



UNIVERSITY OF SARAJEVO – FACULTY OF SCIENCE
Department of Chemistry

Form SP2

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Course ID: HFH402	Course name: ENZYME CATALYSIS		
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:	The aim of the module is to explain the kinetics and mechanism of enzyme-catalyzed chemical reactions, as well as to gain knowledge of some aspects of enzyme application in biotechnology, pharmaceutical and food industries.		
Thematic course units:	<ol style="list-style-type: none">1. Introduction to enzymology and enzymatic catalysis2. Biocatalysts, structure, functions and catalytic properties3. Simple catalase reaction enzymes4. Michaelis-Menten mechanism kinetics5. Inhibition of enzymatic activity6. The effect of pH on enzymatic activity7. The influence of temperature on enzymatic activity8. Multi-substrate enzyme systems9. Kinetics of regulatory enzymes10. Acquired enzymatic systems11. Experimental methods in enzymatic kinetics12. Analysis of experimental data in enzymatic kinetics13. Some aspects of enzyme application14. Enzyme application in industry15. Introduction to clinical enzymology		
Learning outcomes:	Knowledge: Students will gain knowledge of the kinetics and mechanism of enzymes of catalyzed chemical reactions. Skills: Students will be able to use experimental methods in enzyme kinetics. Competences: Application of enzymes in biotechnology, pharmaceutical and food industries.		
Teaching methodology:	Lectures (oral presentation and interactive classes) Laboratory exercises		

Assessment methods and grading system¹:	Grading criteria		
	Criteria	Maximal score	Required score
	1. Class attendance	5	3
	2. Class activities	15	8
	3. Midterms	2 × 20	2× 11
	4. Final exam	40	22
	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. J. E. House, Principles of Chemical Kinetics, second edition, Elsevier, 2007 2. J. Paloine, A. P. MacCabe, Industrial Enzymes, Springer, 2007 3. R.A.Copeland, Evaluation of enzyme inhibitors in drug discovery, Wiley Inc.USA, 2005 <p>Supplementary literature:</p> <ol style="list-style-type: none"> 1. H.Bisswanger, Enzyme Kinetics, Principles and Methods, Wiley Inc.USA, 2008 		

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

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