ELECTROANALYTICAL CHEMISTRY

1	Course Title:	ELECTROANALYTICAL CHEMISTRY	
2	Course Code:	KIM5040	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	-	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. MEHMET HALUK TÜRKDEMİR	
15	Course Lecturers:	-	
16	Contact information of the Course Coordinator:	e-mail: hturkdemir@uludag.edu.tr Tlf : 0 224 29 41 741	
17	Website:		
18	Objective of the Course:	To introduce the basic concepts of electroanalytical techniques which have a wide range of applications at on-line and in-vivo measurements and have special significance in the field of sensor and biosensor development	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Knows the basic principles and applications of electrochemistry
		2	Understands the importance of elecroanalytical techniques and its place among the other instrumental analysis techniques
		3	Learns electroanalytical techniques such as potentiometry, conductometry, coulometry, voltammetry and electrogravimetry
		4	Knows the differences of the electroanalytical techniques and their combination with other techniques
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21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Basic information about electrochemistry, introduction to electroanalytical chemistry	

2	The appearance of the electrode potential, interfaces, and electrochemical cells and its components.	
3	Potential measurement, reference electrodes, indicator electrodes, pH measurement	
4	Potentiometric titration and the other potentiometric methods	
5	Conductometry	
6	Electrogravimetry and Coulometry	
7	General reminders, description of unifying concepts and Midterm	
8	Potentiostatic methods and E-i curves	
9	Voltammetry, basic information and types	
10	DME, types of Polarography	
11	Stripping Voltammetry and types	
12	Electrochemical sensor technologies and Spectroelectrochemistry	
13	General reminders, description of unifying concepts and Midterm	
14	Hydrodynamic Voltammetry, LCEC, Amperometry	

22	Textbooks, References and/or Other Materials:	1) J. Wang, Analytical Electrochemistry, 2006, Wiley 2) A.J Bard ve L. R. Faulkner, Electrochemical Methods, 2001, Wiley 3) D.A. Skoog, F.J. Holler, S.R. Crouch, Principles of Instrumental Analysis, 2017, Cengage 4) D.A. Skoog, D.M. West, F.J. Holler, Fundamentals of Analytical Chemistry, 1996, Saunders College Publishing 5) P.T. Kissenger, W.R. Heineman, Laboratory Techniques in Electroanalytical Chemistry, 1996, Marcel Dekker 6) Various documents and lecturer notes arranged by instructor

Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		14	3.00	42.00
Practicals/Labs		0	0.00	0.00
Self study and preperation		14	5.00	70.00
Homeworks		0	0.00	0.00
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams	R	2	18.00	36.00
Others		0	0.00	0.00
Final Exams	0	1	25.00	25.00
Total Work Load				173.00
Total work load/ 30 hr	1	50.00		5.77
ECTS Credit of the Course				6.00

Contribution of Term (Year) Learning Activities to Success Grade	50.00
Contribution of Final Exam to Success Grade	50.00
Total	100.00
Measurement and Evaluation Techniques Used in the Course	

24	**ECTS / WORK LOAD TABLE**

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	4	4	0	4	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	5	0	0	4	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**			**3 Medium**			**4 High**			**5 Very High**				