



Course Descriptor

ENEN 4001 Renewable Energy

ACADEMIC YEAR	2021-2022	SEMESTER	Spring
Course Code	ENEN 4001	Course Title	Renewable Energy
Credit hours	4	Level of study	Undergraduate
College / Centre	Engineering	Department	Built Environment
Co- & Pre-requisites		Co-requisites	

1. COURSE OUTLINE

Introduction to Renewable energy principles and their environmental impacts. Understand renewable energy design challenges and future trends. Introduce current renewable energy current technologies such as, Solar Energy, Wind Energy, Biomass, Hydropower, ... etc. •

2. AIMS

On this course you will receive an overview of underlying technological principles of renewable energy. Including solar energy, biomass, hydro, wind, wave tidal and geothermal energy sources. You will gain an understanding of some of the techniques involved in analysis of the economics of renewable energy.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS (Indicative)

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
1. Assess the principal of different forms of renewable energy currently in use and under development	Lecture/ group discussion	Assignments + Exams
2. Ability of interpreting the principal of using different forms of renewable energy such as solar, wind, geothermal, hydropower and biomass etc.	Lecture/ site visit/ video	Assignments + Exams
3. Ability to evaluate the global primary and electricity requirement along with a cost benefits analysis of different renewable energy projects.	Lecture/ group discussion	Assignments + Exams
4. Evaluate the technological, economic, social, environmental and policy issues associated with renewable energy	Lecture/ case study	Assignments + Exams

4. ASSESSMENT WEIGHTING



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Assessment	Percentage of final mark (%)
Assignments	20%
Mid term	40%
Final Exam	40%
TOTAL	100%

5. ACHIEVING A PASS

Students will achieve **4** credit hour for this course by passing **ALL** of the course assessments (*Assignments, Quiz, Midterm and Final examinations*) and achieving a **minimum overall score of 50**.

6. COURSE CONTENT (Indicative)

WEEK	LECTURE TOPIC	TIME (HOURS)
1+2	Introduction to Renewable Energy	
3	Solar thermal Energy	
4+5	Solar photovoltaics	
6	Bio-energy	
7	Hydroelectricity	
8+9	Tidal power	
10	Wind Energy	
11+12	Wave Energy	
13+14	Geothermal Energy	
15	Integrating Renewable Energy	
	TOTAL HOURS	60
1 - 15	Plus RECOMMENDED INDEPENDENT STUDY HOURS	120
	TOTAL COURSE HOURS	180

7. RECOMMENDED READING

Renewable Energy: Power for a Sustainable Future, 4rd Edition, Edited by Stephen Peake (2018) Oxford University Press.

Aidan Duffy, Martin Rogers and Lacour Ayompe (2015)
Renewable Energy and Energy Efficiency
Wiley Blackwell, Oxford.



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Library + online resources:

<https://www.oercommons.org/courses/sustainable-energy-without-the-hot-air/view>

<https://en.unesco.org/themes/building-knowledge-societies/oer>