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 aim of this course is; to provide students with information about energy and energy resources in general, to introduce students to energy conversion systems, to create awareness of energy use and energy efficiency.					
Content	Introduction to Energy Science, Energy Sources, Fossil Fuels, Renewable Energy Sources, Nuclear Energy, Energy Efficiency, Nuclear Energy, Energy Storage, Hydrogen Energy, Sustainable Energy, Environmental Policies					
Prerequisites	None					
Coordinator						
Lecturer(s)						
Assistant(s)						
Work Placement	None					

Recommended or Required Reading	
Books / Lecture Notes	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. Quaschning, V. (2015). Regenerative Energiesysteme: Technologie-Berechnung-Simulation. Carl Hanser Verlag GmbH Co KG.
Other Sources	

Additional Course Material	
Documents	-
Assignments	-
Exams	-

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Course Composition		
Mathematics und Basic Sciences		%
Engineering	30	%
Engineering Design		%
Social Sciences	10	%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge	60	%

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	3	42
Self-Study	12	1	12
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	3	3
Recitations	14	1	14
Laboratory			
Projects			
Final Exam	1	3	3
		Total Work Load	**74**
		ECTS Points (Total Work Load / Hour)	**2**

Learning Outcomes	
1	This course will provide students with a general understanding of energy science and technologies.
2	Students who take this course will be able to understand and analyze the unit and dimension concepts.

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3	This course will provide students the ability to identify energy resources, give an awareness of energy efficiency, gain and knowledge of the area.
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, Hydrogen energy
9	Nuclear energy
10	Energy transmission and storage
11	Energy efficiency
12	Sustainable Energy and Environmental Policies
13	Steam Cycles, Rankine Cycle
14	Gas Turbine Cycles, Brayton Cycle
15	Final Exam

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

	P1	P2	P3	P4	P5	P6	P7
1	5	4	3	4	4	5	4
2	5	4	3	4	4	5	4
3	5	4	3	4	4	5	4

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

P1 Working with modern scientific sources.
P2 Having modern scientific knowledge and scientific analysis abilities and being able to apply them to scientific problems.
P3 Having theoretical and practical skills in the area of Energy Science and Technology.
P4 Having foreign language skills to follow the worldwide advancements in the field of Energy Science and Technology and to be able to discuss them with foreign colleagues.
P5 Having computational skills for research data analysis purposes.
P6 Having appropriate skills for academic and industrial jobs, being ready to take responsibility in working life.
P7 Having knowledge about work occupational work and safety.

Compiled by:	Res Asst. Yusuf Karakaş
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