

Syllabus [2025Year 2 Term]

Course Information

Course Title	Energy and Environmental Science	Credits	3
Course Code	564090-1	Required/Elective (For Undergraduate Courses)	
Department or Major	Department of International Business Administration	Language	English
Methods of Teaching		Lecture Room	화9,10,11/ 목4,5,6(국제402)
Time Allotment	Lecture(3) Experiments(0) Trainging & Practice(0) Performance(0) Designing & Planning(0)	Cyber Lectures	
Course Type	offline		
Cyber Lectures Preview			

Lecturer

Lecturer	Name	Haegyun Lee	Rank	Professor	Final Academic Degree	공학박사
	Department & college	Department of Civil and Environmental Engineering		Office	College of Engineering – Building 1 206	
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	Field of Interest					

Course Summary

Course Description	Energy and the environment maintain the world we live in and, at the same time, are indispensable for us. In order to prepare for depleting resources, scientific and engineering researches have been carried out in various fields even at this moment. This course introduces these concepts based on scientific principles. This lecture begins with a general introduction to energy and the environment, and explains basic concepts of basic thermodynamics, fossil fuel, and nuclear power generation. The lecture concludes with a brief introduction on renewable energy and environmental pollution.
Description Related Courses	N.A.
Course Goals	N.A.

Projected Results	Goals You will have a general understanding of the importance of energy and the environment, and be able to explain basic concepts of basic thermodynamics, fossil fuels, and nuclear power generation. You will also be able to explain renewable energy and environmental pollution.
Percentage of the original language classes (%)	100%
Cyber Lectures Preview	

Syllabus

Times	Lecture Topic	Lecture Goals	Lecture Methods	Assignments
1	Introduction: Energy and environment		강의,	
2	Use and supply of energy		강의,	
3	Thermodynamic principles of energy conversion – Forms of energy, thermodynamic laws		강의,	
4	Thermodynamic principles of energy conversion – Thermodynamic cycle, fuel cell		강의,	
5	Power generation, transmission, transformation, and storage of electric energy		강의,	
6	Fossil fuel power generation – Main principles		강의,	
7	Fossil fuel power generation – Combined cycle power		강의,	
8	Nuclear power generation – Radioactivity and nuclear reactors Midterm Exam		강의,	Midterm exam is planned.
9	Nuclear power generation – Nuclear fuel cycle, nuclear fusion		강의,	
10	Renewable energy – Hydropower, geothermal power		강의,	
11	Renewable energy – Wind power, tidal power, wave power		강의,	
12	Fossil fuels and environmental impact – Air pollution		강의,	
13	Fossil fuels and environmental impact – Water pollution		강의,	
14	Global warming – Greenhouse effect		강의,	
15	Global warming – Reduction of carbon dioxide Final Exam		강의, Final exam is planned.	

Methods of Grading

sequence	Description	Percentage	Details
1	Mid-term Exam	30%	
2	Final-exam	40%	
3	Pop Quizzes	0%	
4	Assignments	10%	
5	Reports	0%	
6	Presentations & Discussions	0%	
7	Attendance	20%	
8		0%	
9	Others	0%	
All		100%	

Core of Value

핵심가치	핵심역량	하위역량	역량정의	역량구분	값 (%)
혁신 (Discovery)	문제해결 (Deliberation)	분석력 창의력 종합적 사고력	문제상황을 명확하게 이해하고 체계적으로 분석하여 창의적으로 해결할 수 있는 능력	부역량	20%
혁신 (Discovery)	전문지식 (Knowledge)	탐구능력 논리적 사고력 전문지식/기술	전공분야 지식과 기술, 그리고 관련된 다양한 정보를 활용하여 논리적으로 사고하고 탐구하는 역량	주역량	30%
헌신 (Dedication)	세계시민 (Universal value)	외국어능력 다문화 수용능력 공감능력	세계 각지의 다양한 언어, 문화, 역사에 대한 이해를 바탕으로 글로벌 이슈에 대응할 수 있는 능력		10%
헌신 (Dedication)	협력.헌신 (Dedication)	대인관계능력 협업 능력 공동체 의식	공통의 목적과 가치를 위해 개방적인 태도와 균형 잡힌 시간으로 서로 돕고 헌신할 수 있는 능력		10%
능동 (self-Determination)	자기주도 (maNagement)	독립성 성찰 능력	자기 스스로 목표를 세우고 목표를 달성하기	부역량	20%

핵심가치	핵심역량	하위역량	역량정의	역량구분	값(%)
		자기개발능력	위해 주체적으로 실천할 수 있는 능력		
능동 (self-Determination)	의사소통 (Articulation)	표현력 이해력 조정력	언어 또는 다양한 매체를 활용하여 다른 사람들과 효과적으로 상호작용할 수 있는 능력		10%

Textbook(s) & References

Description	Title	Author	Publisher
Required Textbook	Energy and the Environment	J. A. Fay and D. S. Golomb	Oxford University Press
Recommended Textbook	Sustainable Energy & without the hot air	D. J. C. MacKay	UIT
Recommended Textbook	ENERGY: From Nature to Man	W. C. Reynolds	McGraw-Hill, Inc.

Memo

N.A.