

1. Course Description

COURSE DESCRIPTION FORM				
Course Code and Title	KM361 Electrochemistry			
Course Semester	5			
Catalog Description (Content) of the Course	Electrochemical terms and concepts: Electrical conductivity, electricity load, Current violence Ionic conductivity: equivalent conductivity, Limit equivalent conductivity, Electrolyte balances: Acids and bases , decompose degree, Hydrolysis, Electrochemical cells: electrode potentials, electrode kinds, Electrolysis: excessive potentials, decompose potentials, Corrosion , catholic protection.			
Main Textbook	Yalçın, H. , Gürü, M., “Elektrokimya ve Uygulamaları“, Palme Yayıncılık , Ankara, 2010.			
Supporting Textbooks	• Zeren, A., “Elektrokimya”, Birsen Yayınevi, İstanbul, 1999. • Prentice, G.A., “Electrochemical Engineering Principles”, Prentice Hall, 1st Edition, 1991 . • Bard, J.A., Faulkner, L.R., “Electrochemical Methods: Fundamentals and Applications”, 2nd Edition, John Wiley & Sons, 2002.			
Course Credit (ECTS)	3			
Prerequisites of the Course (Compulsory attendance should be indicated here.)	There is no prerequisite for this course. There is 70% attendance requirement.			
Type of the Course	Elective			
Instruction Language of the Course	Turkish			
Object and Target of the Course	To introduce basic concepts of electrochemistry			
Learning Outcomes of the Course	Electrochemical concepts and transferring to practical of these			
Mode of Delivery	Face to face			
Weekly Schedule of the Course	1 st Week: ELECTROCHEMICAL TERMS AND CONCEPTS 2 nd Week: IONIC CONDUCTIVITY 3 rd Week: ELEKTROLYTE BALANCES 4 th Week: ELEKTROLYTE BALANCES 5 th Week: ELECTROCHEMICAL CELLS 6 th Week: ELECTROCHEMICAL CELLS 7 th Week: ELECTROCHEMICAL CELLS 8 th Week: ELECTROLYSIS 9 th Week: ELECTROLYSIS 10 th Week: CORROSION AND PROTECTION METHODS OF CORROSION 11 th Week: FUEL CELLS 12 th Week: ELECTROCHEMICAL TREATMENT 13 th Week: ELECTROCHEMICAL TREATMENT 14 th Week: STUDENT PRESENTATION			
Educative Activities (Credit will be determined based on the time given for these activities. Should be filled carefully.)	Theoretical Study Hours of Course Per Week Reading Searching in Internet and Library Preparing Reports Preparing Presentation Presentation Mid-Term and Studying for Mid-Term Final and Studying for Final			
Assessment Criteria		Quantity	Total Contribution	

			(%)						
	Midterm	2	50						
	Homework								
	Assignment								
	Projects	1	10						
	Practice								
	Quiz								
	Contribution of In-term Studies to Overall Grade								
	Contribution of Final Examination to Overall Grade	1	40						
	Attendance								
Workload of the Course	Activity		Total Week Count	Weekly Duration (in hour)	Total Workload in Semester				
	Theoretical Study Hours of Course Per Week		14	3	42				
	Practicing Hours of Course Per Week								
	Reading		3	1	3				
	Searching in Internet and Library		3	1	3				
	Designing and Applying Materials								
	Preparing Reports		2	4	8				
	Preparing Presentation		2	3	6				
	Presentation		1	3	3				
	Mid-Term and Studying for Mid-Term		2	5	10				
	Final and Studying for Final		1	5	5				
	Other								
	Total work load				80				
	Total work load/25				3.2				
	ECTS of the course				3				
Course's Contribution To Program	No	Program Learning Outcomes			1	2	3	4	5
	1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.					X		
	2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.			X				
	3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.			X				
	4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.				X			

	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.	X				
	6	Ability to work efficiently in intra-disciplinary teams.			X		
	7	Ability to work efficiently in multi-disciplinary teams;	X				
	8	Ability to work individually.			X		
	9	Ability to communicate effectively in Turkish/English, both orally and in writing; Ability to write effective reports and comprehend written reports, make effective presentations,			X		
	10	prepare design and production reports, give and receive clear and intelligible instructions.	X				
	11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.			X		
	12	Awareness of professional and ethical responsibility.		X			
	13	Information about business life practices such as project management, risk management, and change management.	X				
	14	Information about awareness of entrepreneurship, innovation, and sustainable development.	X				
	15	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety.	X				
	16	Knowledge about awareness of the legal consequences of engineering solutions.	X				
17	Knowledge on standards used in engineering practice.	X					
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