

## 7.1.5: Green Campus Initiatives

Amity University, Gwalior is dedicated to fostering a green and eco-friendly campus through sustainable practices and environmental conservation measures. The university actively engages in various green campus initiatives to promote ecological balance and awareness among students, staff, and the community. Below are the key highlights of the initiatives under this criterion:

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### 1. Ban on Plastics

- **Plastic-Free Campus:** Single-use plastics are strictly prohibited on campus.
  - **Alternatives Promoted:** The use of biodegradable and reusable materials, such as cloth bags and paper straws, is encouraged.
  - **Awareness Campaigns:** Workshops and events are organized to educate the campus community about the harmful effects of plastic pollution.
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### 2. Landscaping and Green Spaces

- **Lush Green Campus:** The campus is adorned with diverse flora, providing a serene and pollution-free environment.
  - **Plantation Drives:** Regular tree plantation campaigns are conducted to enhance the green cover and promote carbon sequestration.
  - **Herbal Garden:** A dedicated herbal garden with medicinal plants is maintained to emphasize the importance of traditional knowledge.
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### 3. Energy Conservation

- **Solar Power Usage:** Solar panels are installed on rooftops to harness renewable energy and reduce dependency on conventional electricity.
  - **Energy-Efficient Appliances:** LED lights and energy-saving devices are used across the campus to minimize energy consumption.
  - **Power Monitoring:** Systems are in place to monitor and optimize energy usage.
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### 4. Water Management

- **Rainwater Harvesting:** Rainwater harvesting systems are implemented to recharge groundwater and conserve water.

- **Efficient Irrigation:** Drip irrigation and sprinkler systems are used in landscaping to prevent water wastage.
  - **Wastewater Recycling:** Treated water from the sewage treatment plant is reused for gardening and other non-potable purposes.
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## 5. Waste Management

- **Solid Waste Segregation:** Separate bins for biodegradable and non-biodegradable waste are placed across the campus.
  - **Composting:** Organic waste is composted and reused in campus gardens.
  - **E-Waste Disposal:** E-waste is collected and handed over to authorized recycling agencies.
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## 6. Green Transportation

- **Electric Vehicles (EVs):** Battery-operated vehicles are used for internal campus transportation.
  - **Bicycle-Friendly Campus:** Dedicated cycling tracks and bike racks are available to promote eco-friendly commuting.
  - **Carpooling Encouragement:** Awareness programs encourage carpooling among students and staff to reduce carbon emissions.
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## 7. Sustainability Awareness Programs

- **Eco-Clubs:** Active student participation in eco-clubs fosters environmental responsibility.
- **Workshops and Seminars:** Regular sessions are conducted on topics such as renewable energy, biodiversity conservation, and waste reduction.
- **Green Audits:** Periodic audits ensure adherence to environmental policies and identify areas for improvement.

S. No.	Content
1	Environment Day Report
2	Centre of Excellence – Gwalior as a Smart City 'Ek Swapn: The Smart Gwalior' Presentation Competition
3	Poster Making & Slogan Writing Competition on the occasion of Earth Day
4	International Workshop on Current Scenario, Future Perspective And Challenges Technological Advancements In Renewable Energy: (Iwtare 2024) (Online Mode)

## World Environment Day 2024



The Department of Environmental Science, Eco-Club AUMP, and the Centre of Excellence for Biodiversity & Environmental Conservation organized a poster-making and slogan-writing competition on **June 5, 2024**, to commemorate World Environment Day. The theme of World Environment Day 2024 is '**Land Restoration, Desertification, and Drought Resilience. "Our Land, Our Future." We are Generation Restoration.**'

The poster-making and slogan-writing competition was held from 9.10 AM to 11: A.M in Block A's foyer. A total of 211 participants were registered for the duration of the event.

The posters were evaluated for their innovation, creativity, and message for environmental conservation and protection by a panel of eminent environmentalists headed by Prof. Dr. Kuldip Dwivedi, Department of Environmental Science.

The competition winners were awarded cash prizes. The first prize (Rs. 1000/-) was conferred to Bhavjot Singh Sethi, B.Sc. Biotechnology, second prize: Rs. 750/- awarded to Wahida Rahman, BA (Pol) Science, and third prize rewarded to Priyanshi Ramani BBA, Rs. 500/-. Consolation prizes given to Nitya Kushwaha, B.Pharm, Sania Walter BCA, Kekhrieletuo Chielie BArch Certificates were provided to all registered participants. The event was coordinated by Dr Rwitabrata Mallick, Dr Nidhi Shukla, Dr Abhishek Bhardwaj and Dr Deep Chakraborty.



## Centre of Excellence – Gwalior as a Smart City ‘Ek Swapn: The Smart Gwalior’ Presentation Competition



On 24th May 2024, **Centre of Excellence: Gwalior as a Smart City**, Amity University Madhya Pradesh organized a presentation competition named ‘Ek Swapna: The Smart Gwalior,’ at Seminar Hall, D-Block.

As the concept of "Smart Cities" focuses on improving the quality of life for their residents through innovative solutions, candidates participating in the competition were required to make creative presentations on any ‘smart city’ located in India. They highlighted the major systems and procedures unique to that city that make it smarter. They were also required to compare the current standing of Gwalior with respect to their chosen city and suggest various practices that Gwalior can adopt from it. Finally, they presented their findings during the competition.

This initiative was successfully conducted under the guidance of Honourable Officiating VC Prof. (Dr.) Anil Vashisht.

Prof. Vashisht gave his opening remarks and encouraged participants to explore and analyse the sustainable practices of different Indian smart cities and how they can be implemented here in Gwalior. He also emphasised on to the importance of conduct and behavioural aspect of citizens of any city, which comes before technology adoption and other such things.

The event was judged by Dr. Rajeev Dwivedi, Associate Dean of Student Welfare, Amity University Madhya Pradesh and Dr. Vivek Gupta, Assistant Professor, Amity Business School.

11 teams from different institutes participated and presented the theme-based presentation. They showcased the best practices of cities like Navi Mumbai, Surat, Ahmedabad, Indore, Pune, Coimbatore, Chennai etc.

**Objective of the Competition:**

The competition aimed to crowdsource ideas and empower students to contribute to a more sustainable and efficient future for Gwalior.

**Outcome of the Activity:**

Almost 80-90 students of different institutes of AUMP attended the program and became aware and familiar with sound practices required to make a city smart and then sustaining the same.

Benefits of adoption of these practices were also highlighted during the event and participants also became aware of the expected conduct of citizens to sustain the smart city concept.

**Faculty Coordinators:**

- Prof. (Dr.) Deepika Singh Tomar
- Prof. (Dr.) Kuldeep Singh
- Dr. Sandeep Raghuwanshi
- Dr. Pranshuman Parashar
- Ar. Manish Kumar Chitranshi
- Ar. Aditya Bhattacharya

**Winners of the Competition:**

- 1st Place (Coimbatore): Smita Srivastava and Yuvraj Singh Kushwah, B. Arch
- 2nd Place (Kota): Muskan Gurjar, Ansh Chauhan, and Archita Dubey, BA Hons (Political Science)
- 3rd Place (Pune): Aanchal Rajawat, Misthi Tomar, and Wahida Rahman, BA Hons (Political Science)







## Poster Making & Slogan Writing Competition on the occasion of Earth Day



### General information: -

- **Date of event** - 22<sup>nd</sup> April 2024
- **Venue** - Foyer, Block-D-Amity Business School  
Gwalior
- **Time** - 10:00AM-1:00PM
- **Organized by**- Amity Business School
- **Total Students participation**-77

### Event coordinator

1. Dr Kishan Singh Rathore, Associate Professor
2. Dr. Minakshi Tripathi, Assistant Professor II
3. Dr. Shweta Saxena, Associate Professor

### Students Volunteers name

1. Ananya Agrawal BBA VI
2. Augustya Chaturvedi BBA VI

3. Pragya Sahu                      BBA IV

4. Ritika Mudgal                    BBA II

### **Objective of this activity**

- To Stimulate creativity and innovation in addressing environmental concerns through artwork and slogans.
- To Celebrate the beauty and diversity of our planet while also acknowledging the need for conservation and sustainable development.
- To Encourage the participation of youth and students to instil a sense of responsibility towards the environment from an early age.
- To Foster a sense of community engagement by bringing people together to celebrate Earth Day and participate in activities aimed at promoting environmental stewardship.
- To Use the competition as a platform to educate participants and the audience about various environmental challenges facing our planet and potential solutions.

### **Summary**

EARTH DAY is celebrated around the world with a beautiful message - "Our continuing efforts in our everyday lives will make this beautiful planet thrive." Earth Day is a proof that even one person can make a global impact in a positive way. Echoing the same, Amity Business School, Amity University Madhya Pradesh, Gwalior Celebrated "The Earth Day" through a series of activities on 22nd April 2024 and Prize Distribution ceremony organized on next day i.e.23 April 2024 due to taking time by judges to judge the winners.

The whole Business School, whether it was the Professors, students, support staff, guards, admin staff or helpers took part in this "Poster **Making Competition**. The students were reminded of simple doable actions towards safe Mother Earth.

Array of creative events was organized to sensitize the students about the conservation of natural resources. free from plastic earth and to motivate them to do their bit towards making their planet even more beautiful.

### **Outcomes of the activity**

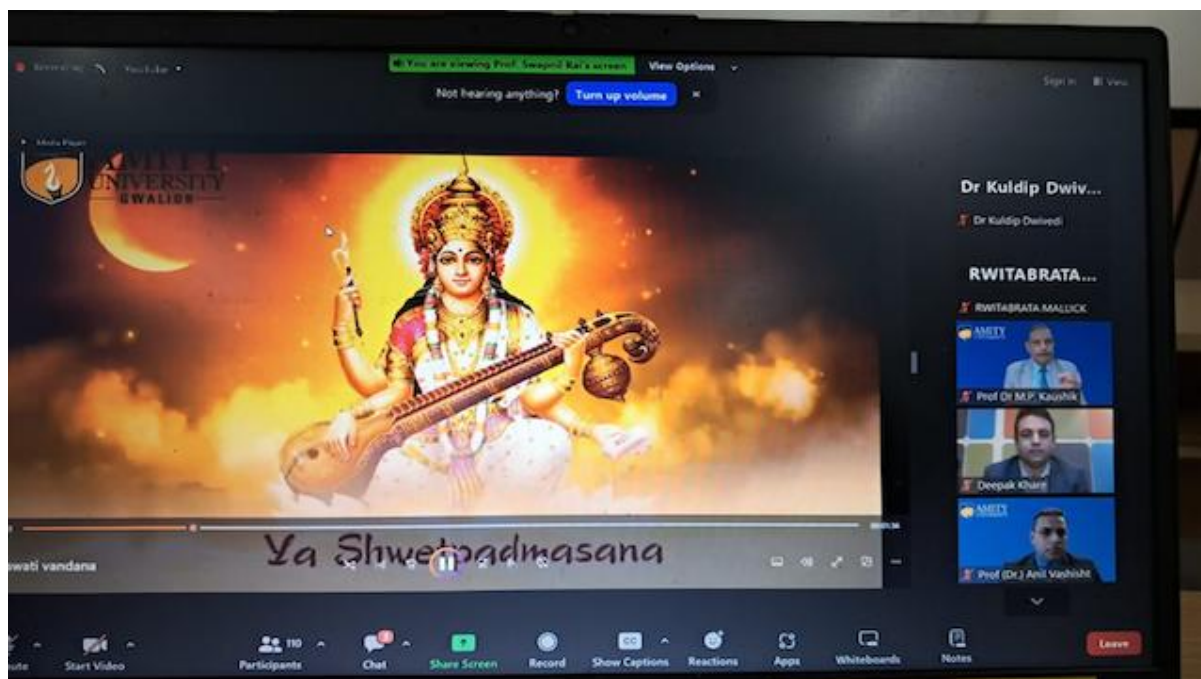
Many students from different department of Amity University participated to show their curious feelings through poster making competition. During this poster making competition, participants gained valuable insights to protect earth from uses of plastic. The benefits of this activity to aware students, society and others stakeholders the about the changing conditions of earth and make sure them not to use plastic for themselves but make aware others also.

This event was successfully conducted under the guidelines of the Ministry of Earth Sciences and guidance of Honourable Officiating VC Prof. (Dr.) Anil Vashisht Amity Business School Amity Business School, Gwalior.





International Workshop on Current Scenario, Future Perspective and Challenges Technological Advancements In Renewable Energy: (Iwtare 2024) (Online Mode)



The Inaugural Ceremony was started by taking the blessings of Maa Saraswati

Department of Environmental Science, Amity School of Life Sciences, Amity University Madhya Pradesh (AUMP), Gwalior (MP) organized an International Workshop on Technological Advancements in Renewable Energy: Current Scenario, Future Perspective and Challenges (**IWTARE 2024**) in Online Mode.

The Inaugural ceremony was started by taking the blessings of Maa Saraswati with the Lighting of Lamp and Saraswati Vandana. The inaugural ceremony was streamed in Zoom platform for online participants. **Opening Remarks addressed by Lt. Gen. V. K. Sharma, AVSM (Retd.)**, Hon'ble Pro-Chancellor, Amity University Madhya Pradesh, Gwalior. Lt general V. K. Sharma put lights on all type of renewable energy like solar wind. He spoke about the potential of electric vehicle in India, the potentially of the wind energy in India. During the Inaugural session Prof. (Dr.) Anil Vashisht Officiating Vice Chancellor, Amity University Madhya Pradesh and Prof. (Dr.) M. P. Kaushik, Pro Vice Chancellor (R) & Dean Research, were also present.

**The Guest of Honour, Dr Deepak Kharre**, Head of Projects Blue Pine Energy, Gurugram, Haryana,

address the issues like climate change, renewable energy and how India is fitted globally as per energy scenario. He focused on energy scenario of India specially forecast on solar and wind energy. He also mentioned about 5 nectar elements like panchamrit to deal with climate change. He also discussed about the challenges for project development in the sector of renewable energy.

**The Chief Guest, Dr. Nitin Labhasetwar**, Chief Scientist & Head Energy & Resource Management Division, CSIR-NEERI and Professor AcSIR, highlighted the issues like cleaner energy and sustainability challenges and opportunities, sustainable development global greenhouse gas emission by different sectors. Discuss about 80 challenges solar map photo voltage sale H2 generation, efficient utilisation of noble metals and Nano approach biomass conversion and agriculture engines, black carbon, cooking alternatives.

**The Keynote Speaker**, Ms. Ipshita Nandi Banerjee, Communications and Engendering Lead, United States Energy Association (USEA), USAID's Energy Utility Partnership Program & U.S. Department of State's Women Energy Leaders Program, she focused on the energy-efficient system of India which Bhutan adopts. She also focused on renewable energy in Tanzania and how Tanzania's energy scenario is presently working. She also mentioned Tata Power's national grid control of India. She emphasized women's entrepreneurship in the renewable energy sector, mud-stop cooking smokeless stoves, and a scheme for the government of India for investment.

The **Inaugural session** was concluded by Prof. (Dr.) Kuldip Dwivedi, Head ASLS/ Dept. of EVS, Dy. Dean (Academics) AUMP, Convener IWTARE 2024 given his concluding remarks on this international workshop mentioned the importance of this training session and gave positive takeaways for the professionals, students, scholars, and faculty members.

Lastly, a vote of thanks was given by Vote of Thanks by Dr. Rwitabrata Mallick, Associate Professor EVS, Organizing Secretary IWTARE 2024. More than 300 participants have participated in the workshop.

Total 05 technical sessions on Technological Advancements in Renewable Energy were organized including Inaugural session and Valedictory session from March 18-22, 2024. All participants and students showed enthusiasm in taking part in various sessions. This has helped in broadening the horizons of students and participants with respect to the the current perspectives of renewable technology and has provided a platform to technocrats, experts and academicians for presenting their innovative and constructive ideas at international level.

**The technical Session 1** started at 2:00-4:00 pm chaired by **Prof. (Dr.) Vinay Dwivedi**, Director, Amity Institute of Biotechnology, Amity University Madhya Pradesh.

In this session **Invited Lecture** given by **Dr. Mi Tian**, Senior Lecturer in Low Carbon Engineering, University of Exeter, UK & Member of the Global Sustainability Initiative (GSI) community talked about hydrogen storage in detail.

**Plenary Lecture** was given by **Dr. Rishi Sharma**, Principal Scientist, Semiconductors Sensors, and Microsystems Group, CSIR-CEERI, Pilani on the Development of TiN material and its applications. Both the Lectures were very informative.

**Technical Session 2** of International Workshop on Technological Advancements in Renewable Energy: Current Scenario, Future Perspective and Challenges held on 19th March 2024 (Tuesday). This session was chaired by Prof. (Dr.) Brajendra Shukla, Head, Department of Biotechnology Engineering, Bundelkhand University. Session was Co-Chaired by Dr. Rwitabrata Mallick Associate Professor, Department of Environmental Science, Amity School of Life Science, Amity University Madhya Pradesh, Gwalior Rapporteur was Dr. Nidhi Shukla Assistant Professor, Department of Environmental Science, Amity School of Life Science, Amity University Madhya Pradesh, Gwalior Amity University Madhya Pradesh.

The **first invited speaker** of technical Session 2 was **Dr. Abhay Kumar Pandey** Professor Department of Biochemistry, University of Allahabad. Prayagraj. He gave the lecture on "Redox homeostasis and its regulation by natural products". He elaborates the beneficial role of free radicals, tissue damage by radicals and role of free radicals in gene expression.

Another invited lecture of technical Session 2 by **Prof. Santi Pada Gon Chaudhuri**, Visiting Professor, IEST, Shibpur, Chairman, Energy Expert Committee, Govt. of India. He explains about the renewable energy status of India, special thrust on solar, wind, bio and hydro energy. He explains global scenario of technological advancement and about various conferences, summit based on various renewable energy sources and their applications. He also expresses his views on present status of solar power, hydro power and wind power in India and their projections. He also talked about the bioenergy mission by Gov OF India and emphasis on Green Hydrogen Mission. Lastly, he talks about atmospheric water generation in remote areas.

**Technical Session 3** of International Workshop on Technological Advancements in Renewable Energy: Current Scenario, Future Perspective and Challenges held on 20<sup>th</sup> March 2024, 1400-1700 Hrs. (Wednesday). This session was chaired by Prof. (Dr.) Vikas Srivastava, Coordinator, Amity Institute of Biotechnology, Amity University Madhya Pradesh. This Session was Co-Chaired by Dr. Nidhi Shukla, Assistant Professor II, Department of Environmental Science, Amity School of Life, Amity University Madhya Pradesh, Gwalior and the Rapporteur was Dr. Deep Chakraborty Assistant Professor I, Department of Environmental Science, Amity School of Life Science, Amity University Madhya Pradesh, Gwalior.

The **First Invited Lecture** of 3<sup>rd</sup> technical session was at 1400-1500 Hrs. given by **Prof. S. Balachandran**, Associate Professor, Department of Environmental Science, Visva Bharati University, Santi Niketan, West Bengal. Professor Balachandran spoke about traditional energy fuels, socio economic problem and health related issues related to traditional fuels, he focused on the cow dung and related energy and uses as fertilizer, if focused on different program by government of India on renewable energy specially on biogas energy. He also spoke about the various like technical and institutional for using renewable energy specially biogas and you also suggested policy recommendation.

Another **Invited Lecture** of 3<sup>rd</sup> technical session at 1500-1600 Hrs. given by **Dr. Dharendra Chaudhary**, Head, Centre for Renewable Energy, VBS Purvanchal University Jaunpur, UP. Dr Dharendra Kumar Choudhary spoken about photo voltaic cell, inorganic and organic photo voltage devices different types of nanna composite, semi-transparent solar cell devices, perovskite materials and solar cells synthesized and characterizations. He also discussed about his latest inventions on photo voltaic devices

Last Invited Lecture of 3<sup>rd</sup> technical session at 1600-1700 Hrs of this session given by **Dr. Abhishek Kumar Mishra**, Associate Professor, Department of Physics, UPES, Dehradun Dr. Abhishek Kumar Mishra spoke about carbon capture utilisation and storage different types of catalyst development and challenges.

**Technical Session 4** of International Workshop on Technological Advancements in Renewable Energy: Current Scenario, Future Perspective and Challenges held on 21<sup>st</sup> March 2024, 1400-1700 Hrs. (Thursday). This session was **chaired by Dr. Sandeep Arya**, Institute of Environment and Development Studies, Bundelkhand University, Jhansi, Uttar Pradesh.

This Session was Co-Chaired by Dr. Deep Chakraborty, Assistant Professor, Department of Environmental Science, Amity School of Life Science, Amity University Madhya Pradesh, Gwalior and the Rapporteur was Dr. Abhishek Kumar Bhardwaj, Assistant Professor I, Department of Environmental Science, Amity School of Life Science, Amity University Madhya Pradesh, Gwalior.

First Invited Lecture at 1400-1500 Hrs given by **Dr. Srinivasan Natarajan**, Industrial Hygiene coordinator, TEKFEN Construction and Installation co., Rass Laffan Industrial City, Al Khor, Qatar. He talked about Renewable Energy resources: Current trend and future plan of Gulf Cooperation Council (GCC).

**Prof. Neelam Pathak**, Head of Department Biochemistry, Ram Manohar Lohia Avadh University, Faizabad gave the next Invited Lecture at 1500-1600 Hrs. She explained about food waste and potential fruit waste and its byproducts used as a feed-stocks for biodiesel production. She also discussed about sustainable production of pharmacological, nutraceutical and bioactive resources.

Last Invited Lecture at 1600-1700 Hrs. was given by **Dr. Harendra Tomar**, Business Lead, Sungrow Power Ltd. Gurugram. He discussed the current trend in renewable energy resources.

**Technical session 5, invited lecture** was given by by Prof. Anchal Srivastava, on Basics of Transmission Electron Microscopy and its applications.

**Valedictory Session** was Address by **Guest of Honour, Prof. (Dr.) Sandeep Poddar**, on potentiality of renewable energy in present day scenarios.



**Concluding Remarks** was given by Prof. (Dr.) Kuldip Dwivedi, Head ASLS/ Dept. of Environmental Science, Dy. Dean (Academics) AUMP, Convener IWTARE 2024. After that feedback was given by participants and lastly Vote of Thanks was given by Dr. Rwitabrata Mallick, Associate Professor, Environmental Science, Organizing Secretary IWTARE 2024.

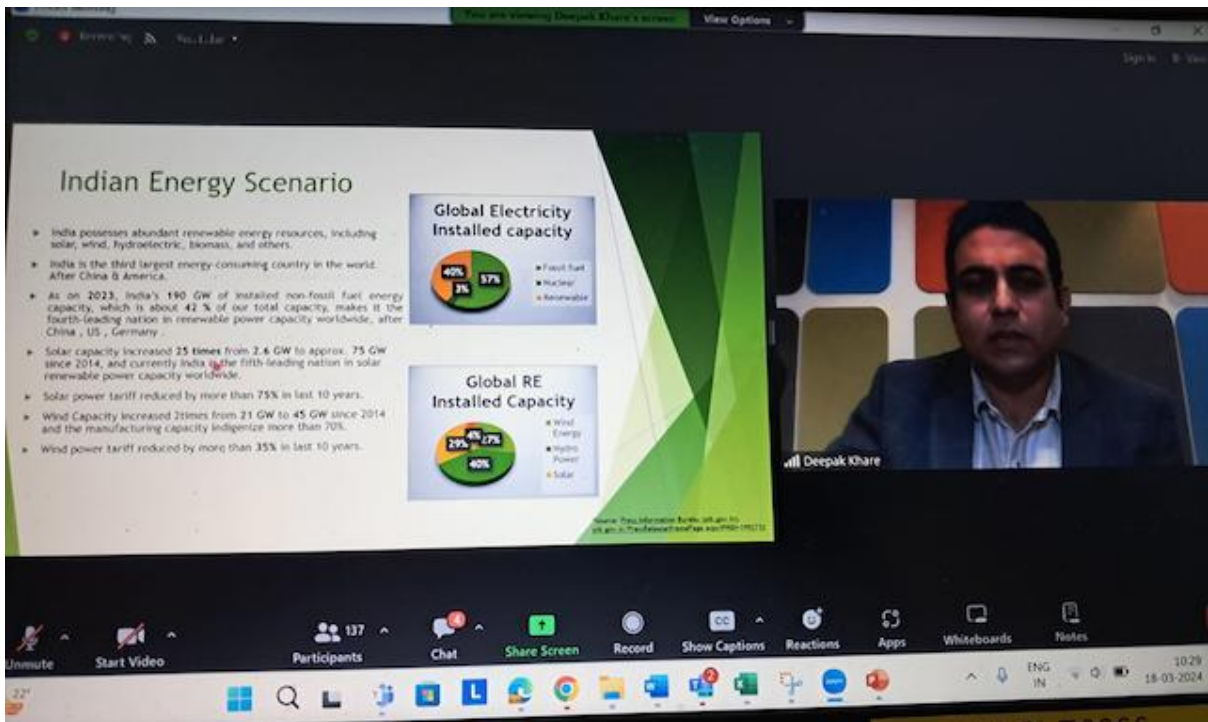
There were 15 invited lectures during the five days by experts from various academic and industrial arenas of national and international repute. All the lecture topics were up to date and needed the hours. Faculty, scholars and students interacted with experts and many fruitful discussions came out of the events.

The screenshot shows a Zoom meeting interface. The main content is a presentation slide titled "Chemical Looping Combustion Clean Coal Energy with Carbon Capture". The slide includes the following text:

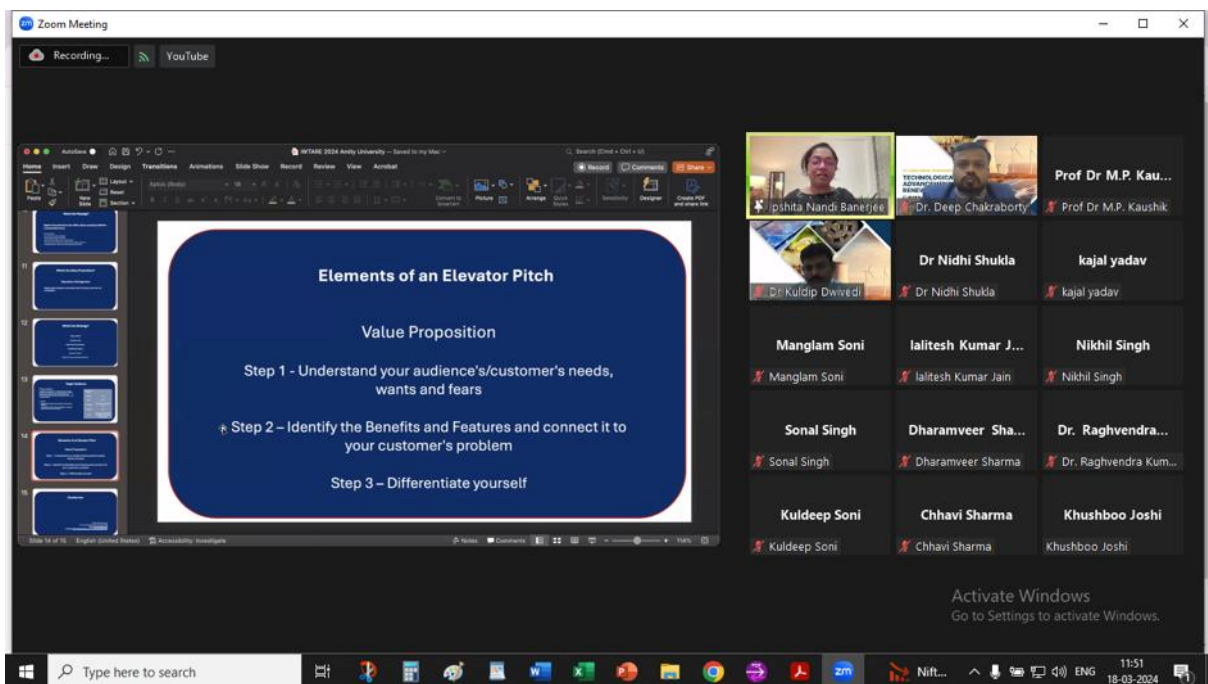
- Carbon dioxide (CO<sub>2</sub>) as the primary greenhouse gas (GHG), accounts for one third of the total CO<sub>2</sub> emissions solely from thermal power plants, would exist continuously in the environment due to the combustion of fossil fuels.
- CLC Advantages**
  - ✓ Provide clean energy by capturing the CO<sub>2</sub> emissions produced from the use of fossil fuels in electricity generation and industrial processes.
  - ✓ Potential to capture up to 90% of the total CO<sub>2</sub> emissions produced.
  - ✓ Off-gases consist of only CO<sub>2</sub> and water from which CO<sub>2</sub> can be easily separated.
  - ✓ Increased the thermal efficiency of the combustion process.
- CSIR-NEERI's Research Contribution**
  - Development of the oxygen carriers (Cu and Mn; Fe and Mn)
  - CLC and CLDU performance of these oxygen carriers tested for 25 cycles using methane/xylen gas, as fuels. CLDU performance evaluated to estimate the oxygen release from oxygen carrier.

The slide also features a diagram of the CLC process and a small circular diagram showing a multi-cycle performance loop involving Cu-Mn<sub>2</sub>O<sub>4</sub> and Cu-Mn<sub>2</sub>O. A video feed of Dr. Nitin Labhsetwar is visible in the bottom right corner of the screen. The Zoom meeting controls and system tray are visible at the bottom.

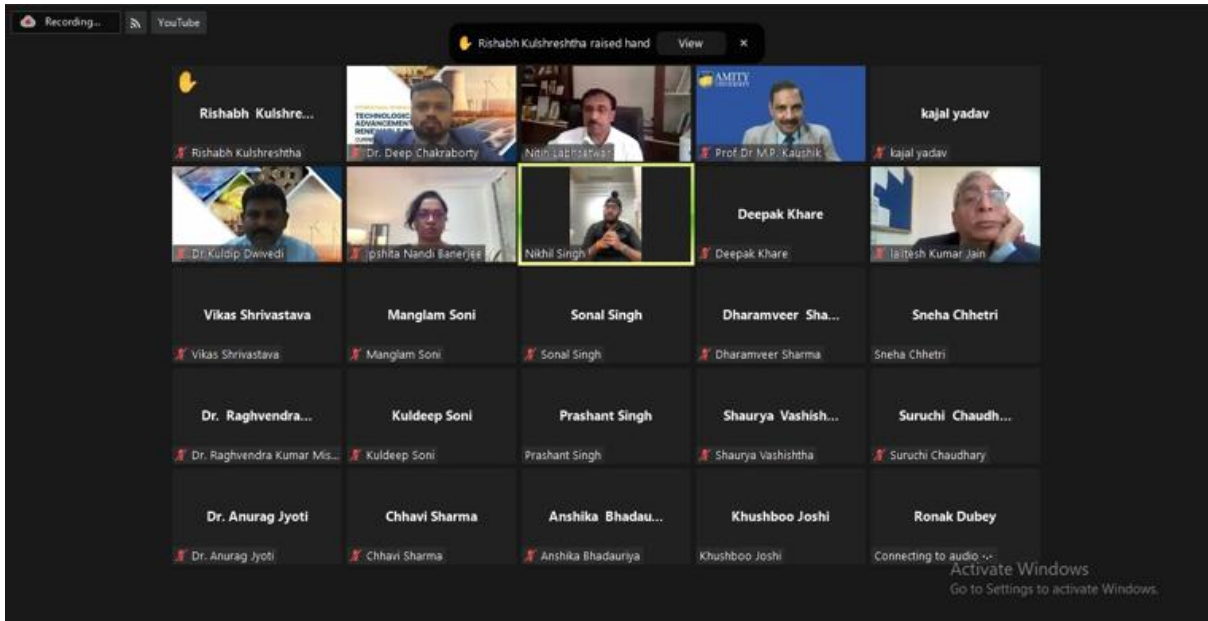
Addressed by Chief Guest, Dr. Nitin Labhsetwar, Chief Scientist & Head Energy & Resource Management Division, CSIR-NEERI and Professor AcSIR



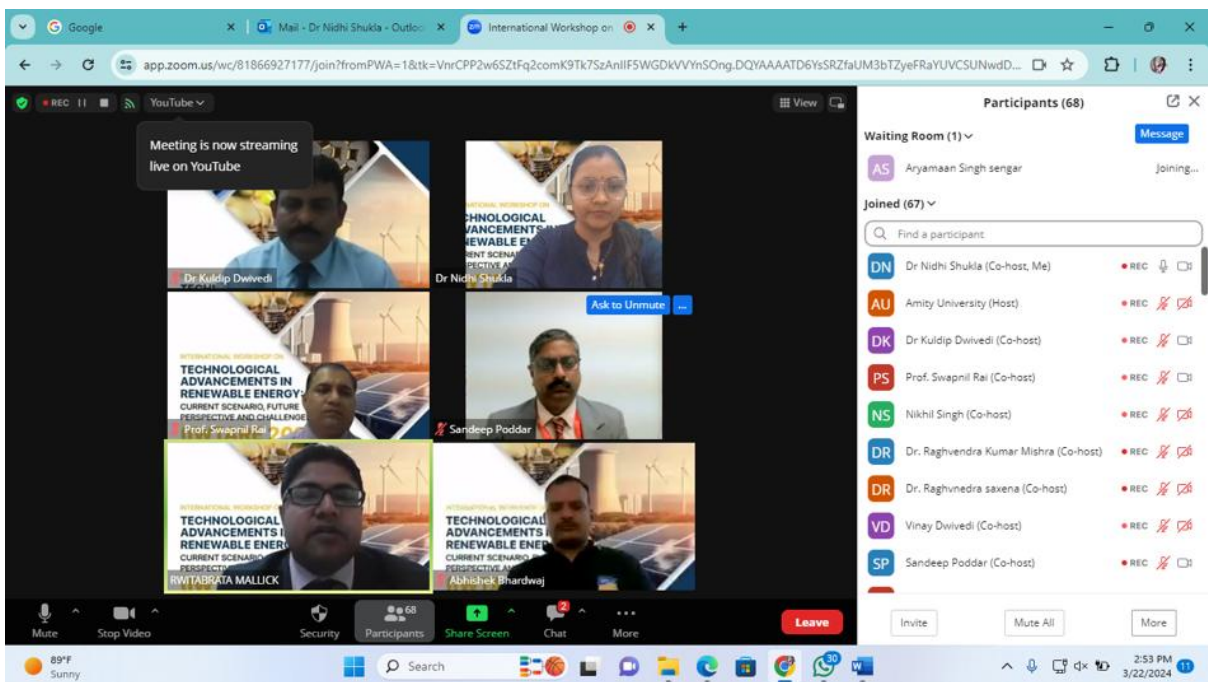
Addressed by Guest of Honour, Dr Deepak Kharre, Head of Projects Blue Pine Energy, Gurugram, Haryana



Keynote address by Ms. Ipshita Nandi Banerjee, Communications and Engendering Lead, United States Energy Association (USEA), USAID's Energy Utility Partnership Program & U.S. Department of State's Women Energy Leaders Program



The Inaugural session was concluded by Prof. (Dr.) Kuldeep Dwivedi, Head ASLS/ Dept. of EVS, Dy. Dean (Academics) AUMP, Convener IWTARE 2024



. This valedictory session was addressed by Guest of Honour, Prof. (Dr.) Sandeep Poddar, Deputy Vice Chancellor (Research & Innovation), Lincoln University College, Malaysia