

Renewable Energy Engineering Practices

- 1.1 Course Number: CH112
- 1.2 Contact Hours: 1-0-2 Credits: 5
- 1.3 Semester-offered: 1st Year-even
- 1.4 Prerequisite: Basic knowledge of Physics and Chemistry
- 1.5 Course Committee Members: DUGC

2. Objective:

The objective of this course is to give an overview of chemical industry to chemical engineering students in their B. Tech. program and motivate. The course is designed to have lectures based on introduction to basic practices in chemical engineering profession.

3. Course Content:

Unit-wise distribution of content and number of lectures

Unit	Topic	Lectures
1	Determination of flash point and fire point of liquid fuels	1
2	Biogas production and monitor the stability of the digester by FOS/TAC Ratio	1
3	Photovoltaic thermal hybrid solar collector	1
4	Determination of calorific value of solid biomass.	1
5	Estimation of thermal conductivity of a material using Fourier's law	1
6	Performance test of fuel cell	1
7	Determination of calorific value of liquid biomass	1
8	Biodiesel production from liquid biomass	1
9	Determination of the viscosity of liquids using Ostwald viscometer	1
10	Cloud point detection for a model fuel (benzene-xylene mixture)	1

4. Readings

4.1 Reference Books:

- 1. Unit Operations of Chemical Engineering by Warren McCabe, Julian Smith, Peter Harriott, 7th Edition, McGraw-Hill
- 2. Unit operations by G.G. Brown, CBS Publisher

- 5. **Outcome of the Course:** The students will learn the basic applications of the chemical engineering discipline through simple experiments. These experiments will cover some of the commonly applied principles and practices of the profession.