

DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details							
Code				Academic Year		Semester	
EBT308				3		6	
Title				T	A	L	ECTS
Applied Energy Science Laboratory				1	0	5	6
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		With the help of the experiments at the undergraduate level, it is aimed to give the students a laboratory habit and to carry out the lessons in the field of energy practically.					
Content		The content of this course covers the synthesis and characterization studies of materials used in the field of energy, electrode material synthesis for systems that convert chemical energy to electrical energy and performance analysis of these materials.					
Prerequisites		None					
Coordinator							
Lecturer(s)							
Assistant(s)							
Work Placement		None					
Recommended or Required Reading							
Books / Lecture Notes							
Other Sources							
Additional Course Material							
Documents							
Assignments							
Exams							
Course Composition							
Mathematics und Basic Sciences		30				%	
Engineering		40				%	
Engineering Design		10				%	
Social Sciences						%	
Educational Sciences						%	

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Natural Sciences	20		%
Health Sciences			%
Expert Knowledge			%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam			
Quiz			
Assignments			
Attendance			
Recitations	14		40
Projects			
Final Exam	1		60
Total			100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures			
Self-Study	14	3	42
Assignments	2	20	40
Presentation / Seminar Preparation			
Midterm Exam	1	3	3
Recitations	14	3	42
Laboratory	14	3	42
Projects			
Final Exam	1	3	3
Total Work Load			172
ECTS Points (Total Work Load / Hour)			6
Learning Outcomes			
1	Students will gain the ability to work alone in the laboratory.		
2	Students will be able to familiarize themselves with experimental systems and set up their own when necessary.		
3	Students will acquire the ability to read and analyze technical writing.		
4	Students will gain the ability to solve laboratory problems and system errors.		
Weekly Content			
1	Battery Tests		
2	Battery Tests		
3	Battery Tests		

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4	Fuel Cell Tests
5	Fuel Cell Tests
6	Fuel Cell Tests
7	Supercapacitor Experiments
8	Supercapacitor Experiments
9	Biogas Experiments
10	Biogas Experiments
11	Biogas Experiments
12	Catalyst Synthesis and Characterization Experiments
13	Catalyst Synthesis and Characterization Experiments
14	Catalyst Synthesis and Characterization Experiments

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

	P1	P2	P3	P4	P5	P6	P7
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

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: Dr. Öğr. Üye. Meltem Karaismailoğlu

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