MARMARA UNIVERSITY - Faculty of Engineering

Environmental Engineering

SYLLABUS

2022-2023 Spring Semester

Course Code	Course Name	Course Type	Weekly Course Hours T	A	L	Credits	ECTS	Weekly Time & Classroom Schedule
ENVE 4062-1	Energy and the Environment	FTE	3	0	0	3	5	Wednesday 10:30-12:20, Thursday 13:00-13:50
Prerequisite		Prerequisite to						

Course Lecturer	Prof. Dr. S. Sinan Keskin	Office Hours Schedule	Any time by e-mail or on demand by zoom
E-mail	sinankeskin@marmara.edu.tr		
Phone	(0216) 777 3609	Office / Room No	M4-120
Teaching Assistant		Phone	
E-mail		Office / Room No	

Course Objectives

An introductory course covering energy related physical concepts, nonrenewable and renewable energy production, energy efficiency and conservation, energy use in transportation, and environmental effects of energy related activities.

Learning outcomes

- To have knowledge about basic concepts of energy.
- To have knowledge about fossil fuel types, resources, production techniques.
- To have basic information about heat engines.
- To have knowledge about renewable energy sources and production techniques.
- To have knowledge about nuclear fuels, nuclear power plants, and used fuel storage.
- To have basic knowledge about energy efficiency and energy conservation.
- To have basic knowledge about air pollution sources, pollutant types, and their effects.
- To have basic knowledge about the global climatic effects of energy production activities.

Textbooks and/or References

1	Enegy and the Environment, 2nd Ed., Robert A. Ristinen and Jack P. Kraushaar, John Wiley & Sons Inc., 2006.
2	Energy and the Environment: Scientific and Technological Principles, J. A. Fay and D. S. Golomb, Oxford University Press, 2011.

Teaching methods: Slide presentations

WEEK	Date	TOPICS		Reference No - Section
Week 1	01/03/2023	Energy fundamentals, energy use in an industrial society.		1-1.1, 1.2, 1.3, 1.4, 1.5
Week 2	08/03/2023	Energy fundamentals, energy use in an industrial society (cont.).		1- 1.6,1.7, 1.8, 1.9
Week 3	15/03/2023	The fossil fuels.		1- 2.1, 2.2, 2.5, 2.7, 2.8, 2.9
Week 4	22/03/2023	The fossil fuels (cont.).		1-2.11, 2.12, 2.13, 2.14, 2.15
Week 5	29/03/2023	Heat engines		1- 3.1, 3.2, 3.3, 3.4, 3.5
Week 6	05/04/2023	Heat engines (cont.) / Renewable energy systems-Solar energy		1- 3.6, 3.7, 3.8, 4.1, 4.2, 4.3
Week 7	12/04/2023	Renewable energy systems-Solar energy (cont.) / Alternatives		1- 4.4, 4.5, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4
Week 8	19/04/2023	Midterm Exams (Tentative)		
Week 9	26/04/2023	Renewable energy systems- Alternatives (cont.)		1- 5.5, 5.6, 5.7, 5.8, 5.9, 5.10
Week 10	03/05/2023	The promise and problems of nuclear energy		1- 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8
Week 11	10/05/2023	The promise and problems of nuclear energy (cont.)		1- 6.9, 6.11, 6.12, 6.13, 6.14, 6.15
Week 12	17/05/2023	Energy conservation		1- 7.1, 7.2, 7.3, 7.4
Week 13	24/05/2023	Transportation		1- 8.1, 8.2, 8.3
Week 14	31/05/2023	Air pollution		1- 9.2, 9.3, 9.4, 9.5, 9.6, 9.7
Week 15	07/06/2023	Air pollution (cont.) & Global effects		1- 9.8, 9.9, 9.10, 10.1, 10.2, 10.3
Week 16	14/06/2023	Final Exams (Tentative)		

Evaluation Tools

Evaluation Tool	Quantity	Date	Weight in Total (%)	Weight in Semester Evaluation (%)
Final Exam	1		40	0
Final Make-up Exam (if	1			
Semester Evaluation			60	100
Midterm	1		25	41.7
Quiz(zes)				
Project(s)	1		22	36.7
Homework	8		13	21.7
Laboratory	0			
Other	0			

*** *Lifelong Learning Programme (LLP)* *** | **Language of Instruction: English**

Evaluation Tool	Quantity	Student Workload Hours		Evaluation Tool	Quantity	Student Workload Hours
Theoretical Hours	14	42		Applied Hours		
Midterm	1	8		Final	1	12
Quiz				Project	1	22
Laboratory				Homework	8	13
Atelier				Seminar		
Field Study				Presentation		
Other				Self Study	14	28
				TOTAL :	39	125.00
				Recommended ECTS Credit (Total Hours/ 25) :		5