



# RAMCO INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University

Accredited by NAAC & An ISO 9001: 2015 Certified Institution

NBA Accredited UG Programs: CSE, EEE, ECE and MECH

Department of Mechanical Engineering  
Academic Year 2021 – 2022 (Odd Semester)

**Degree, Semester & Branch:** VII Semester B.E. Mechanical  
**Course Code & Title:** ME8072 Renewable Sources of Energy  
**Name of the Faculty member(s):** Mr.R.Arun Kumar, AP/Mechanical

## Innovative Practice Description

- **Unit / Topic:** Unit I / Introduction
- **Course Outcome:** CO1
- **Topic Learning Outcome:** TLO1
- **Activity Chosen:** Virtual Lab Utilization
- **Justification:**

The concept of global warming is taught only theoretically over the year, by which the students may not understand in deep. The simulation explains how the photons from solar radiation are converted into infrared photons along with the impact in rising of environmental temperature. The inbuilt greenhouse concentration comparison between Ice Age, mid of 18th century and present will help me in making the students understand the impact of greenhouse gases on global warming. When we say orally that the global temperature had risen by 1.5°C to 2 °C in the past 100 years, it doesn't create much impact among students. But if we visually show them the rise in temperature and the reason through this simulation, they can realize the seriousness of global warming.

- **Time Allotted for the Activity:** 20 minutes
- **Details of the Implementation:**

The concept was taught theoretically first and then the simulator was used to explain the concept through visual mode. The students were explained the concept through the simulator by how the infrared photons are absorbed by atmospheric gases. This will enable us to make the students understand how traces of carbon atoms and water vapor molecules influence global warming when compared with largely available nitrogen and oxygen.

- **CO – PO / PSO mapping:**

CO	PO6	PO7	PO8	PO9	PO10	PO12
CO1	3	3	1	3	3	2

(1 – Low      2 – Moderate      3 – High)

- **PO / PSO mapping:**

CO	PO7 (Environment & Sustainability)	PO10 (Communication)
CO1	3	1
<b>Justification</b>	Need for renewable energy technology & impact of GHG emission is taught to the students	Students are explained the concept which involves oral mode of communication; hence correlation is at level 1

(1 – Low      2 – Moderate      3 – High)

- **Images / Screenshot of the practice:**



- **Reflective Critique:**

- ❖ **Feedback of practice from students and other stakeholders:**

Based on the oral feedback collected from the students, they expressed their satisfaction about the simulation tool and suggested to continue further for the next batches too.

- ❖ **Benefit of the practice:**

Students have attended the Q.No.8 in IAT I which is related to effects on environment due to energy consumption and scored considerable marks. This could have been an impact of understanding through this practice.

**References:** <https://phet.colorado.edu/en/simulations/greenhouse>