



**BIOCHEMICAL ENGINEERING
DEPARTMENT**

Presents

EXPERT LECTURE



Dr. Arvind Kumar Mungray

[Associate Professor in Chemical Engineering Department at
National Institute of Technology Surat (SV-NIT)]

Dr. Mungray completed his Ph.D. (Environmental Engineering) from I.I.T. Roorkee, Masters (Chemical Engineering) from IIT BHU Varanasi, and B. Tech. from H. B. T. I. Kanpur (UP).

Topic: Prospects Of Bioelectrochemical Systems
Towards Circular Bioeconomy

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October 31, 2022
(Monday)



11:30 AM

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Address bar: meet.google.com/gqu-pdat-vnp

Meeting interface showing a 3x3 grid of participants:

- Top row: Brajesh Singh, Arvind kumar mungray SVNIT, Shravan Kumar
- Middle row: VAISHNAVI TIWARI betechstudent2020-21@hbtu.ac.in, SHREYA YADAV BTech, BABY SHRUTI SHUKLA M.TECH.
- Bottom row: KAUSHAL KANNAUJIA betechstudent2020-21@hbtu.ac.in, 6 others, You

Right sidebar: People list including Head Bio-Chemical (You), ALANKRITI SINGH mtechs..., APOORVA ANSHU JHA M..., Arvind kumar mungray S..., BABY SHRUTI SHUKLA M..., Brajesh Singh, JIYA SINGH mtechstuden..., KAUSHAL KANNAUJIA be..., KRISHNA SHARMA BTech

System tray: 11:11 PM | gqu-pdat-vnp | 27°C Sunny | 30-10-2022

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Meeting interface showing a presentation slide titled "Linear Economy vs Circular Economy" by Arvind kumar mungray SVNIT.

Linear Economy vs Circular Economy

The key difference is that the linear economy focuses on **profitability**, irrespective of the product life cycle, whereas the Circular Economy (CE) targets **Sustainability**.

In a Circular Economy, waste is the new raw material.
There is no longer the line: produce, consume and then throw it away.

This **saves raw materials, the environment, and reduces CO₂ emissions**. It **stimulates innovation, new business activity and employment**.

Bio-economy is defined as "an economy where the basic building blocks for materials, chemicals, and energy are derived from renewable biological resources."

A bioeconomy is simply a concept of developing an economy which is fueled by bio-based products reducing the dependence on fossil fuels for meeting the energy demand associated with negating climate change.

Diagrams illustrate the Linear economy (Take, Make, Consume, Throw away) and the Circular economy (Reduce, Reuse, Recycle).

Right sidebar: People list including MEGHA RAJPUT betechs..., NAMAN SHARMA betech..., PRANSHU SHARMA hbtu..., RITIK KATIYAR betechstu..., Roma Agrahari, Shakti Katiyar, Shakti Katiyar, Shravan Kumar, SHREYA YADAV BTech, SHIWETA RAJ betechstud..., SIDDHANT VIKRAM AWAS...

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Arvind kumar mungray SVNIT is presenting

General concept of a Circular bio-economy

- Linear economic models have been traditionally employed to produce energy and chemicals, which take finite resources to make valuable products, and then discard remained wastes.
- Such the **'take-make-disposal'** linear model produced substantial amount of industrial and residential wastes, and such the wastes have been considered unavoidable and harmful to our environments and societies, thereby resulting in the incineration and dumping of wastes materials in landfill or wastewater.

Problems or Consequences of linear economy:

- Waste disposal: Water scarcity,
- Solid waste disposal issues, mountains of solid waste sites,
- Contamination of ground water
- Soil infertility, food unavailability, climate change etc.

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11:13 PM | gqu-pdat-vnp

People

- Mute all
- Add people
- Search for people
- In call
- Head Bio-Chemical (You) Meeting host
- AAKRITI SARKAR
- ABHISHEK MISHRA betech...
- ALANKRITI SINGH mtechs...
- AMAN GUPTA betechstud...
- ANSH GOYAL betechstud...
- ANURAG PAL betechstud...
- APOORVA ANSHU JHA M...
- Arvind kumar mungray S...

27 others

20 others

23:13 30-10-2022

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Anvind kumar mungray SVNIT is presenting

Linear bio-economic model of conventional wastewater treatment system

- Since the aim of wastewater treatment is to produce a clean effluent that can be discharged into the surrounding river and stream, preventing pollution.
- Conventional wastewater treatment plants are designed to remove dissolved organic matters, particles, and colloids suspended in the wastewater through multiple process units.
- Sewage treatment plants generally involve:
 - Pretreatment,**
 - Primary treatment,**
 - Secondary and**
 - Tertiary treatments.**

Primary treatment temporarily holds the wastewater in a stationary reservoir to settle down heavy solids to the bottom and to make lighter solids and insoluble liquids such as oils floating. Such the solid wastes are directly collected from the reservoir for incineration, and other organic and inorganic matters toward to the next treatment stage.

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Anvind kumar mungray SVNIT is presenting

Conventional Treatment System

HOW IT WORKS

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ANAEROBIC PROCESS

The diagram illustrates the anaerobic process. On the left, a blue box labeled 'Organic Pollution' has an arrow pointing to the right. Below the arrow is a circle containing the text 'anaerobic microorganisms'. To the right of the arrow, the text 'CH₄ + CO₂' is displayed above the word 'biogas'.

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- Scientist are claiming that Energy and Resources can be produced by Wastewater (domestic) treatment by Anaerobic and Aerobic biological systems.
- Wastewater at STPs are considered as a source of water and after treatment will be sent to municipal corporations.
- What would be the **cost?????**
Who will get this?

And what about its **Sustainability**

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BELLANDUR Lake Toxic Froth

Snow fall in the city

10

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- Add people
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- ALANKRITI SINGH mtechs...
- AMAN GUPTA betechstu...
- ANSH GOYAL betechstud...
- ANURAG PAL betechstud...
- APOORVA ANSHU JHA M...
- Arvind kumar mungray S...
- Arvind kumar mungray S... Presentation
- BABY SHRUIT SHUKLA M...
- Brajesh Singh
- DEVANSH SINGH betechs...

Shravan Kumar

VARSHA YADAV betech...

AAKRITI SARKAR

ANSH GOYAL betechst...

Dilip Kumar BE

27 others

You

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Microbial Fuel Cell (MFC)

(A new approach for wastewater treatment along with energy generation, resource recovery)

47

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People

- Mute all
- Add people
- KAUSHAL KANNAUJIA be...
- KAUSHIK SACHAN BTech
- MEGHA RAJPUT betechs...
- NAMAN SHARMA betech...
- Pravin Sachan
- RITIK KATIYAR betechstu...
- SAMIKSHA SINGH BTech
- Saurabh Sagar
- Shakti Katiyar
- SHASHIKANT BE
- Shravan Kumar

Shravan Kumar

VARSHA YADAV betech...

AAKRITI SARKAR

ANSH GOYAL betechst...

KAUSHAL KANNAUJIA ...

26 others

You

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Meeting title: Arvind kumar mungray SVNIT is presenting

Dr. A. K. Mungray

We welcome energetic and self motivated scholars for Ph.D. positions in our research laboratory "Waste to Energy" Department of Chemical Engineering, NIT Surat, Gujarat

Dr. Alka A. Mungray

Participants visible in grid:

- Arvind kumar mungray
- SHREYA YADAV Btech
- Shravan Kumar
- VARSHA YADAV betech...
- AAKRITI SARKAR
- ANSH GOYAL betechst...
- Brajesh Singh
- 24 others

People

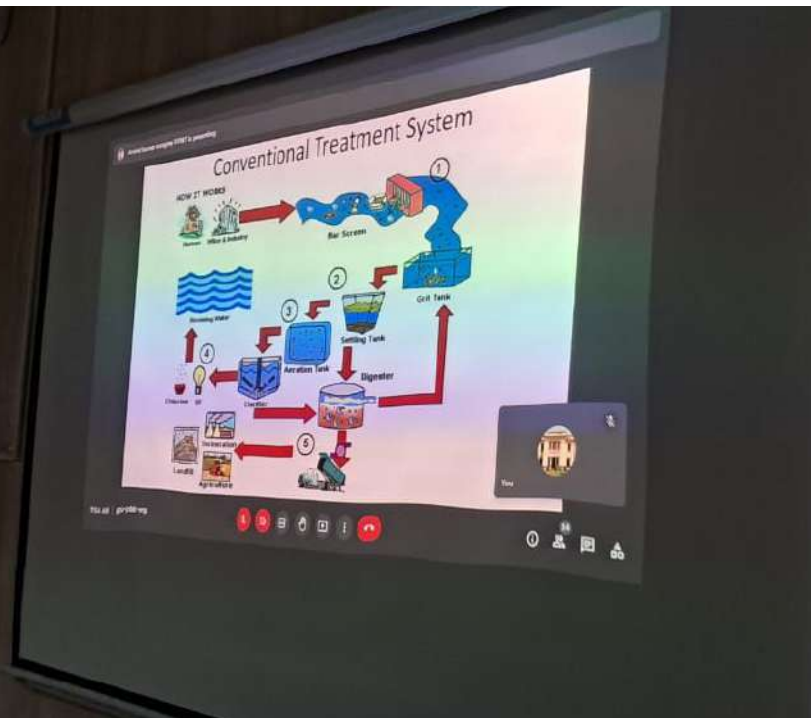
Mute all Add people

- APOORVA ANSHU JHA M...
- Arvind kumar mungray S...
- Arvind kumar mungray S... Presentation
- BABY SHRUIT SHUKLA M...
- Brajesh Singh
- DIVYA TRIVEDI hotu
- GAURI SHUKLA Btech
- HARSHIT YADAV betechst...
- Head Bio-Chemical Meeting host
- JIYA SINGH mtechstuden...
- KAUSHAL KANNAUJIA be...

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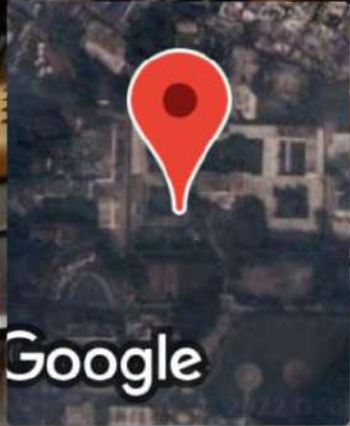
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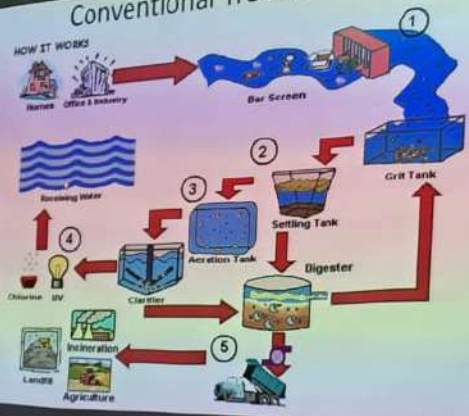
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Conventional Treatment System







 GPS Map Camera

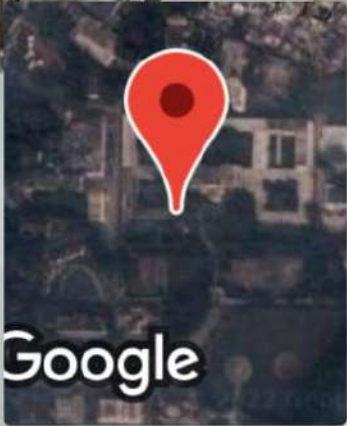
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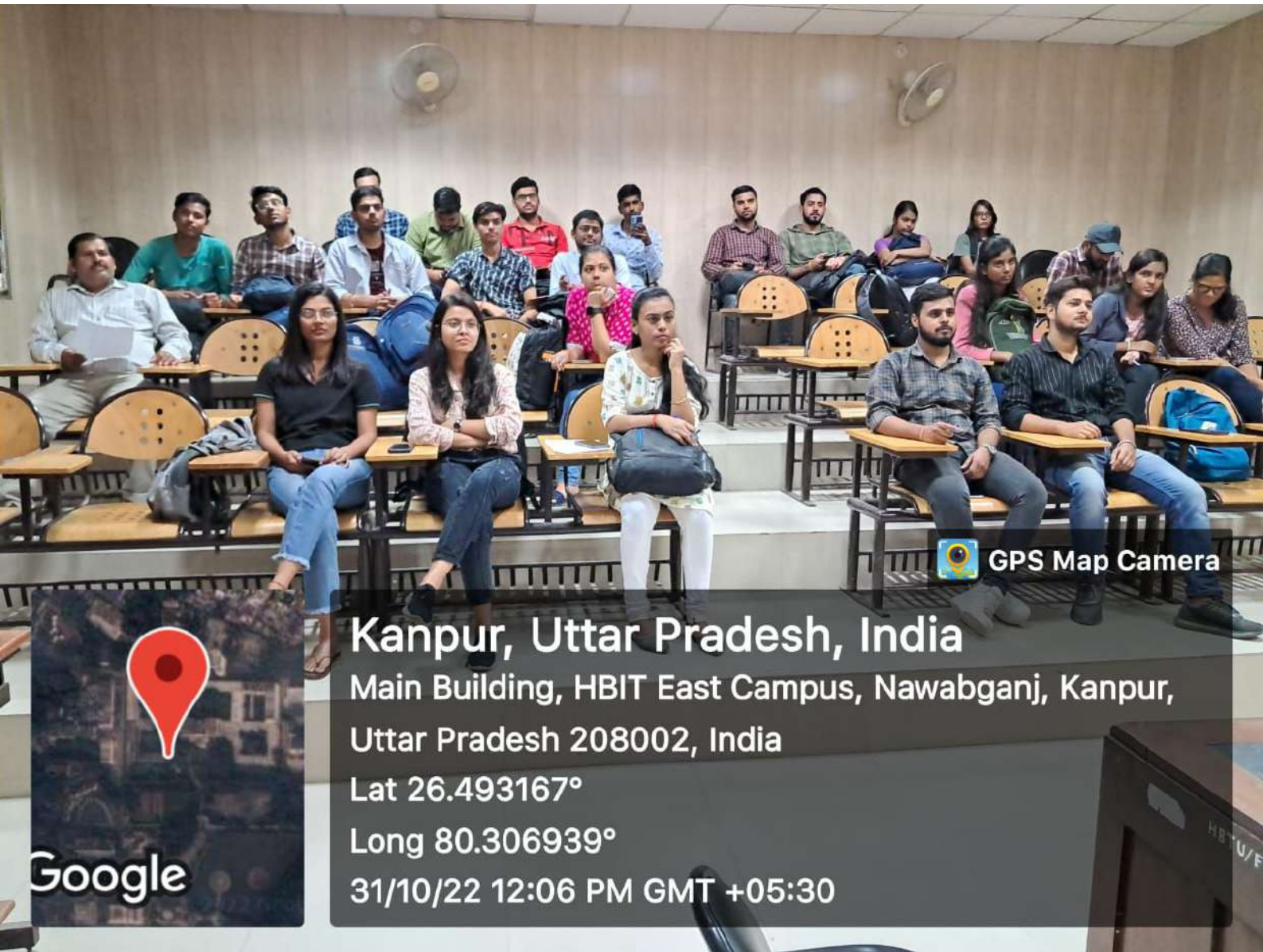
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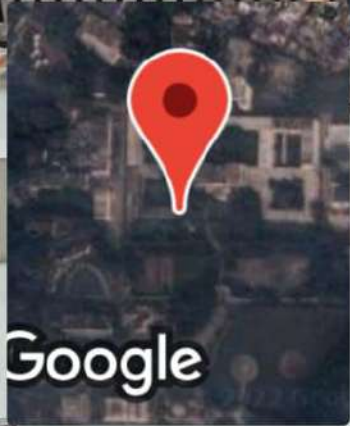
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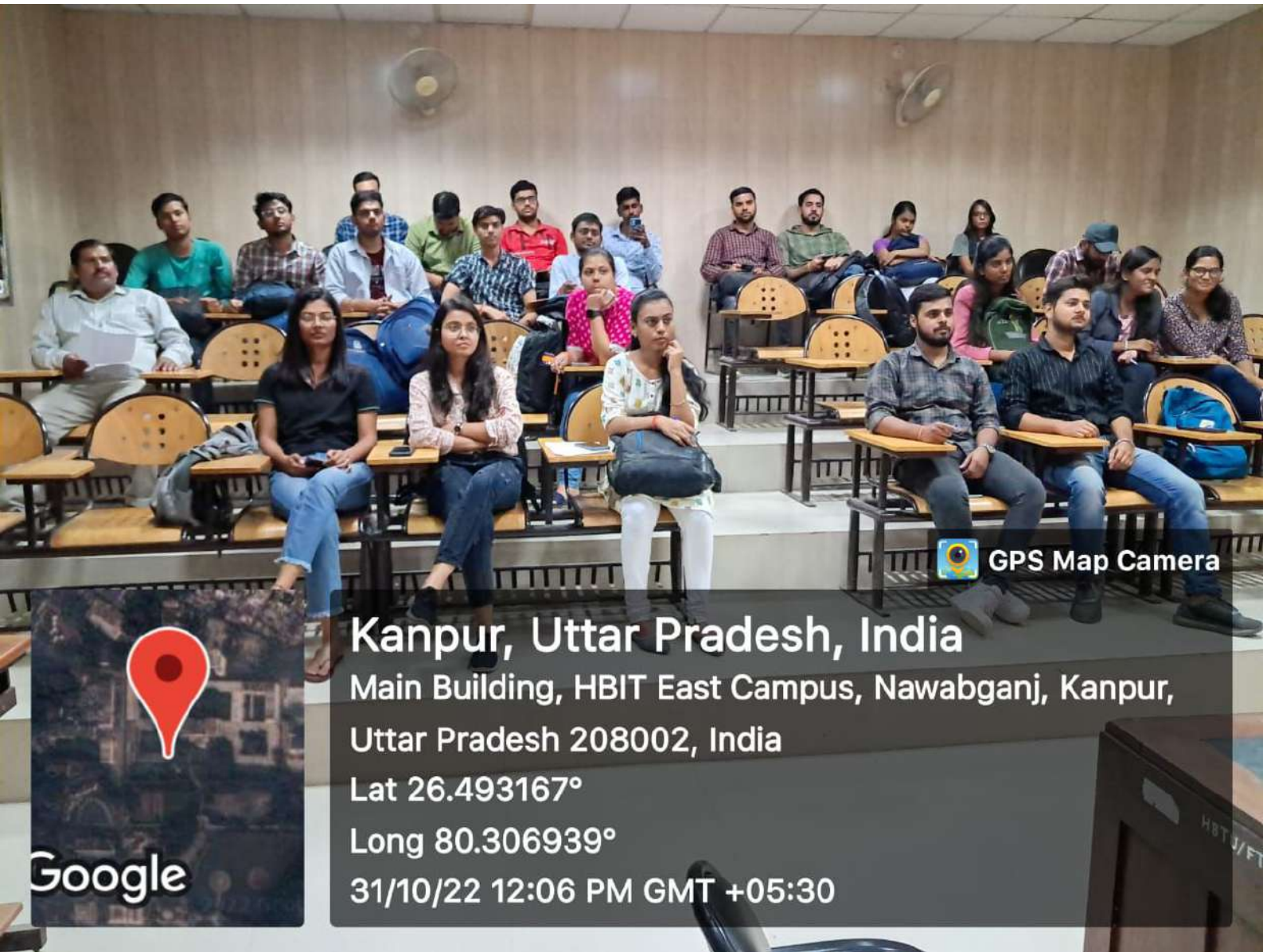
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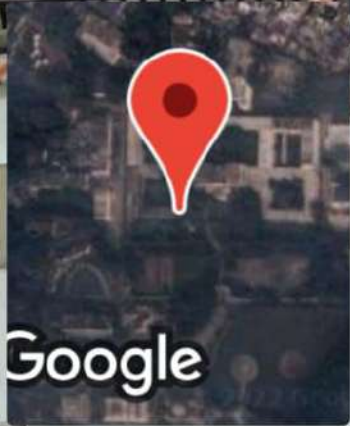
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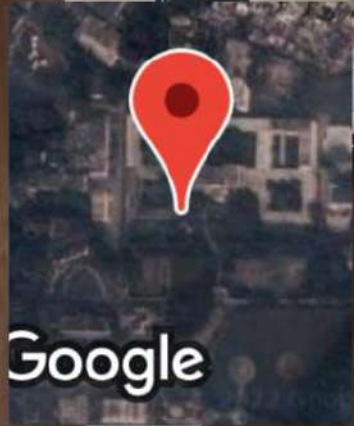
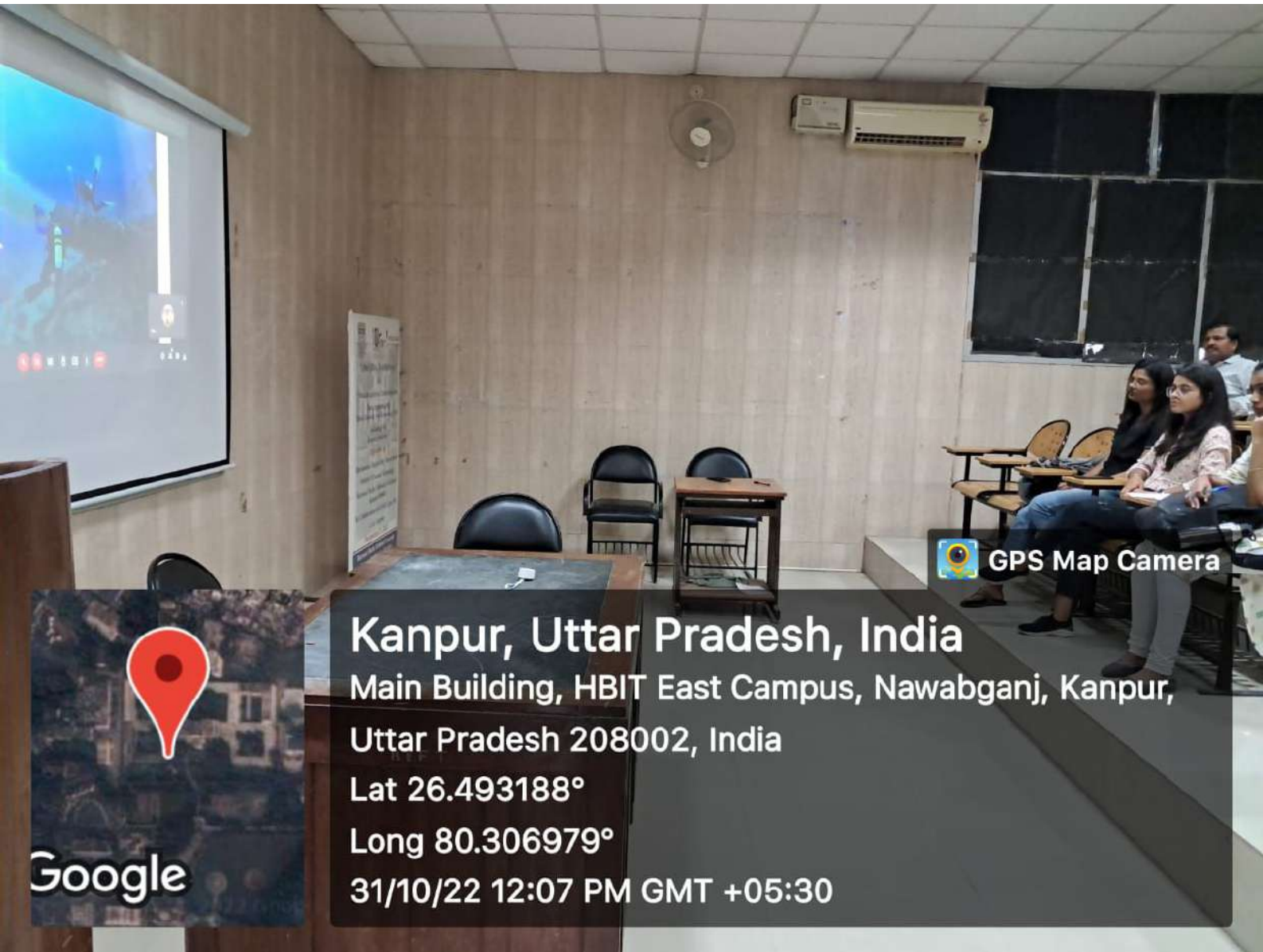
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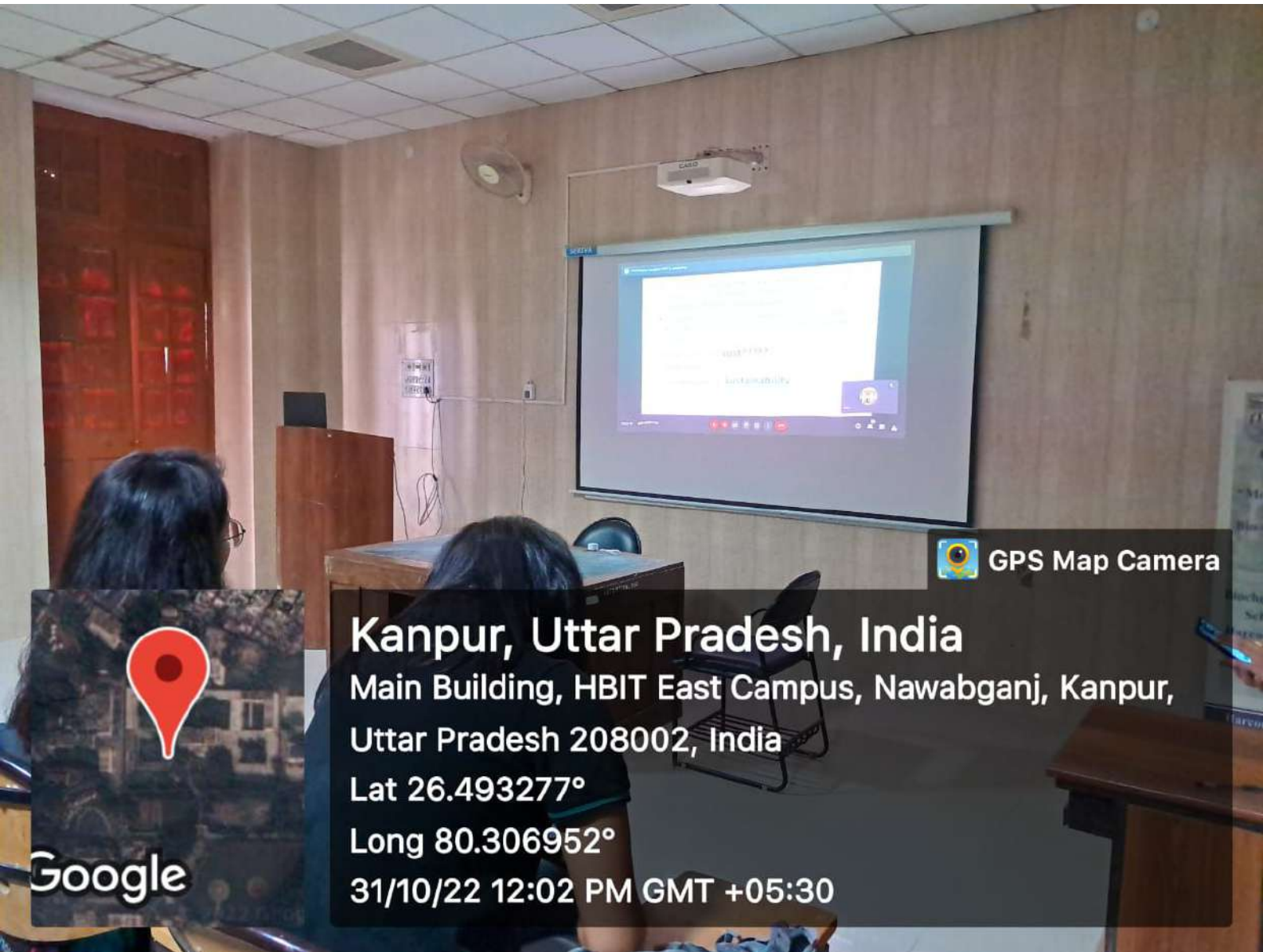
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