BIRLA VISHVAKARMA MAHAVIDYALAYA

(An Autonomous Institution)

(Managed by CVM)

IE(I) Students' Chapter – Electrical Department

Chapter Code:388120/BVME/EL

Report of Student Activities for the academic year 2020-21

1.Report of webinar "Illumination"

Details of webinar: Date:25 July 2020

Time of event: 11:00 AM to 01:00 PM

Platform:Microsoft Teams

Speaker:Er. Hemant Joshi, Technical consultant, Australia. Master of Technology (Sys & Ctrls), Indian Institute of Technology, Bombay

Number of students participated: 40

Organising Team: Dr. R.P Mehta, HoD,EE Department

Prof. M.N Sinha, Chairman,IE(I) Studnets' Chapter

Prof Y.R Prajapati,Faculty Adviser IE(I) Studnets' Chapter

Prof A.A Pandya,Associate Professor,PG Section

About the webinar: IE(I) Electrical Student Chapter had organised an online webinar on "Illumination" on 25 July 2020. The expert for the session was Er. Hemant Joshi, Technical consultant, Australia. Master of Technology (Sys & Ctrls), Indian Institute of Technology, Bombay. The speaker has great work experience of over 35 years of consulting in many countries over various projects.

Details of Webinar: The webinar began with a motivational speech by respected Principal Dr. I.N Patel sir. In his encouraging speech, he gave importance to the utilization of time during

Covid-19 pandemic. The webinar began after an introduction of a speaker by Anurag Abhyankar,B.Tech fourth year (Electrical). At first, the speaker began the session with some common terms and its definitions used in lighting. Some of the terms explained by him were Lux, Lux meter, Room Index, Reflectance and many more. Then the speaker explained some roles of lighting and briefly explained the system of lighting. Later the webinar continued with some application of lighting in different areas, and basic criteria for specific applications. Some of the applications explained were:

 Commercial lighting

 Street lighting

 Task lighting

 Aesthetic decorative lighting

 Emergency lighting

 Security lighting Later the speaker explained types of lamps used for lighting and their advantages and disadvantages. The types of lamps covered were LED, Fluorescent lamp, metal halide and a few others. He also covered topics such as maintenance of lighting and photometric. The major topic covered in the webinar was 'Selection of Luminaire'. Various factors affect in the selection of luminaire

 Ingress Protection (IP) rating: The rating is given by IPXY. Where X is between 0-6, which indicates protection against object and Y is between 0-8, which indicates protection against water.

The IP rating requirement varies as per its location of the lighting.

 Colour: Vastly white and warm white are the colours mostly used in lighting.

The selection of colour differs as per the application.

 Location of Luminaire: The two major location classification is outdoor and indoor. Some others may include wet areas, hazardous areas and heritage buildings.

Outdoor Lighting:

IP rating, types of fixture, colour are some factors of selecting outdoor lighting.

Indoor Lighting:

Colour, type of mount such as wall mount, surface mount and ceiling, recessed or hanging light etc. decides the selection of light. Later speaker covered many topics such as:

 Emergency lighting selection criteria

 Lighting controls How to order lighting

 Design and documentation of lighting

 Lighting layout drawing

 Typical DB single line diagram

At last, many photos were displayed of various kinds of lighting. Thereafter the session ended with Q&A of participants.

The webinar concluded with a vote of thanks by Prof. A.A Pandya. Outcome of webinar: By this informative webinar, participants came to know about the lighting system, types of lighting and various factors one must know in the field for illumination.

Organising team: Anurag Abhyankar, Dhruvanshu Parekh, Jeel Shah, Yash Gajjar, Galav Bhatt and Dhruv Poker

Glimpse of webinar:

2.REPORT on Webinar Sessions during Lockdown by ABB Expert for B.Tech Final year and M.Tech students

Duration of Webinar : 11 April – 19 April 2020

Resource person: Dr Urmil Parikh , Principal Engineer,HV-Technology Centre Global Program Manager Controlled Switching application,ABB India Ltd.

Faculty coordinator: Dr. R.P.Mehta (Electrical Engineering Department) Total students participated: 32

Day 1 : 11 April 2020 Time :9.30 am Topic Discussed By Expert :

 Recent trend and futuristic application on wave switching technology

 Controlled switching overview

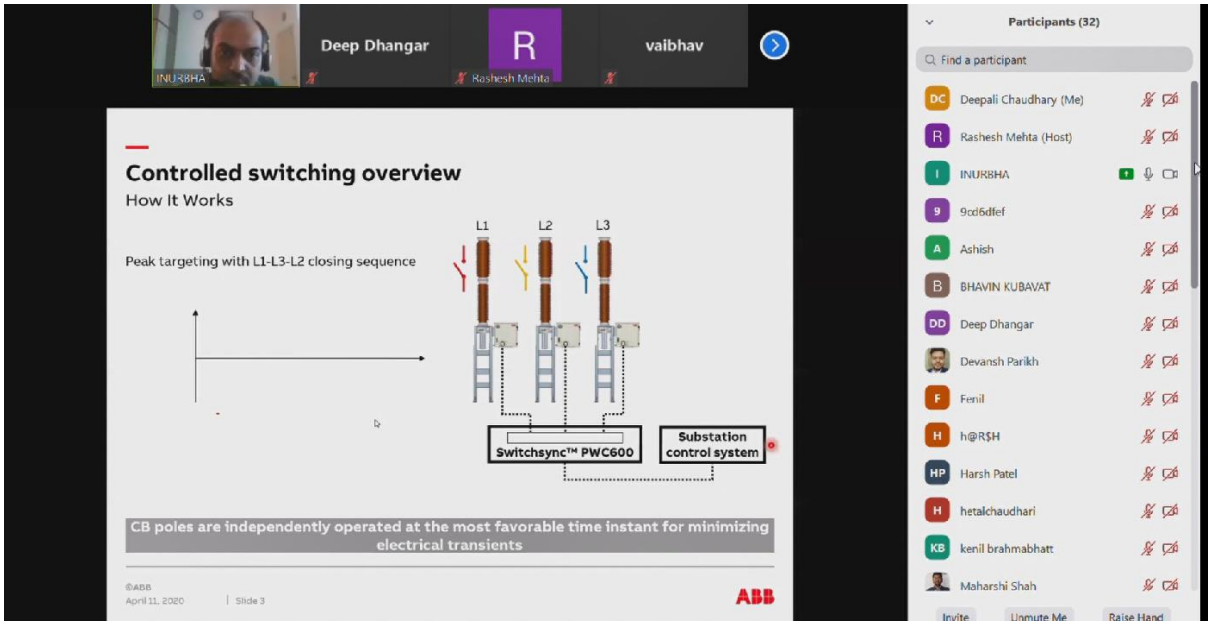
 Principle

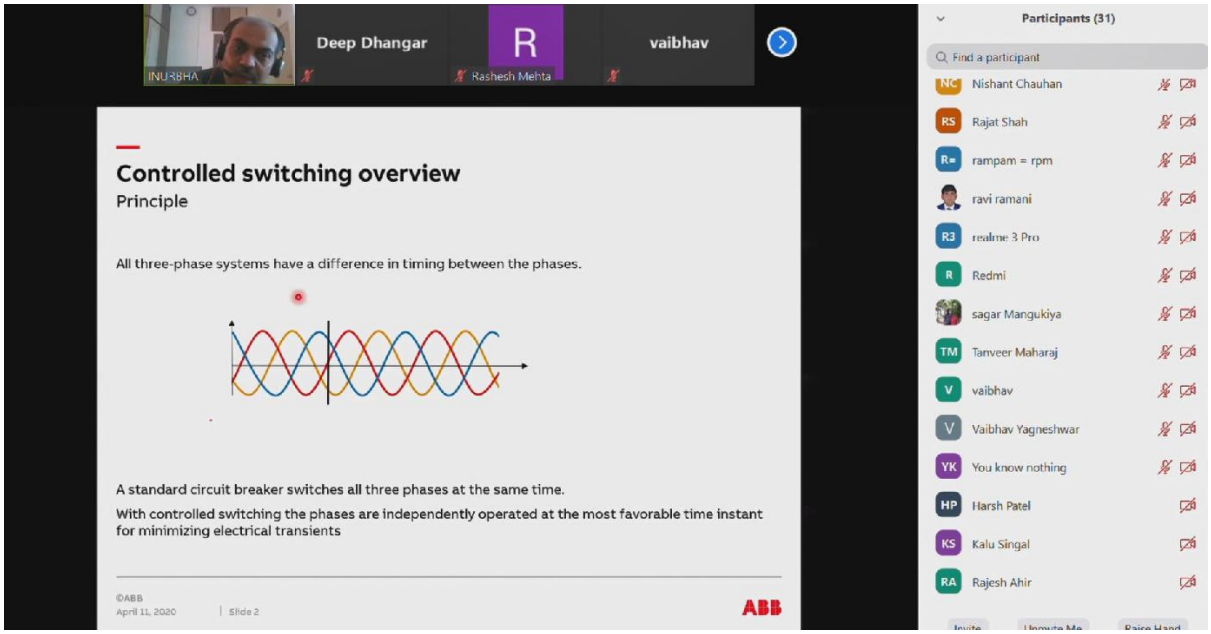
 How it works

 De-Energization of shunt reactor

 Adaptive feature Session began with a brief introduction of expert Dr Urmil Parikh by our NPTEL co-ordinator Dr. R.P.Mehta.

All students were energetic and keen to enhance their knowledge regarding Controlled Switching of Circuit Breaker. Expert Dr Urmil Parikh also preferred to have an interactive session, so that each candidate can get a chance to solve their minor doubts. Here are some screenshots of the webinar.



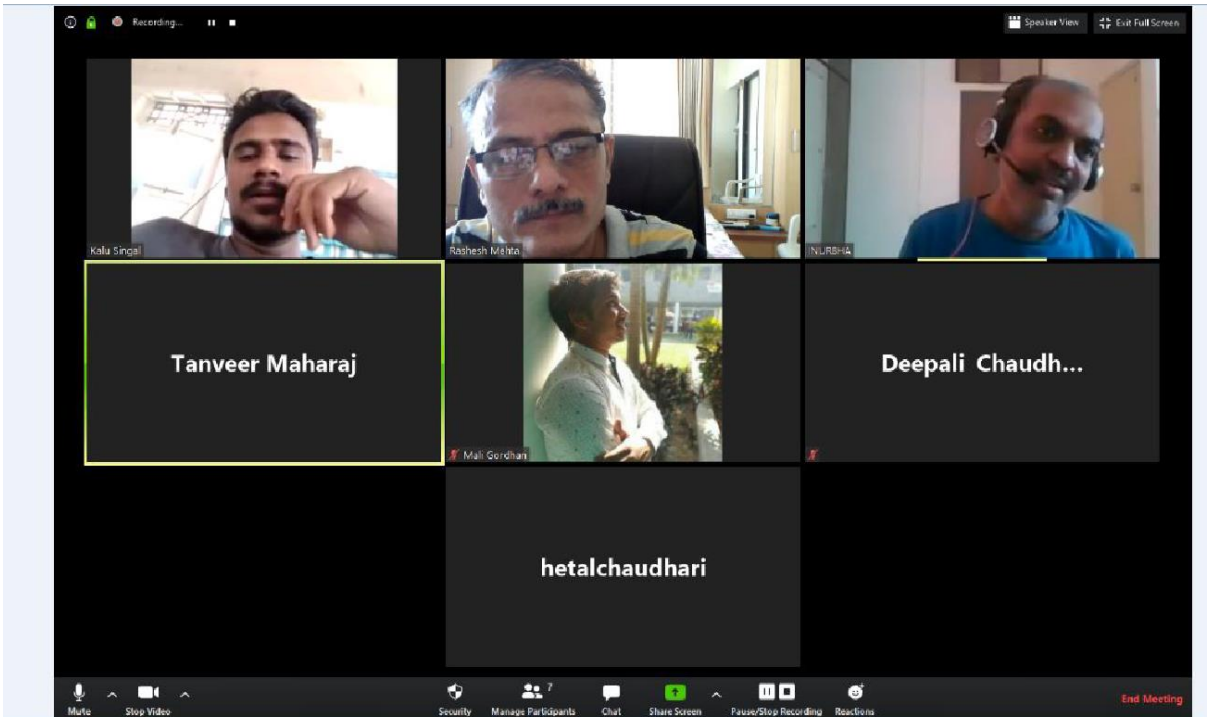


The session started with the overview of the Controlled switching.
Sir started with a three phase system that has a difference in timing between the phases. A standard circuit breaker switches all three phases at the same time.He explained that with controlled switching the phases are independently operated at the favourable time instant for minimizing electrical transients. He explained how controlled switching happens, taking an example of the closing sequence in the circuit breaker he showed with an animation of three poles of the circuit breaker. He explained with detail how controlled switching works, how the circuit breaker opening happens with the animated waveforms that help each and every one to understand the fundamentals of pole opening, applying the first pole to clear factor concept. Also a brief importance for the need of controlled switching was provided by the Expert.
Further a detailed explanation about the De-Energization of the shunt reactor. In which students were made to understand the
Voltage is characteristic of the Circuit Breaker contact gap at opening with a few videos showing the opening of circuit breaker as well as the instant where the arching begins, how long it lasts,arching time importance ,setting a target and importance of natural zero crossing .
Further enlighten the fundamentals of reignition which was very deeply explained so that the De-Energization of shunt reactor could be easily understood by the students.After this session it was concluded that the typical minimum arcing time limit which is understood as should be greater than or equal to 4 mili-seconds.

Day 1 : 11 April 2020
Time : 5.0 PM
Topic Discussed By Expert :

- Control switching relay works
- Circuit-breaker Characteristics
- Controlled energization
- Grounded-Ungrounded Reator

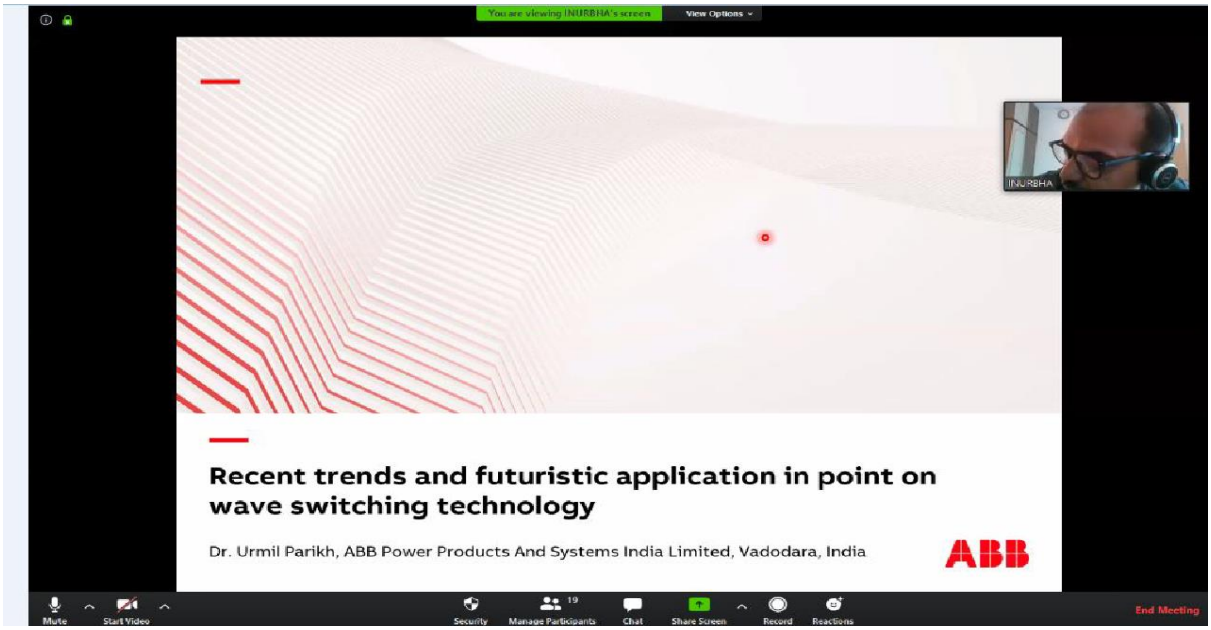
The Session continued in the evening. Where speaker started with how control switching relay works in brief , different characteristics of a circuit breaker, and detailed of controlled energization and how grounded and ungrounded reactors are. In further more sir explain Magnetic-inrush-energization of transformer on no load with a problem and solution. Residual flux locking methods and detailed of how to take residual flux into account with a waveform.



Day 2 : 12 April 2020
Time : 9.30 AM
Topic Discussed By Expert :

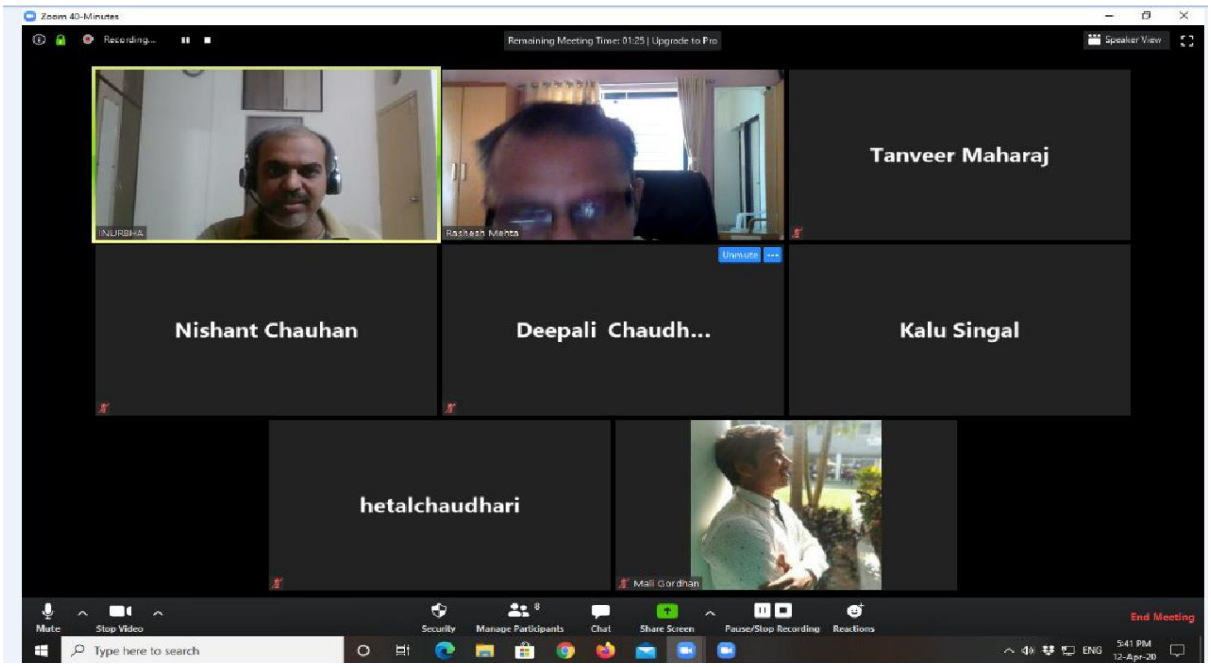
- Transformer Switching
- Line application

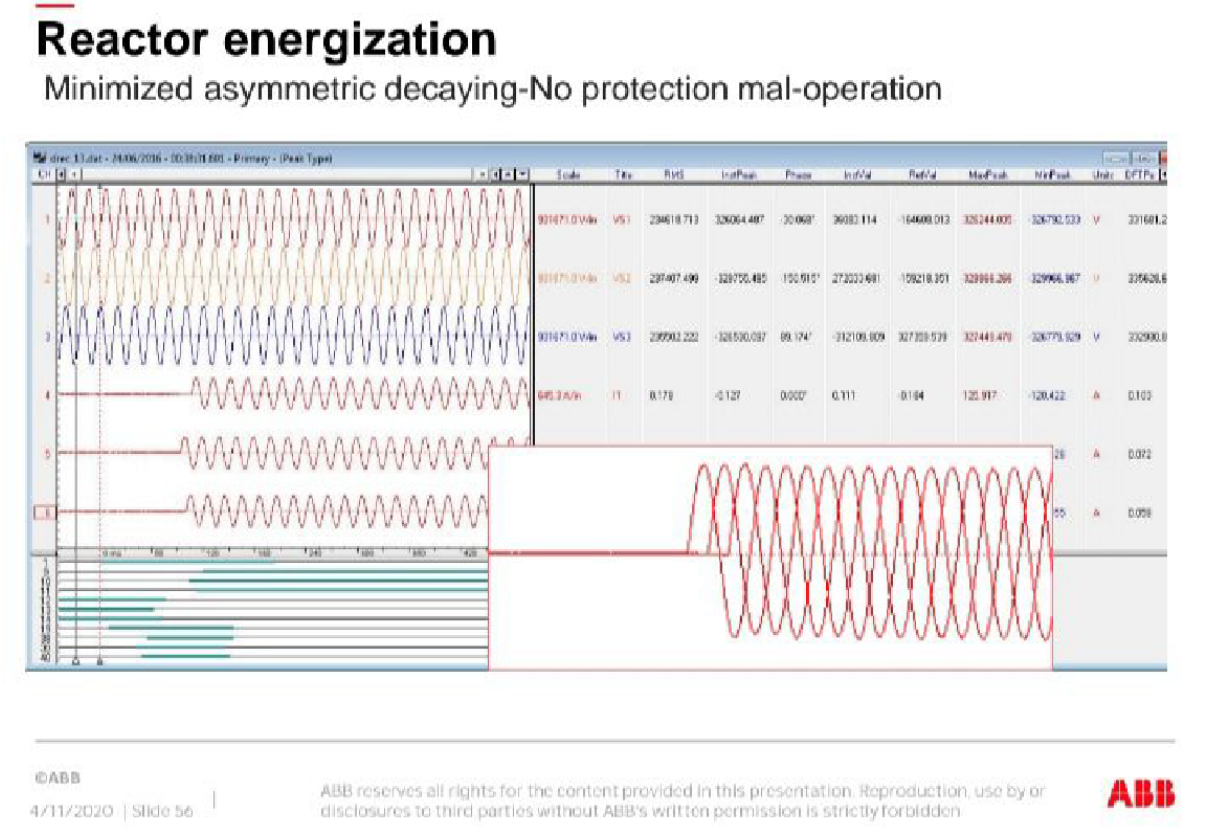
The second day session started with the transformer switching.
Sir started with energization of the star-delta transformer. How is its connection in a real system? Further in a detailed he explained ICT graph waveform of De-energization , energization with
non-optimized and optimized etc.
After that he explained Capacitance switching , how opening and closing of a capacitor banks with the help of circuit and practical wave-forms. And at the last different case studies of a controlled switching.
Here is a screen shot of the session by expert Dr Urmil Parikh regarding Transformer switching.



Day 2: 12 April 2020
Time : 4:30 pm
Topic Discussed By Expert : Reactor Switching

The second day session continues in the evening. Where expert Dr. Urmil Parikh sir explained about reactor switching. In this session sir explained energization and de-energization of a reactor with a waveform. In further more, how 3limb reactor forced re-ignition to avoid CB failure with NGR de-energization and discussed controlled energization of Discharged lines, capacitor bank with TPO. After sir explained in brief detail about ferro-resonance due to a capacitor bank and transformer interaction. Here is a screen shot of the session by expert Dr Urmil Parikh regarding Reacor energization.



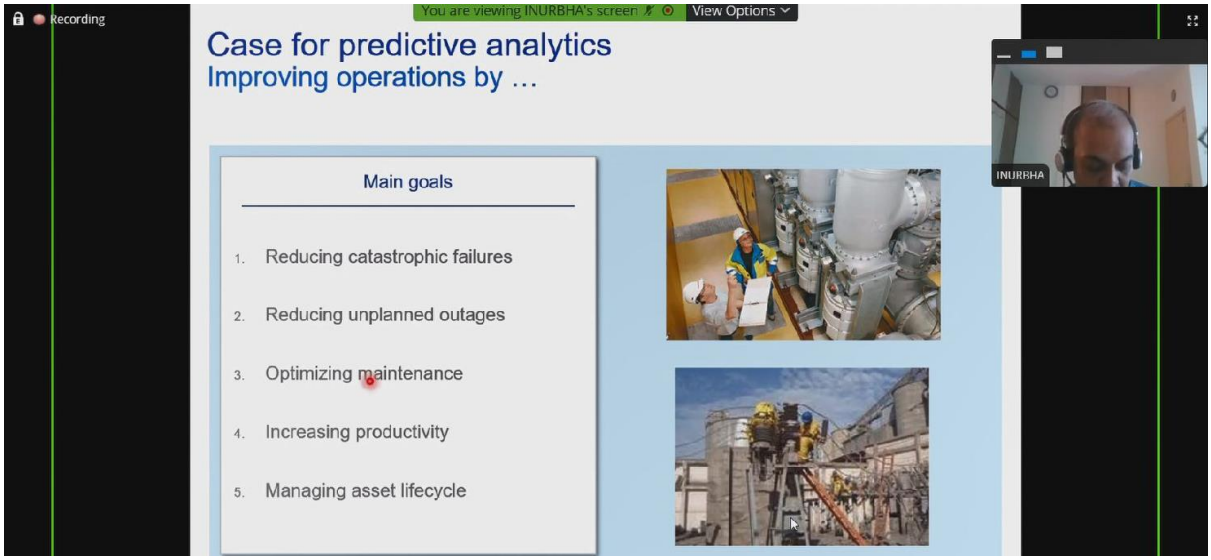


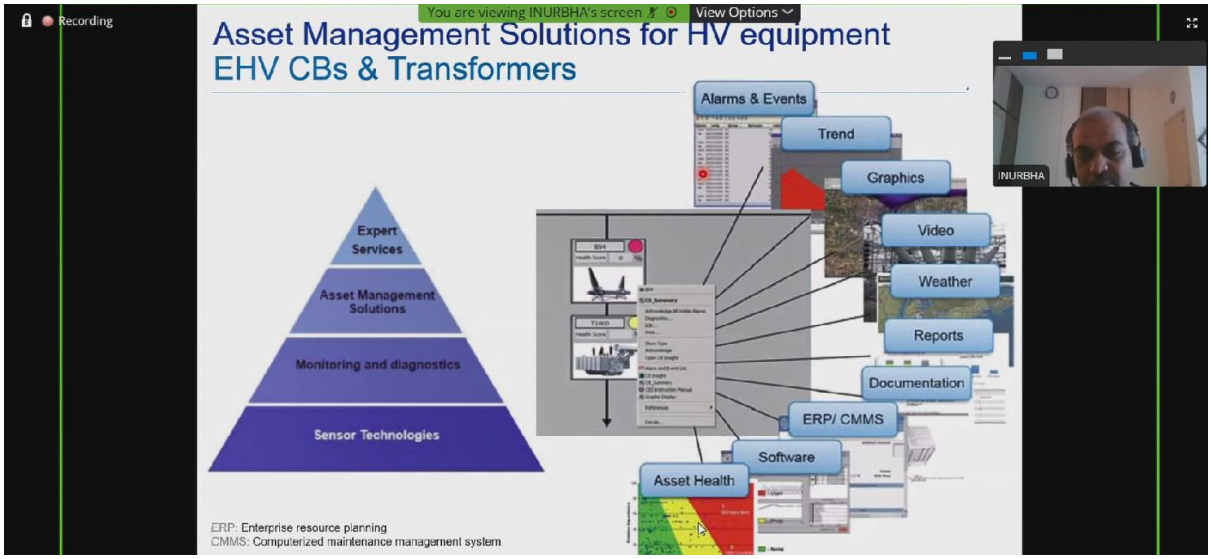
Day 3: 19 April 2020
Time : 04:30 pm
Topic Discussed By Expert : Asset Management
This session aimed at explaining the term Asset Management.
Started with predictive maintenance in the content for Smart Asset
He started with an example of cricket giving an example of Air condition maintenance at home beginning from a very small level till the substation ,power transformer etc He covered the session in a very interactive plus useful way. It was very interesting to know how only by regular checking of the condition of the asset ,its regular testing as well as a proper maintenance of the asset can help to cut the cost and make profit, avoiding uncertain tripping of breakers and failure of asset, better performance etc .
The following were the contents of the session

- Power Industry Environment & Business needs
- Predictive Analytics
- Smart Asset Management (SAM) Concept
- SAM for HV Switchgear Equipment

1. Gas Insulated Substations
2. Generator Circuit Breakers
3. Live Tank and Dead Tank Circuit Breakers
4. Transformers
    - Overall SAM solutions

Here is a screen shot of the session by expert Dr Urmil Parikh regarding Asset Management.





Conclusion:
Session was really fruitful for all the participants, the flow of the session was nicely planned and executed by the expert. Participants also participated actively by asking their queries and giving solutions for a problem. At the end everyone gained quite a significant knowledge regarding about controlled switching of Circuit breaker , Energisation of shunt and capacitor banks, De-energisation of shunt reactor ,transformers

3.Report of webinar "Protection and Maintenance of Electrical Motor"

Details of webinar: Date:25th JULY 2020

Time of event: 1:00 P.M.to 2:30 P.M.

Platform: Microsoft Teams Speaker: Mr. Hiren Gondaliya, B.E. (Electrical Engineering), BVM 2010 10+ years of experience in Maintenance of Plants, Testing and commissioning, Cost Estimation and Subcontractors Arrangement.

Number of students attended: 24

Organising Team: Dr. R.P Mehta, HoD,EE Department

Prof. M.N Sinha, Chairman,IE(I) Students' Chapter

Prof Y.R Prajapati,Faculty Adviser IE(I) Students' Chapter

Prof A.A Pandya,Associate Professor,PG Section Students

Team Members: Anurag Abhyankar, Dhruvanshu Parekh, Jeel Shah, YashGajjar, Dhruv Pokar and Galav Bhatt.

About the webinar: IEI Electrical Student Chapter had organised an online webinar on "Protection and Maintenance of Electrical Motor" on 25th July 2020. The expert for the session was Mr. Hiren Gondaliya, who completed his B.E. (Electrical) from BVM 2010 batch and having 10+ years of experience in Maintenance of Plants, Testing and commissioning, Cost Estimation and Subcontractors Arrangement.

Details of webinar: The session started sharp at 1:00 PM by Mr. Hiren Gondaliya by Introducing himself and his working strategy in Industry. Mr. Hiren began with topic of discussion by asking very basic questions like-

 What is a Motor?

 Why is a protection system required for Motor?

Reasons for Motor failure are discussed like high or low supply voltage, phase unbalance, continuous excessive loading, stall conditions, single phasing, ground/ earth faults, mechanical failures like seized motor bearing and many more. Further points considering Standard Protection Functions and Enhanced Protection Functions by Numerical Motor Relays were discussed. Then about the difference between motor current during starting and during stalling and how Numerical Relay detects that the motor has started i.e. by detecting the percentage of motor current with respect to full load current by describing different graphs. Further Operations of Induction Motor with Unbalanced supply voltage, its causes and effects, along with different protections were clarified by expert like-

1. Locked Rotor protection

2. Thermal Overload protection

3. Short Circuit protection

4. Earth Fault protection with residual and CBCT connections

Different things to consider by seeing the name plate of any motor was practically shown by pictures of Motor's Nameplate by our expert. By starting the Maintenance of Electrical Motor, Mr. Hiren discussed different types of maintenance required in Industry like Preventive maintenance, Condition based maintenance and Corrective maintenance.

For overall maintenance following things are to be considered-

1. Equipment Isolation:

2. Motor Terminal Box/ Neutral Terminal Box

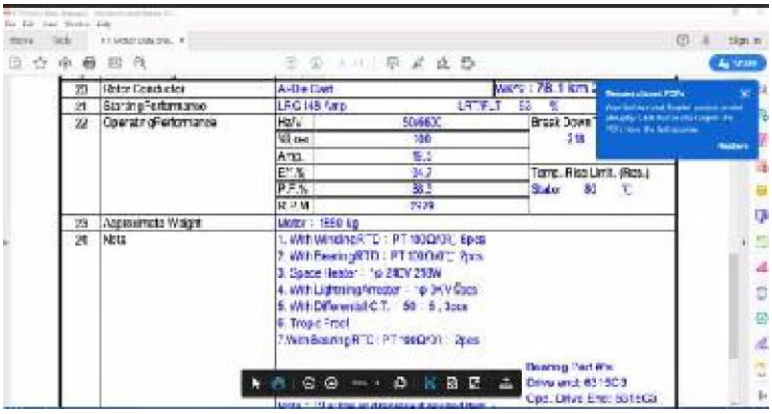
3. Push Button Station

4. Star Point Checking

5. Monsoon Protection

6. General includes cleaning the wire mesh of fan cover and body of motor, earthing conductors, main terminals bolts, oil lubrication in coil and many more. Finally the last topic of discussion was HT/ LT Motor Feeders with different figures and connections. Then the conclusion and Vote of Thanks was given by Prof. M.N. Sinha sir. Outcome of webinar: The webinar gave us different ideas and ways Electrical Motors can be Protected in different situations and from things that happen in industries and also taught us how we can improve our techniques of Maintenance of Electrical Motor so as to improve life time of Motor.

Glimpse of webinar:



Mr. Hiren explaining electrical motor specifications

4.Report of Expert Talk “Design Aspects of Induction Motors”

Details of Expert Talk: Date: 27-2-2021

Time of event: 12:30 P.M. to 2:00 P.M.

Platform: Microsoft Teams

Speaker: Dr. Satish Chetwani Head R&D, Switchgear and Short Circuit Laboratories Asst. Director ERDA Vadodara

Number of students attended: 16

Organizing Team:

Dr. R. P. Mehta, Head, EE Department

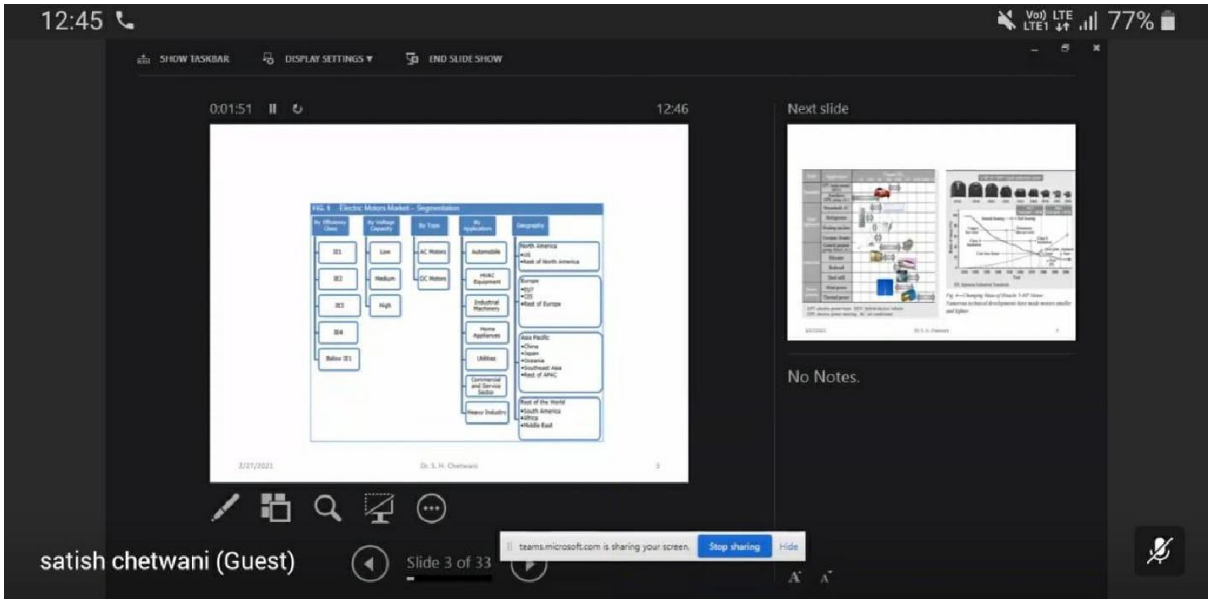
Prof. Akshay A. Pandya, Associate Professor

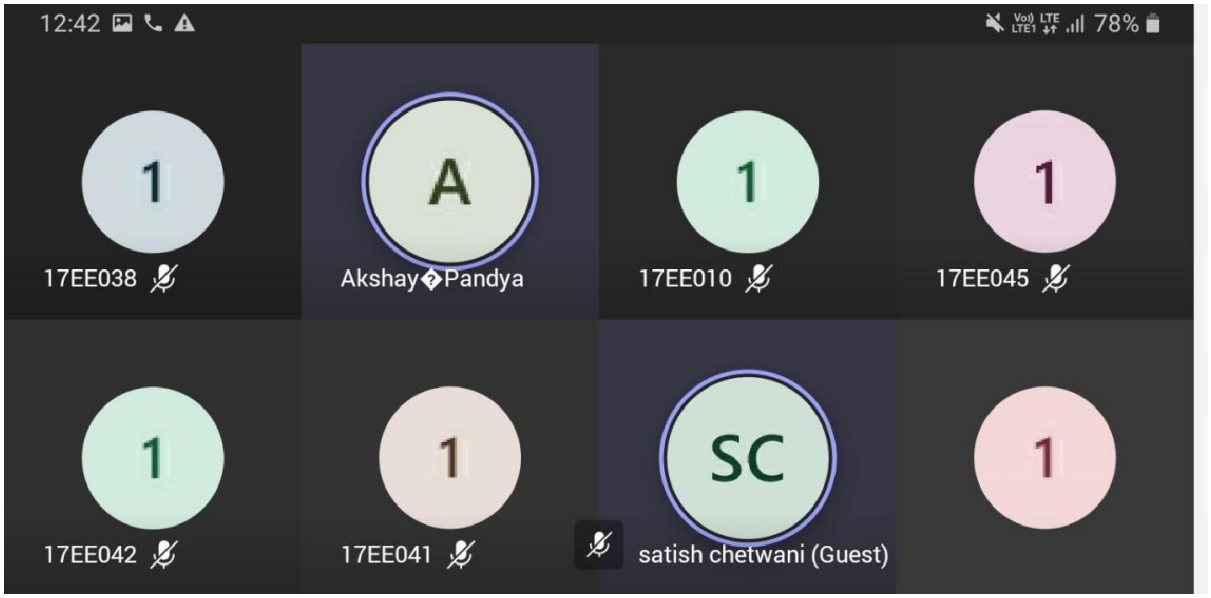
Prof. M. N. Sinha, Chairman, IE(I) Students' Chapter

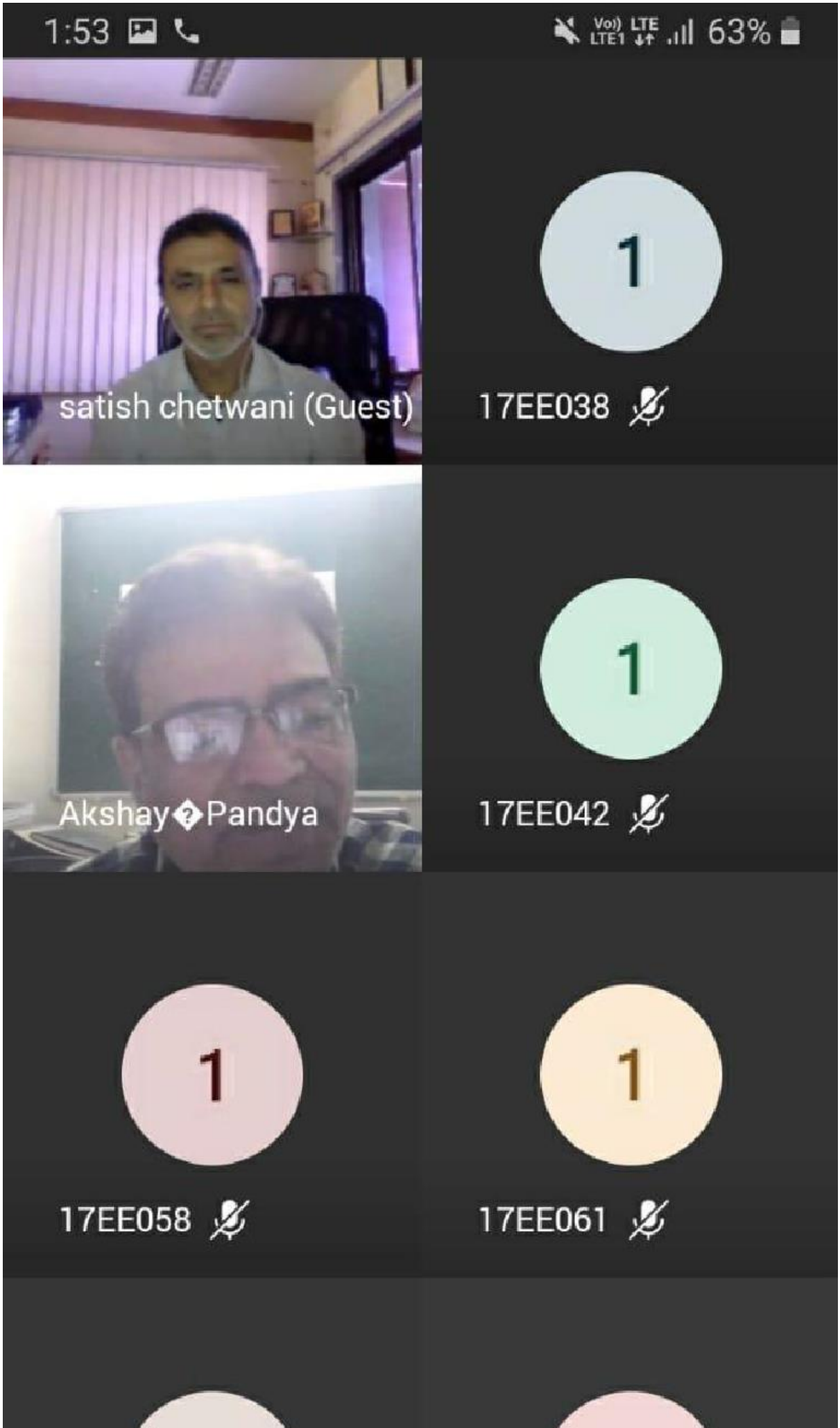
Prof Y. R. Prajapati, Faculty Adviser IE(I) Students' Chapter

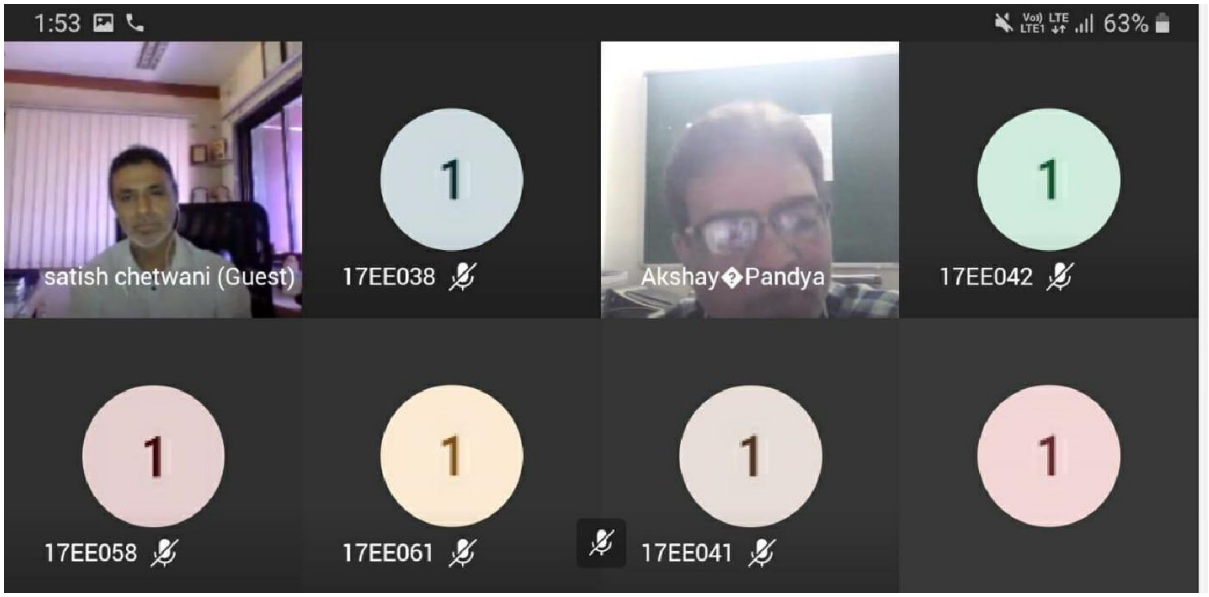
Details of Expert Talk: In this expert talk design aspects of induction motors were discussed. Dr. Satish Chetwani sir has discussed new technology in the area of induction motor design. 16 students and faculty members of the electrical engineering department attended the expert talk. Outcome of webinar: The expert talk gave different ideas and ways of induction motor design to the students. The latest tools and technology were discussed. Students were benefited by understanding the design aspects of induction motors.

Glimpse of Expert Talk:


12:45
77%
SHOW TASKBAR
DISPLAY SETTINGS
END SLIDE SHOW
0:01:51
12:46
Next slide
No Notes.
satish chetwani (Guest)
Slide 3 of 33
teams.microsoft.com is sharing your screen.
Stop sharing
Hide


12:42
78%
17EE038
Akshay Pandya
17EE010
17EE045
17EE042
17EE041
satish chetwani (Guest)


1:53
Vo)) LTE LTE1
63%
satish chetwani (Guest)
1
17EE038
Akshay Pandya
1
17EE042
1
17EE058
1
17EE061



5.Report of Expert Talk “Design Aspects of Transformer”

Details of Expert Talk:

Date: 20-2-2021

Time of event: 2:00 P.M. to 4:00 P.M.

Platform: Microsoft Teams

Speaker: Dr. Chirag Parekh Vice President Atlanta Electricals Pvt. Ltd. V. U. Nagar

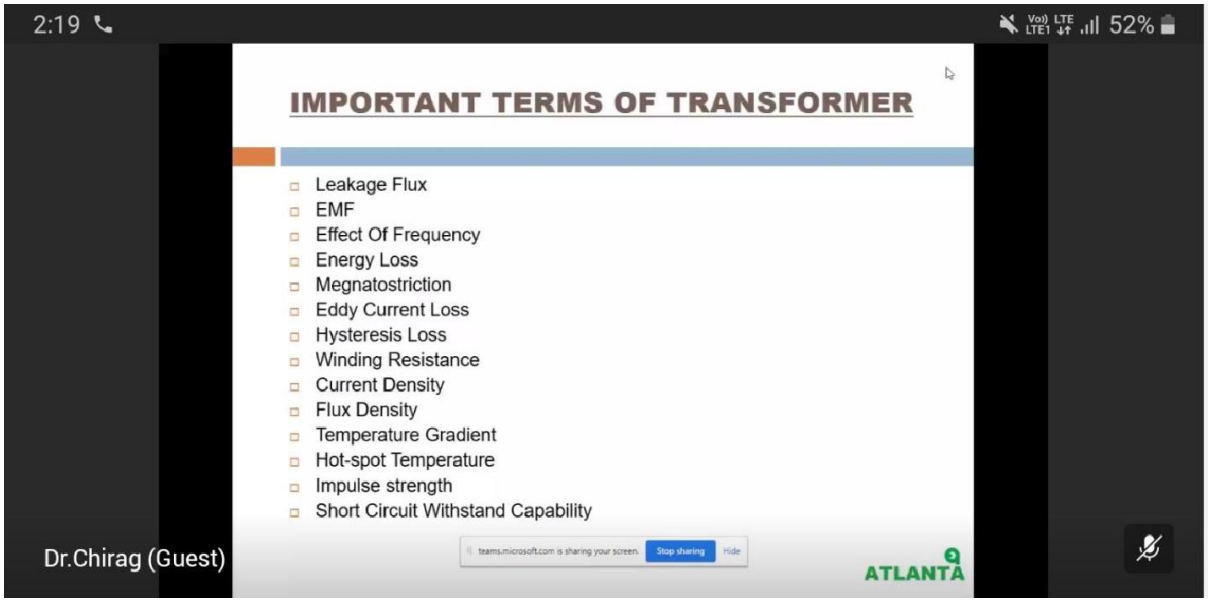
Number of students attended: 20

Organizing Team: Dr. R. P. Mehta, Head, EE Department Prof. Akshay A. Pandya, Associate Professor Prof. M. N. Sinha, Chairman, IE(I) Students' Chapter Prof. Y. R. Prajapati, Faculty Adviser IE(I) Students' Chapter

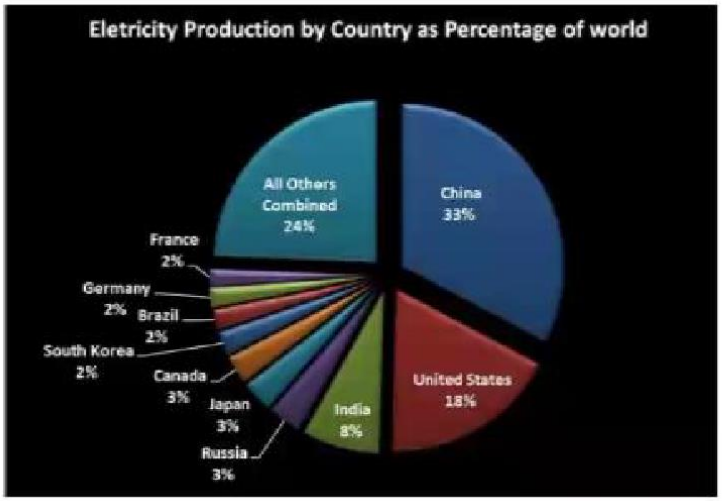
Details of Expert Talk: In this expert talk design of the transformer was discussed. Dr. Chirag Parekh has discussed the basics of transformer design and new technology in the area of transformer design. He has discussed how transformer efficiency is improved. 20 students and faculty members of the electrical engineering department attended the expert talk.

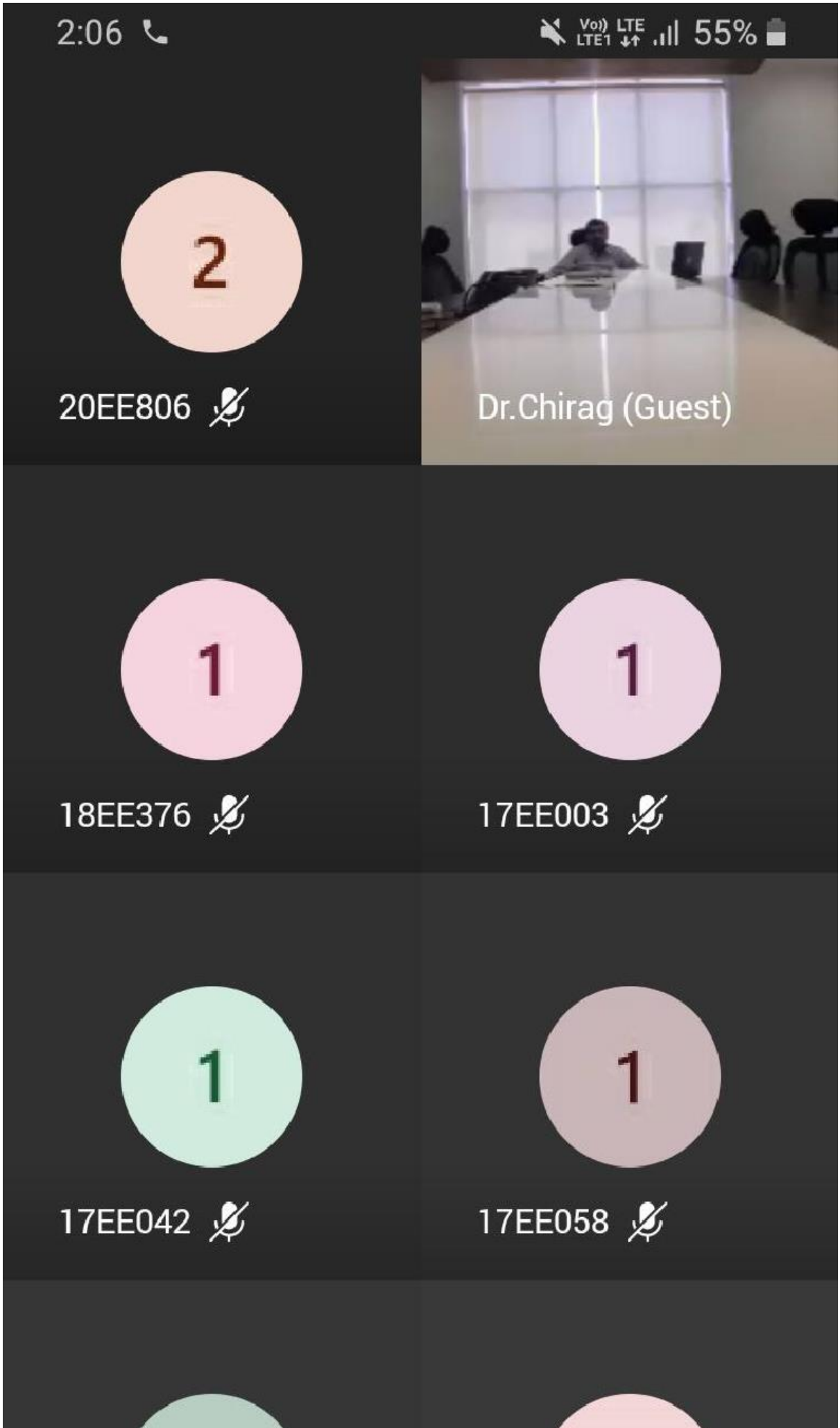
Outcome of Expert Talk: The expert talk gave different ideas and ways of transformer design to the students. The latest tools and technology were discussed. Students were benefited by understanding of transformer design using computer software.

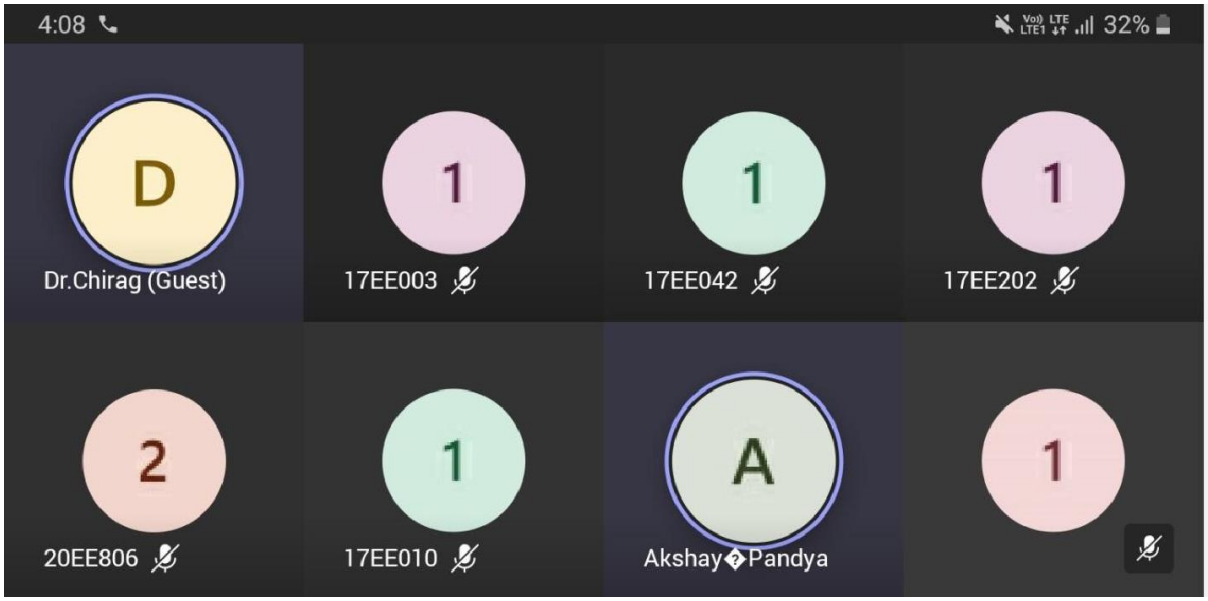
Glimpse of Expert Talk:



POWER STATISTIC OF WORLD




2:06
55%
2
20EE806
Dr.Chirag (Guest)
1
18EE376
1
17EE003
1
17EE042
1
17EE058



6.Report of webinar “Energy Swaraj Movement & Solar Energy”

Details of webinar: Date: 31Jan 2021

Time of event: 10:00 A.M. to 11:30 A.M.

Platform: Microsoft teamSpeak: Prof. Chetan Singh Solanki, Professor at IIT Bombay, Founder of Energy Swaraj, Popularly known as the SOLAR MAN OF INDIA or SOLAR GANDHI.

Number of students attended:- 100

Organising Team:

Dr. Rashesh Mehta,

Prof. M. N. Sinha,

Prof. Y. R. Prajapati

Students:- Abhinav Makhe, Om Shukla, Harshal Chavda, Harshit Mistry, Krupen Parekh, Prince Patel, Jeel Shah

About the webinar: IEI Electrical Student Chapter had organised an online webinar on Energy Swaraj Movement & Solar Energy on 31 Jan 2021. The expert for the session was Prof. Chetan Singh Solanki he is researcher, author and professor at Department of Energy science and Engineering, Indian institute of technology Bombay, popularly known as SOLAR MAN OF INDIA or SOLAR GANDHI. Dr. Rashesh Mehta & Prof. Manish Sinha were the faculty coordinator for the webinar.

Details of webinar: The Session started at 10:00AM with the hosting of IEI student member Om Shukla. The webinar began with a warm felicitation by Dr. Rashesh Mehta. After felicitation, our expert Prof. Chetan Singh Solanki commenced the session Prof. Chetan Singh Solanki started his talk with Environment pollution and explained about human activities which are harmful for our environment as it causes a percentage increase of carbon dioxide in our earth. The result of it is global warming. It resulted in increasing the temperature of earth & rise in sea level. He shows the climate clock and also explains it. After explaining global warming he comes to the solution of it which is to stop the Emitting of Corban then we can restore the climate balance so that we can use the alternative energy or we can say the renewable energy. Then he said that the first step towards reducing the carbon is to surrender the electricity connection and generate our own electricity by solar energy. He added further that institute's can do the same thing and run the campus with 100% solar energy so that students will also learn about solar energy . Then he gave one principle of energy to the Swaraj mission, "Energy by locals for locals" & explained it. He also explained the main moto of energy Swaraj which has short term AMG.

He explained as,

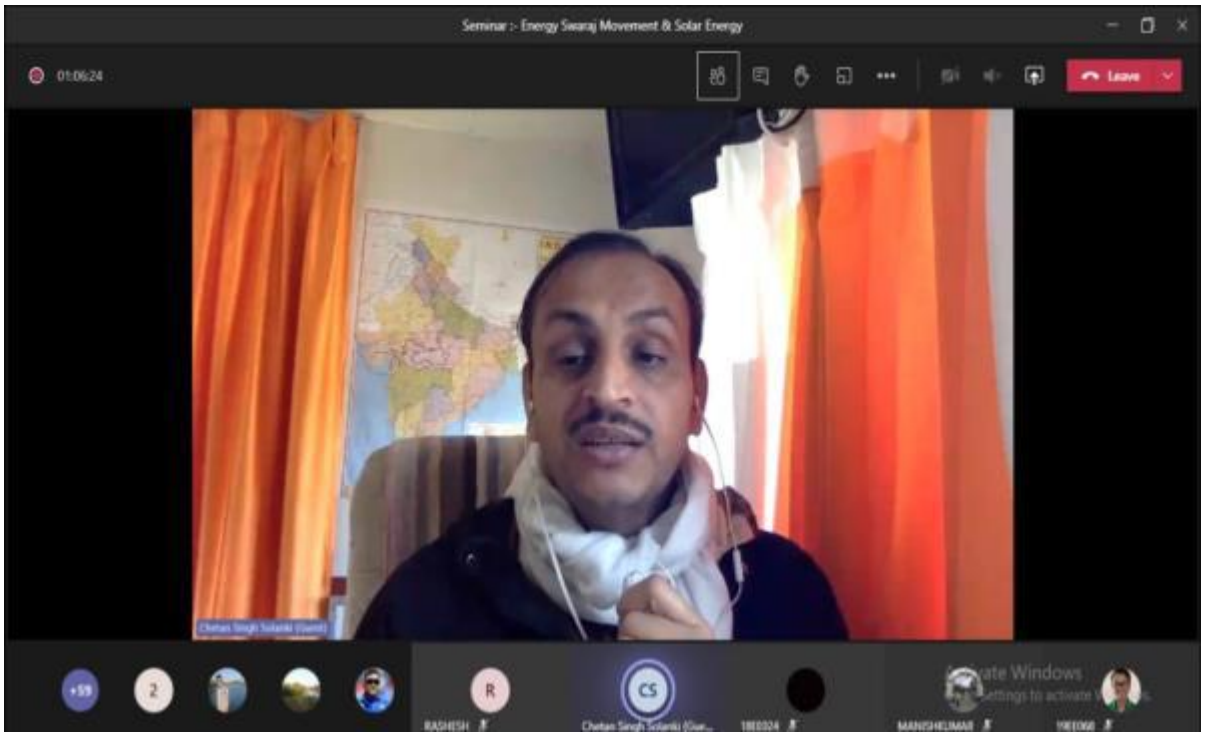
A:- Avoid use of energy (If it's not solar energy)

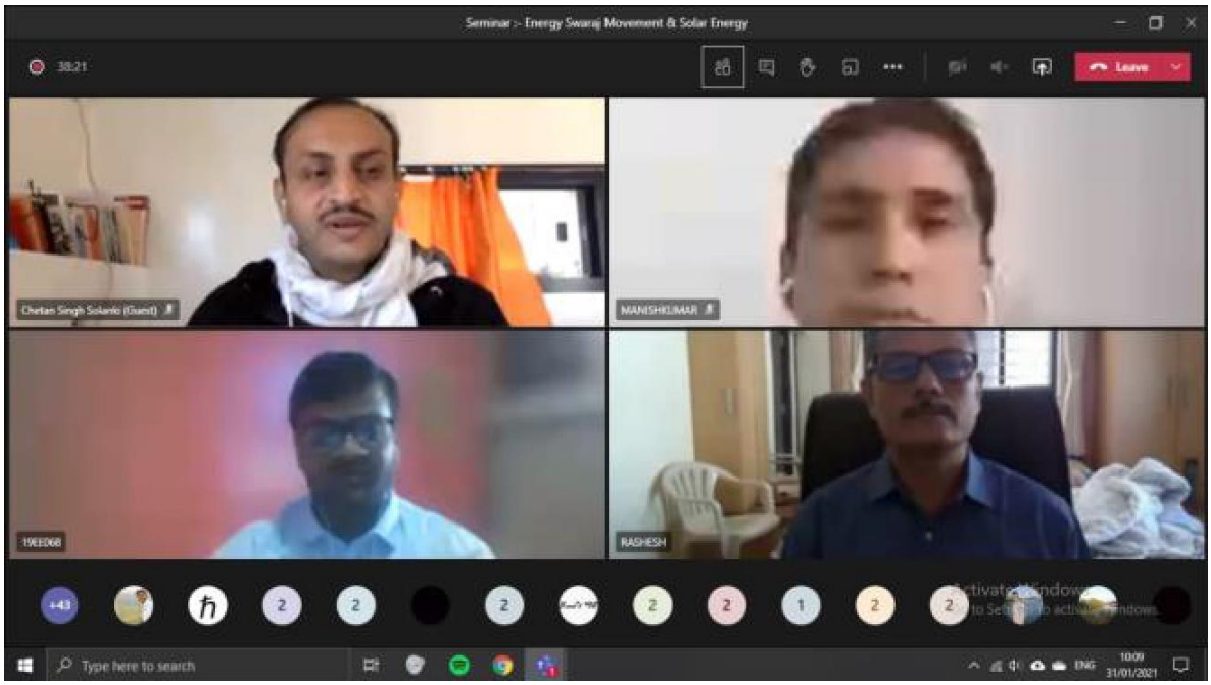
M:- Minimize (we can avoid the many equipment in our home and minimise the energy consumption) G:- Generate (After above two points we can generate our own energy by solar)

While concluding the talk the expert says that we can save our planet by taking effective action towards renewable energy or solar energy. Any small step towards solar energy will be a great gift for our next generation. Then, experts take the question answer season. Experts take questions one by one & give appropriate answers. He also gave a small visit to his Energy swaraj bus which is running for the Energy Swaraj Movement all over India. Further the Ending Remarks was given by Prof. Y.R.Prajapati and closed the great webinar.

Conclusion: The webinar gave ideas about the solar energy & Energy Swaraj Movement. Students got inspired by "Energy by locals for locals". Individuals also got aware about energy conservation.

Glimpse of webinar:





BVM Engineering College

IE(I) Team[Student Chapter(Electrical)]	
Position	
	Name
Chairman	Prof. M. N. Sinha
Faculty advisor	Prof. Y.R.Prajapati

****