technologies are born out of purpose. For a minute just imagine that wi-fi connection gets disconnected, in this situation human being starts behaving and feeling like being a stone-age man. So we cannot imagine a life without it. With each new upgraded technology, compounds existing technology contribute to making something better than what was previously used before. And it goes on and on.

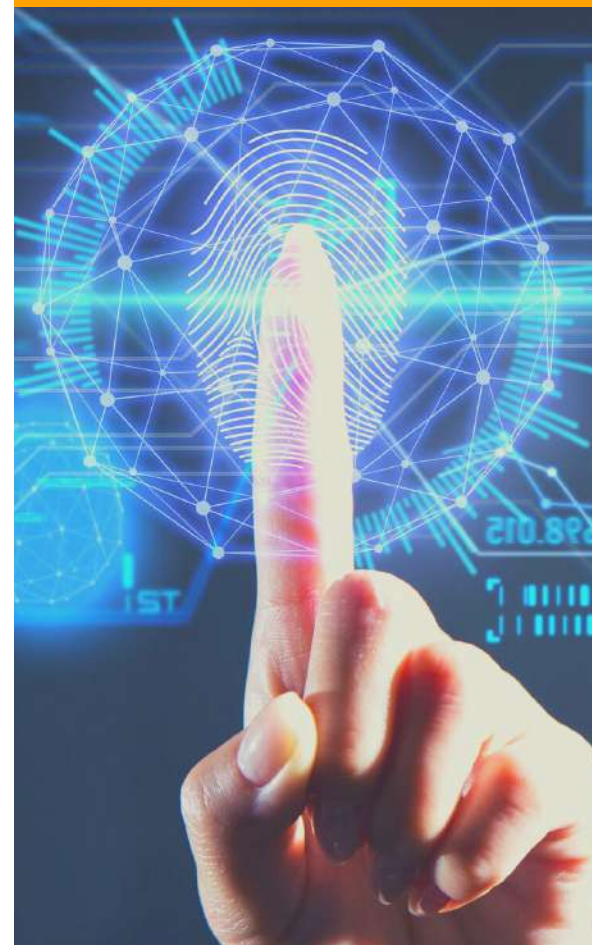
Technology in the past was meant to simply help society with problems. Our ancestors began to use objects in a deliberate manner: hard or sharp stones, fire to cook food, melt metal into systems of levers, ramps, pulleys, wheels. Over the years, human has consciously improved and combined their creations because of which miracles have come into existence which converted the tool into technology.

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"You  
Do Not  
Find The  
Happy  
Life  
You Make It."

---

Cammila Eyring Kimball







## THE EVOLUTION OF TECHNOLOGY: PAST, PRESENT, AND FUTURE

SHREYAS R. PATIL (1908057) :

Present-day technology has consumed our lives, and people have become reliant on their devices to make their lives simple and easy. Communication tools offer one of the most significant examples of how quickly technology has evolved. Today access to the Internet is available almost everywhere. The Internet has become a vital part of modern technology as most of the technology made possible because of the Internet. The latest Internet technology isn't always accessible on screens, and it's called the Internet of Things (IoT). Internet of Things makes usual functions accessible remotely and automated through data available on the world wide web. Computers are increasingly faster, more portable, and higher-powered than ever before.

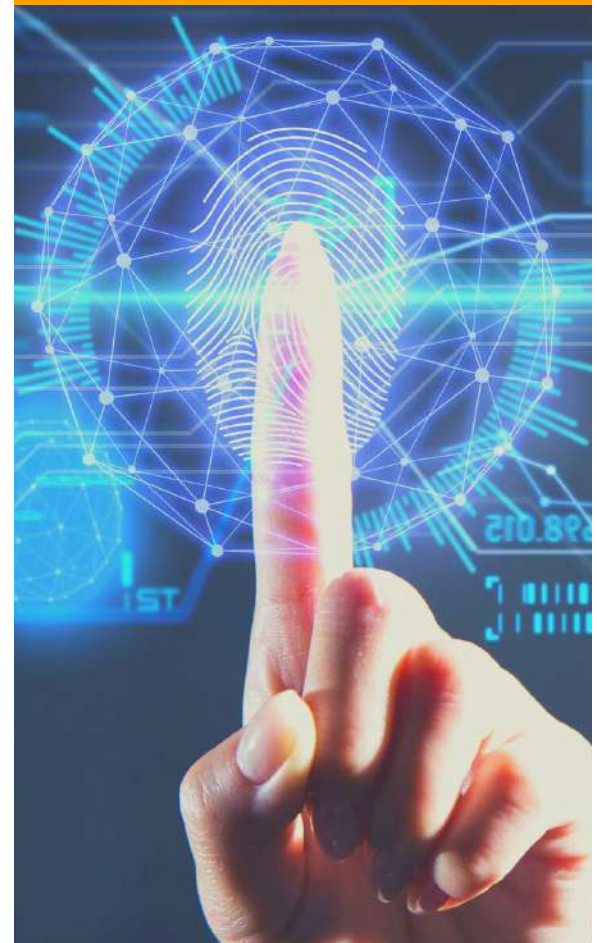
In upcoming years technology will be faster, with the continued evolution of smart devices and the rise in artificial intelligence (AI) technology. The industry of the future trend towards automation and data exchange in manufacturing technologies. The main innovations should develop in the fields of nanotechnologies, the Internet of Things, robotics, alternative fuel, biotechnology, new machine technologies, autonomous vehicles, and so on.

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The Best  
Way To Get  
Started Is  
To Quit  
Talking And  
Begin Doing.

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Walt Disney





# THE EVOLUTION OF TECHNOLOGY: PAST, PRESENT, AND FUTURE

SHREYAS R. PATIL (1908057) :

Today the world is at the cup of industrial revolution 4.0. With all of these revolutions, technology has also made our lives easier, faster, better, and more fun. In the future, technology will continue to grow its way into every aspect of our lives right from the automatic music activation as soon as we enter in house i.e., home with sensor, smart illumination system. All these things will be soon into existence in the future.

Shreyas patil,  
1908057,  
S.Y.BTech,  
Electrical Engineering.

Special Thanks to :  
Article reviewer - Dr. D. B. Talange

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Life is  
10% what  
happens  
to us and  
90%  
how we  
react to it.

---

Dennis P. Kimbro





# GUEST LECTURERS

Guest lecturers organized by department of electrical

**Design of Earthing Electrode**

Highlights' :-  
> Design and calculations of earthing Electrode  
> Projects in earthing at Dubai

MONDAY JAN 11 • 10:00 AM

SCAN THIS QR CODE TO JOIN THE TEAM

Mr. Vinayak M. Parshetty  
Partner, Fast Electrode

Link to join: <https://bit.ly/3biPMHd>

**MR. VINAYAK PARSHETTY**

Partner, Fast Electrode, Pune

TOPIC :Design of Earthing Electrode

DATE :11/01/2021

FOR : Electrical Engineering students

**MR. AMAR SALUNKHE**

CEO, Sangram Electricals, Satara

TOPIC :Risk Management on LV/HV transmission lines

DATE :30/01/2021

FOR : Electrical Engineering students

K.E. Society's  
Rajarambapu Institute of Technology,  
Rajaramnagar

DEPARTMENT OF ELECTRICAL ENGINEERING

Alumni -  
Country Connect

Webinar Series

FREE WEBINAR

E-Certificates will be provided to all attendees

**Risk Management for LV/HV Transmission System**

Highlights' :-  
Challenges  
Risk Management

SATURDAY JAN 30 • 11:00 AM

SCAN THIS QR CODE TO JOIN

Mr. Amar Salunkhe  
CEO, Sangram Electric

Link to Join: <https://bit.ly/3bjPMd>

Contact: Prof. Y. N. Bhosale (+91 99234032)

Industry Expert Lecture 26-01-2021

Distribution System substation 33/11KV SLD

Participants

- AMAR SALUNKHE
- ABHISHEK KOLU
- ABHISHEK KUTE
- ASHWARVA NAGARAOE
- AKASH KATE
- AMAR KSHIRSAGAR
- APRILYA MARE

**MS. PRIYANKA JANGIR**

Jr. Electrical Engineer, Rajasthan State Electricity Board

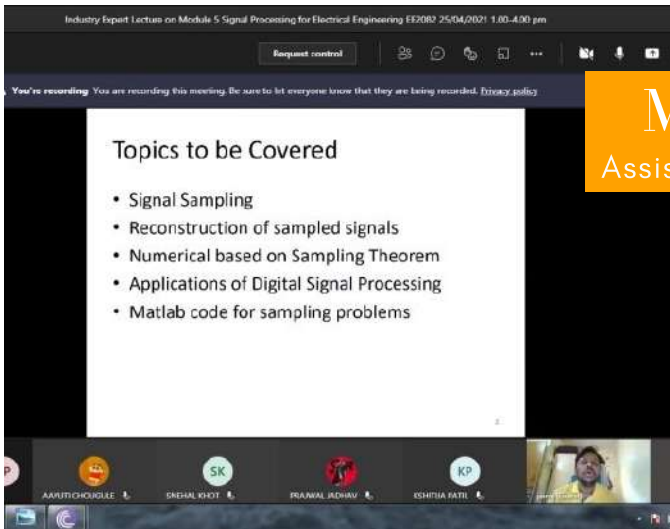
TOPIC :Distribution of Electrical Energy

DATE :24 & 25 April 2021

FOR :S. Y. B. Tech Students

# GUEST LECTURERS

Guest lecturers organized by department of electrical

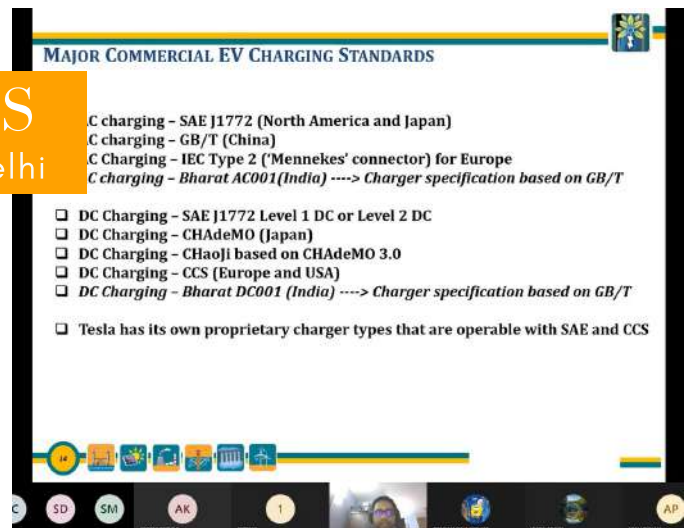


**MR. JAIRAJ CHAKALABDI**  
Assistant Executive Engineer at ONGC, MUMBAI

TOPIC : Sampling and reconstruction of signals  
DATE : 25th April 2021  
FOR : Electrical Engineering students

**DR. SHASHANK VYAS**  
Manager, Soft Bank Enrgy Ltd. Delhi

TOPIC : Plug-In-Hybrid Electric Vehicles and Electrical Infrastructure  
DATE : 8 & 9 May 2021  
FOR : Electrical Engineering students



**"The capacity to learn is a gift;  
The ability to learn is a skill;  
The willingness to learn is a choice".**

**-Brian Herbert**



# PROGRAMS & PUBLICATIONS

Guest lecturers organized by department of electrical

## PAPER PUBLICATION

**INTERNATIONAL JOURNAL : 11**

**INTERNATIONAL CONFERENCE : 02**

## SEMINAR / WORKSHOP / CONFERENCE

**SEMINAR (WEBINAR) : 23**

**WORKSHOP : 40**

**CONFERENCE : 02**

**TRAINING PROGRAM : 02**

### SEMINAR (WEBINAR)/ WORKSHOP/ CONFERENCE CONDUCTED:

**SUBJECT:** Advanced Power  
System Optimization

Using General Algebraic  
Modeling Systems (GAMS)  
under RIT-IEEE Bombay section

**DURATION :**  
18-23 January 2021



# EESA

Electrical Engineering Students association (EESA)

The Electrical Engineering Students' Association (EESA) represents students within the Electrical Engineering department. EESA is an initiative by the students, for the students.

## Goal:

The main purpose of the EESA is to provide a variety of educational experiences that will encourage organization members to broaden their knowledge and increase their enthusiasm for their chosen occupational areas (i.e. occupational-related field trips, seminars, etc.).

## Objectives:

- To provide opportunities for social interaction among organization members.
- To conduct various events like seminars, industrial visits, guest lectures, soft-skills development programs, fresher's party etc. and also technical and nontechnical events for assisting students
- To increase knowledge and skills in planning, delegating, decision making
- To develop a more positive and realistic attitude toward themselves, their peers and their colleagues.



# Activity Report:

EESA has organized painting & sketching competition on occasion of Chatrapati Shivaji Maharaj Jayanti dated 19th Feb 2021. Total 54 students participated in this competition. First prize amount was Rs. 500 and second prize amount was Rs. 250.

## winners

### ***PAINTING :***

#### **1st prize:**

Satyam Kapare

#### **2nd prize:**

Prasad Koli

### ***SKETCHING :***

#### **1st prize:**

Abhijeet Mahind

#### **2nd prize:**

Ashish Jadhav



# EDITORIAL BOARD



Dr. V. N. Kalkhambkar  
Head Of Department



Dr. Sujil A  
Editor in Chief

This newsletter has covered all the events from January 2021 to July 2021 which were organized in and by Electrical Engineering Department. We are here going to invite suggestions for improvement, if any, with warm regards.

## *Student Editorial TEAM*



Aditya A. Desai  
(1908058)  
**Team Leader**

Student Editor chief/ graphic designer



Shreyas R. Patil  
(1908058)  
Team member , Article provider



Devika Desai  
(2058010)  
Team member , Advisor



Nikita Desai  
(2058006)  
Team member , Advisor



Snehal Khot  
(2058004)  
Team member , Advisor