



Course ID: HFH409	Course name: SELECTED CHAPTERS OF ELECTROCHEMISTRY		
Cycle: FIRST	Year: FOURTH	Semester: VII	ECTS credits: 3
Course status: ELECTIVE		Total course hours: 45 Lectures: 30 Laboratory: 15	
Teaching participants:	Teachers and associates with expertise in the field to which the subject belongs		
Prerequisite for enrollment:	-		
Course aims:	Introduction to electrode kinetics, electrocatalysis and electrochemical aspects of corrosion. Overview of electrochemical techniques and modern energy storage and conversion systems.		
Thematic course units:	<ol style="list-style-type: none"> 1. Kinetics of electrode reactions. 2. Kinetic model based on electrochemical potentials. 3. Microelectrodes with controlled potential. 4. Nernstian reversible systems. 5. Irreversible electrochemical systems. 6. Electrode reactions coupled with homogenous chemical reactions. 7. Theoretical aspect of voltammetric techniques. 8. Chronopotentiometry. 9. Controlled-potential coulometry. 10. Electrode double layer – structure models and properties. 11. Double layer effects in electrochemical processes. 12. Specific adsorption. 13. Electrochemical instrumentation. 14. Operational amplifiers. Potentiostats/galvanostats. 15. Problems with potential control. 16. Digital instruments 		
Learning outcomes:	<p>Knowledge: Acquired knowledge about electrochemistry, the laws of electrochemical processes.</p> <p>Skills: Students will be able to use exact methods as a basis for understanding electrochemical processes.</p> <p>Competences: Application of knowledge from this subject to solve electrochemical processes in other branches of chemistry and industry, as well as environmental protection.</p>		
Teaching methodology:	Lectures (oral presentation and interactive classes) Laboratory exercises		
Assessment methods and grading system¹:	Grading criteria		
	Criteria	Maximal score	Required score

¹The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

	1. Class attendance	0	0
	2. Class activities	15	8
	3. Midterms	2 × 20	2 × 11
	4. Final exam	45	25
	Total	100	55
	Scores and grading		
	Score	Grade (BiH)	Grade (ECTS)
	< 55	5	F, FX
	55–64	6	E
	65–74	7	D
	75–84	8	C
	85–94	9	B
95–100	10	A	
Literature²:	<p>Mandatory literature:</p> <ol style="list-style-type: none"> 1. S. Mentus, Elektrohemija, III izdanje, Univerzitet u Beogradu-Fakultet za fizičku hemiju, Beograd, 2008 2. W. Plieth, Electrochemistry for Materials Science, Elsevier, 2008 3. H. Hamann, A. Hamnett, W. Vielstich, Electrochemistry, Wiley, 2007 4. A. J. Bard, L. R. Faulkner, Electrochemical Methods – Fundamentals and Applications, John Wiley & Sons, 1980. Dopunska: <ol style="list-style-type: none"> 1. P. W. Atkins, Physical Chemistry, Oxford University Press 		

²The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton