DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
EBT203	2			3
Title	**T**	**A**	**L**	**ECTS**
Electrochemistry	3	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**	**X**	**Elective**			
Objectives	This course aims to introduce the basic concepts of electrochemistry.					
Content	This course covers electrochemical terms, electrical conductivity, electric charge, current strength ionic conductivity, equivalent conductivity, limit equivalent conductivity, electrolytic equilibria, acids, bases, degree of dissociation, hydrolysis, electrochemical cells, electrode potentials, electrode types, electrolysis, overvoltage, decomposition voltage, corrosion and cathodic protection.					
Prerequisites	None					
Coordinator	Assist. Prof. Dr. Meltem Karaismailoğlu Elibol					
Lecturer(s)	Assist. Prof. Dr. Meltem Karaismailoğlu Elibol					
Assistant(s)	Res. Assist. Berat Berkan Ünal					
Work Placement	None					

Recommended or Required Reading	
Books / Lecture Notes	Lehrbuch der Elektrochemie: Grundlagen, Methoden, Materialien, Anwendungen. Wittstock, G. (2023). John Wiley & Sons. Elektrochemie. Hamann, C. H., & Vielstich, W. (2005). Wiley-Vch.
Other Sources	

Additional Course Material	
Documents	-
Assignments	-
Exams	-

Course Composition		
Mathematics und Basic Sciences	30	%
Engineering	40	%
Engineering Design	10	%

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Social Sciences	-	%
Educational Sciences	-	%
Natural Sciences	20	%
Health Sciences	-	%
Expert Knowledge	-	%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	30
Quiz	-	-
Assignments	1	20
Attendance	-	-
Recitations	-	-
Projects	-	-
Final Exam	1	50
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	12	6	72
Assignments			
Presentation / Seminar Preparation	1	15	15
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory			
Projects	1	20	20
Final Exam	1	2	2
		Total Work Load	**168**
		ECTS Points (Total Work Load / Hour)	**6**

Learning Outcomes

1	Basic electrochemical terms will be taught.
2	Electrical conductivity, electric charge, current intensity, ionic conductivity, equivalent conductivity and limit equivalent conductivity will be taught.
3	Electrolytic balances, acids, bases and degree of dissociation will be taught.
4	Hydrolysis, electrochemical cells, electrode potentials, electrode types and electrolysis will be taught.
5	Overvoltage, dissociation voltage, corrosion and cathodic protection will be taught.

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Weekly Content	
1	Electrochemical Terms and Concepts
2	Ionic Conductivity
3	Electrolyte Balances
4	Electrolyte Balances
5	Electrochemical Cells
6	Electrochemical Cells
7	Electrochemical Cells
8	Midterm
9	Electrolysis
10	Electrolysis
11	Corrosion and Corrosion Protection Methods
12	Fuel Cells
13	Electrochemical Treatment Basis
14	Electrochemical Treatment Basis
15	Student Presentations
16	Final Exam

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

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

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:	Yusuf Karakaş
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