DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details										
Code						**Academic Year**			**Semester**	
EBT314						3			6	
Title						**T**	**A**	**L**	**ECTS**	
Energy Storage Systems						2	1	0	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**		**Elective**	**X**						
Objectives	It is aimed to provide knowledge about commonly used methods and applications in energy storage.									
Content	Information is provided on the common and scientifically well-studied methods and applications of energy storage (electromechanical, thermal, chemical, and electrical storage methods). In addition, analysis and modeling methods for these techniques and applications are explained.									
Prerequisites	None									
Coordinator										
Lecturer(s)										
Assistant(s)	-									
Work Placement	None									
Recommended or Required Reading										
Books / Lecture Notes	Huggins, R., (2010). Energy Storage, Springer. Linden, D., & Reddy, T. B. (2010). Handbook of Batteries (4th Edition).									
Other Sources										
Additional Course Material										
Documents										
Assignments										
Exams										
Course Composition										
Mathematics und Basic Sciences	30								%	
Engineering									%	
Engineering Design									%	

DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Social Sciences		%
Educational Sciences		%
Natural Sciences	40	%
Health Sciences		%
Expert Knowledge	30	%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	20
Quiz	0	0
Assignments	2	20
Attendance	0	0
Laboratory	0	0
Projects	1	20
Final Exam	1	40
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	2	28
Self-Study	14	3	42
Assignments	4	12	48
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory			
Projects	1	32	32
Final Exam	1	2	2
		Total Work Load	**168**
		ECTS Points (Total Work Load / Hour)	**6**

Learning Outcomes

1	Ability to understand and apply fundamental knowledge of mathematics, science, and electrical engineering
2	Ability to use modern engineering tools and methods effectively
3	Ability to design, conduct, analyze, and interpret a desired energy experiment

Weekly Content

1	Necessity of energy storage
2	Early methods and applications of energy storage

DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

3	Key factors in the selection of energy storage methods
4	Thermal energy storage methods
5	Thermal energy storage methods
6	Electromechanical energy storage methods
7	Energy storage with flywheels
8	Midterm exam
9	Hydromechanical energy storage methods
10	Energy storage using compressed air
11	Chemical energy storage (batteries)
12	Energy storage with batteries
13	Energy storage with supercapacitors
14	Fuel cells
15	Fuel cells
16	Final exam

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

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

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

Compiled by:	
Date of Compilation:	