



Course ID: HTH401		Course name: GREEN CHEMISTRY	
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:	Application of fundamental knowledge in the field of green chemistry in the production of chemical products and optimization of chemical processes in order to reduce or eliminate the use and production of hazardous substances.		
Thematic course units:	Principles of green chemistry Methodology of green chemistry Raw materials of green chemistry Renewable energy sources Solvents of green chemistry Green extraction Synthesis in green chemistry Quantitative / optimization-based framework for designing green-chemical synthesis streams Green chemistry in pharmacy, cosmetics, textile industry, paint industry Case study of green-chemical expert system		
Learning outcomes:	Knowledge: Students will have the necessary knowledge of green chemistry based on molecular and materials chemistry, as well as alternative chemistry solutions to support a sustainable development Skills: Student will be able to assess quantitative measures of environmental impact that the product has from development to disposal/use; Application of the 12 principles of green chemistry and identification of their individual impacts on the development of several industrial products Competences: Student will be able to critically analyze the advantages, disadvantages and risks of introducing different alternative energies and using renewable sources; Discuss and propose alternative chemical solutions to support sustainable development		
Teaching methodology:	Auditory lectures; Laboratory exercise		

Assessment methods and grading system¹:	Grading criteria		
	Criteria	Maximal score	Required score
	1. Class attendance	5	3
	2. Class activities	15	8
	3. Midterms	40	22
	4. Final exam	40	22
	Total	100	55
	Scores and grading		
	Score	Grade (B&H)	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>Supplementary literature:</p> <ol style="list-style-type: none"> Jaganjac et al. (2008): Zeleno inženjerstvo okolinski osmišljeno projektovanje hemijskih procesa – Poglavlje zelena hemija, Prevod udžbenika Allen, T.D. and D.R. Schonnard: Green Engeneering (Environmentally conscious Design of Chemical processes), prentice Hall PTR, Nj, 2002. Anatas, P, T. and Williams, T.C.,eds (1998): Green Chemistry: Frontiers in benign Chemical Synthesis and Processes, Oxford University Press, New York. Anatas,P,T. And Warner,J,C. (1998): Green Chemistry:Theory and Practice, Oxford University Press, New York 		

¹ The 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

² The 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