SEE8123: ENERGY AND ENVIRONMENTAL ECONOMICS

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Energy and Environmental Economics

Subject Code
SEE - School of Energy and Environment
Course Number
8123

Academic Unit
School of Energy and Environment (E2)

College/School
School of Energy and Environment (E2)

Course Duration
One Semester

Credit Units
3

Level
R8 - Research Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

This course aims to introduce students a set of economic concepts that economists use to understand energy and environmental issues, and use the concepts to analyze energy and environmental problems, and to model their solutions. They will understand the economic principles and practices behind the use of market and policy instruments, including command-and-control regulation, tax and emission trading, to conserve energy resources and to control environmental impacts. They will be able to apply innovative solutions to tackle energy and environmental problems.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Identify describe and clarify economic concepts that are relevant to energy and environment problems	30	x	x	
2	Apply the economic concepts to energy and environmental problems and model their solutions	30	x	x	
3	Design and critically evaluate from an economic perspective public policies associated with energy and the environment	20		x	x
4	Understand and be able to join intellectual discussions as an aid in the discovery of innovative applications of economics to energy and the environment	20		x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Interactive lectures	Explaining the basics of energy and environmental economics as well as some recent developments	1, 2, 3, 4	3h/week
2	Assignment	Application of the knowledge obtained during the lectures and material to generate discussions on energy and environmental issues	1, 2, 3, 4	1h/week

3	Term paper	Identifying an issue related to energy and the environment and analysing the nature and characteristics of the issue	1, 2, 3, 4	0.5h/week

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Assignment	1, 2, 3, 4	30	-	No
2	Term paper	1, 2, 3, 4	30	-	No

Continuous Assessment (%)

60

Examination (%)

40

Examination Duration (Hours)

2

Minimum Continuous Assessment Passing Requirement (%)

30

Minimum Examination Passing Requirement (%)

30

Additional Information for ATs

To pass a course, a student must do ALL of the following:

a. obtain at least 30% of the total marks allocated towards coursework (combination of assignments, pop quizzes, term paper, lab reports and/ or quiz, if applicable);
b. obtain at least 30% of the total marks allocated towards final examination (if applicable); and

3. meet the criteria listed in the section on Assessment Rubrics

Assessment Rubrics (AR)

Assessment Task

Assignment (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to analyse and solve problems related to energy and environmental economics.

Excellent

(A+, A, A-) High

Good

(B+, B, B-) Significant

Fair

(C+, C, C-) Moderate

Marginal

(D) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
Group work (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion
Ability to analyse and solve problems related to energy and environmental economics.

Excellent
(A+, A, A-) High

Good
(B+, B, B-) Significant

Fair
(C+, C, C-) Moderate

Marginal
(D) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
Examination (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion
Ability to analyse and solve problems related to energy and environmental economics.

Excellent
(A+, A, A-) High

Good
(B+, B, B-) Significant

Fair
(C+, C, C-) Moderate

Marginal
(D) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
Assignment (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
Ability to analyse and solve problems related to energy and environmental economics.

Excellent
(A+, A, A-) High

Good
(B+, B) Moderate

Marginal
(B-, C+, C) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
Group work (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
Ability to analyse and solve problems related to energy and environmental economics.

Excellent
(A+, A, A-) High

Good
(B+, B) Moderate

Marginal
(B-, C+, C) Basic

Failure
(F) Not even reaching marginal levels

Assessment Task
Examination (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion
Ability to analyse and solve problems related to energy and environmental economics.

Excellent
(A+, A, A-) High

Good
(B+, B) Moderate

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(B-, C+, C) Basic

Failure
(F) Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

-Economics and the environment (including basic economics)
-Externalities
-Public goods
-Property rights
-Instruments for environmental policy (command-and-control regulation, tax and emission trading)
-Economic valuation
-Climate change
-Renewable resources
-Energy economics
-Innovation

Reading List

Compulsory Readings

	Title
1	Jonathan M. Harris and Brian Roach, Environmental and Natural Resource Economics: A Contemporary Approach, Fourth Edition, Routledge (2018).
2	Tom Tietenberg and Lynne Lewis, Environmental and Natural Resource Economics, 10th Edition, Routledge (2016).
3	Perman R., Ma Y. and McGuilvray J. : Natural Resources and Environmental Economics, Pearson Education 3rd ed., 2011

Additional Readings

	Title
1	Stephen Smith, Environmental Economics: A Very Short Introduction, Oxford University Press (2011).
2	Robert Falkner, ed., The Handbook of Global Climate and Environmental Policy, Wiley-Blackwell (2016).
3	Christine Greenhalgh and Mark Rogers, Innovation, Intellectual Property, and Economic Growth, Princeton University Press (2010).
4	J.D. Angrist and J.S. Pischke, Mastering 'Metrics: The Path from Cause to Effect, Princeton University Press, 2015(MM).