DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
EBT103	1			Fall
Title	**T**	**A**	**L**	**ECTS**
Introduction to Energy Science and Technology	2	1	0	2

Language	German					
Level	**Undergraduate**	**X**	**Graduate**		**Postgraduate**	
Department / Program	Energy Science and Technology					
Forms of Teaching and Learning	Face-to-face					
Course Type	**Compulsory**	**X**	**Elective**			
Objectives	The purpose of this course is to provide students with general knowledge about energy and energy sources, introduce energy conversion systems, and raise awareness of energy use and energy efficiency.					
Content	This course primarily covers the topics of Introduction to Energy Science, Energy Resources, Fossil Fuels, Renewable Energy Sources, Nuclear Energy, Energy Efficiency, Energy Storage, Hydrogen Energy, Sustainable Energy, Environmental Policies, and SWOT Analysis.					
Prerequisites	None					
Coordinator	Asst. Prof. Dr. Osman Sinan Süslü					
Lecturer(s)	Asst. Prof. Dr. Osman Sinan Süslü					
Assistant(s)	None					
Work Placement	None					

Recommended or Required Reading	
Books / Lecture Notes	Understanding Renewable Energy Systems. Earthscan, London, 2nd edition 2016, ISBN 978-113878-196-2. Quaschning, V. (2015). Regenerative Energiesysteme: Technologie-Berechnung-Simulation. Carl Hanser Verlag GmbH Co KG.
Other Sources	Archie, W. ve Culp, Jr., Principle of Energy Conversion Second Edition, McGraw-Hill, 1991. Cassedy, Edward S., and Peter Z. Grossman. Introduction to Energy: Resources, Technology, and Society. 2nd ed. Cambridge U.P., 1998.

Additional Course Material	
Documents	Lecture notes
Assignments	-
Exams	1 Midterm, 1 Final Exam

Course Composition

DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Mathematics und Basic Sciences	40	%
Engineering	30	%
Engineering Design	10	%
Social Sciences		%
Educational Sciences		%
Natural Sciences	20	%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	%40
Quiz	-	
Assignments	-	
Attendance	-	
Recitations	-	
Projects	-	
Final Exam	1	%60
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	2	28
Self-Study	10	1	10
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory			
Projects			
Final Exam	1	2	2
		Total Work Load	**56**
		ECTS Points (Total Work Load / Hour)	**2**

Learning Outcomes

1	Students taking this course will gain a general understanding of Energy Science and Technologies.
2	Students taking this course will understand and analyze the concepts of units and dimensions.
3	This course will equip students with the ability to identify energy resources, raise awareness about energy efficiency, and provide domain knowledge and competencies.

DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Weekly Content	
1	Definition of Energy and Energy Technologies, Basic Units and Dimensions Used in Energy Field
2	Classification of energy resources, current situation in the world in energy, SWOT Analysis
3	Fossil resources (coal, oil, natural gas)
4	Renewable energy sources (wind)
5	Renewable energy sources (hydraulic, wave, tidal)
6	Renewable energy sources (photovoltaic, thermal solar systems))
7	Renewable energy sources (biomass, geothermal)
8	Midterm Exam
9	Hydrogen energy
10	Nuclear energy
11	Energy transmission and storage
12	Energy efficiency
13	Sustainable Energy and Environmental Policies
14	Steam Cycle, Rankine Process
15	Gas Turbine Cycle, Brayton Process
16	End-of-Semester Exam

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7	P8	P9
Ö1	5	4	3	4	4	5			
Ö2	5	4	3	4	4	5			
Ö3	5	4	3	4	4	5			

Contribution Level 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

Compiled by:	Res Asst. Kevser Celep
Date of Compilation:	27.01.2025