

Course Name/Code: ILT 536 SOLUTION ELECTROCHEMISTRY					ADVANCED TECHNOLOGIES					
Semester	Teaching and Learning Methods							Semester		
	Theory		Theory		Theory		Theory		Theory	
1-2	42				100	46	188	3	7.5	
Language	Turkish									
Compulsory/ Elective	Elective									
Prerequisites	None									
Course Content	Quantitative solution of ion-solution interactions; Ion-ion interaction and Debye-Huckel (ion cloud) theory; Linearized Poisson- Boltzmann equation; Ion flow due to the difference between the chemical potentials: diffusion ;Steady state diffusion and Ficks' first law; The random movement of the ions and the Einstein-Smoluchovski equation; Solution of the diffusion problem with Laplace transforms; Molar and equivalent conductance; Kohlrausch law; Ion mobility									
Course Objectives	To teach the student one of the most important topics of electrochemistry									
Learning outcomes and competences	The students have an extensive knowledge in solution electrochemistry where most of the life processes take place									
Textbook and /or References	J O M Bockris and A K N Reddy, Modern Electrochemistry, MacDonald's London Vol:1,1970									
Assessment Criteria								If any, mark as (X)	Percentage (%)	
	Midterm Exams							X	30	
	Quizzes									
	Homeworks							X	20	
	Projects									
	Term paper									
	Laboratory Work									
	Other								10	
Final Exam							X	40		
Prepared by	Prof. Dr. Mehmet Levent Aksu									
Week	Topics									
1	Quantitative solution of ion-solution interactions									
2	Ion-ion interaction									
3	Debye-Huckel (ion cloud) theory									
4	Linearized Poisson- Boltzmann equation									
5	Ion flow due to the difference between the chemical potentials: diffusion									
6	Steady state diffusion and Ficks' first law									
7	Mid-term									
8	The random movement of the ions and the Einstein-Smoluchovski equation									
9	Solution of the diffusion problem with Laplace transforms									
10	Solution of the diffusion problem with Laplace transforms									
11	Molar and equivalent conductance									
12	Kohlrausch law									
13	Ion mobility									
14	Charge transfer									