

Class Activity

Course: Sustainable Energy System

The class will be divided into small groups to discuss on two very important topics:

1. Climate System and Climate Change
2. Cleaner Technology

The class will be divided into 5 groups consisting of 3-4 students. Each group will be assigned to a specific topic and will be tasked to watch videos and answer questions related to their topic.

At the end, each group will be required to complete a 5-minute presentation explaining their answers and findings to the rest of the class. Students must include proper citation of the sources used to support their explanations.

The list of topics and questions for each group are as follows:

Group 1

Topic: Climate System and Climate Change

Questions:

1. Explain the elements of Earth climate system and how they interact!
2. What are the risks of climate change and the factors driving it?

Group 2

Topic: Climate Adaptation and Mitigation

1. What are the different approaches to addressing climate change - adaptation and mitigation?
2. Discuss examples of climate adaptation and mitigation strategies from supply and demand sides.

Group 3

Topic: International and Indonesia's Commitment and Policy on Climate Change

1. Explain about IPCC, UNFCCC, COP and all the international agreements on climate change.
2. What are Indonesia's policies and commitments on climate change?

Group 4

Topic: Clean Energy Technology - Reforming/Gasification & Coal to Gas

1. How do coal gasification and reforming technologies work and what are the benefits?
2. What is coal to gas and how does it work as a cleaner alternative?

Group 5

Topic: Carbon Capture and Storage (pre-combustion, post-combustion, oxyfuel combustion, BECCS)

1. Explain how carbon capture and storage technologies work and the different types of CCS.
2. What is the state of implementation of CCS worldwide and the challenges?

Climate Change & Mitigation

- Climate System

https://www.youtube.com/watch?v=R18aAiAUW2k&list=PLAHtWWrZTgn-i_U-ft6cjsTj2faylPSJO

https://www.youtube.com/watch?v=nW-s8KXKlzQ&list=PLAHtWWrZTgn-i_U-ft6cjsTj2faylPSJO&index=2

- Climate Adaptation, Resilience and Mitigation

<https://www.youtube.com/watch?v=MGdeXn3YV4w>

- International Commitment and Policy

<https://www.youtube.com/watch?v=O2SHFPn7Giw>

- Indonesia's Commitment

https://www.youtube.com/watch?v=_8U1c7yNfgc

Cleaner Technology

- Hydrogen to Carbon Ratio

<https://www.youtube.com/watch?v=-u8xuylp2Ak>

- Clean fossil technologies:

- Reforming / Gasification

<https://www.youtube.com/watch?v=6c8A9DnZfpQ>

<https://www.youtube.com/watch?v=wtXhe5S-ZCo>

- Carbon Capture

https://www.youtube.com/watch?v=Q06p0B_uIcA

<https://www.youtube.com/watch?v=fC388uNJhUY>

- Gas/coal to liquid

<https://www.youtube.com/watch?v=iXxxtbSujFY>

<https://www.youtube.com/watch?v=sKuDtneurds>