SEE2204: PRINCIPLES OF SUSTAINABILITY

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Principles of Sustainability

Subject Code
SEE - School of Energy and Environment
Course Number
2204

Academic Unit
School of Energy and Environment (E2)

College/School
School of Energy and Environment (E2)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract
The course aims to introduce students from a science and engineering background to the discipline of Sustainability. This course gives students an understanding of sustainability investigating the complexity and links between the environment

as investigated by the physical sciences and sustainable development as understood through the study of social systems. Students learn about the different ways in which "sustainability" is defined and understood, by different disciplines and professionals. The notion of sustainability is the subject of intense debate. The historical context and background of environmental protection, values and thought is presented.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Discuss the evolution of sustainability as a concept that can be applied to the field of environmental engineering and science.		x		x
2	Analyse why environmental decision making requires more than just scientific information but is influenced by society, values, culture and economics.		x	x	
3	Critically evaluate and communicate different views on sustainable practice.		x	x	
4	Critically reflect on professional practice strategies that support sustainable development.			x	x
5	Apply principles of Sustainability.				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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Explain key theories and concepts of Sustainability	1, 2, 3, 4, 5	2
2	Tutorial	Learn through case studies the application of theory to real world examples of environmental science	1, 2, 3, 4, 5	1

3	Analysis	Apply the taught environmental system analytical tools to analyse the comprehensive economic, environmental and societal benefits and trade-offs derived from an environmental issue or policy makings. Apply case studies and real world examples to illustrate and verify the arguments and analysis.	1, 2, 3, 4, 5	3

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignment	1, 2, 3, 4, 5	60	a) Three assignments on analytical tools application (5, 5 and 15 marks); b) One assignment on policies (10 mark); c) Two integrated assignments (combining calculation, policies and case studies), 10 and 15 marks

Continuous Assessment (%)

60

Examination (%)

40

Examination Duration (Hours)

2

Additional Information for ATs

Examination duration: 2 hrs
*Examinations will be in the format of a number of quantitative and qualitative questions & quizzes. The former will test the ability of applying taught analytical tools for calculation and analysis, on certain sustainability issue; the later will test the understanding and critical thinking on the principles of sustainability, why and how environmental decision making requires more than just scientific information but is influenced by society, values, culture and economics, by applying theories, case studies and arguments.

Percentage of coursework, examination, etc.: 60% by coursework; 40% by exam

To pass a course, a student must do ALL of the following:
1) 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);
2) 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

Criterion
Capacity to apply the principles of sustainability to discuss and analyse social, environmental and economic issues

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal level

Assessment Task
Examination

Criterion
Capacity to apply the principles of sustainability to discuss and analyse social, environmental and economic issues

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Marginal (D)
Basic

Failure (F)
Not even reaching marginal level

Part III Other Information

Keyword Syllabus
Sustainability; Environmental Science and Engineering; Defining Sustainability; Sustainable Development; Metrics of Sustainability; Ethics and Values in Sustainability Thought; Corporate Sustainability Reporting; Sustainability Management.

Reading List

Compulsory Readings

	Title
1	The principles of sustainability. Simon Dresner. London ; Sterling, VA : Earthscan, 2008
2	Environmental issues: an introduction to sustainability McConnell, Robert L. Prentice Hall, c2008.
3	Environmental Science: Earth as a Living Planet, 9th Edition. Daniel B. Botkin, Edward A. Keller. February 2014
4	Principles of environmental sciences. Jan J. Boersema, Lucas Reijnders, editors. Springer e book 2009

Additional Readings

	Title
1	Nil