

Study program : PhD				
Type and level of studies: Third				
Course unit: Synthetic electroorganic chemistry				
Teacher in charge : Vukićević D. Rastko				
Статус предмета: English				
ECTS: 10				
Prerequisites: Filled all pre-exam obligations				
Semester <i>Summer Semester</i>				
Course unit objective The aim of teaching the subject "Synthetic electroorganic chemistry" is to educate students for successful use of electrochemical processes in the synthesis of organic compounds. This includes training for application of theoretical knowledge that students acquire at various courses of undergraduate studies (organic chemistry, physical chemistry, analytical chemistry, etc.) in synthetic chemistry.				
Learning outcomes of Course unit Students who overcome the subject "Synthetic electroorganic chemistry" will be able to use the theoretical knowledge acquired during undergraduate studies, to link them with the knowledge of the organic chemistry and apply them in practical work. They will be qualified to predict which are "classic" organic reactions can be replaced with electrochemical organic reactions and to assess justification of replacement (economic, environmental, etc.). Students will become familiar with the equipment which is applied to the study of electrode processes, and in practical synthesis. Through selected examples from literature students will become familiar with the latest achievements of laboratory and industrial application of electrochemical method for the synthesis of organic compounds.				
Course unit contents Basic principles of electrochemistry. Techniques for testing electrochemical reactions: cyclic voltammetry as "electrochemical spectroscopy". Direct electroorganic methods: cleavage of bonds (S-halogen, C-O, S-S, S-N, etc.) and reduction of unsaturated bonds between carbon and heteroatoms (C=O, C=N, nitro group, etc.), direct oxidation. Indirect electroorganic methods: electrocatalysis (reactions with mediators) and the electrochemical generation of reagents. Important industrial electroorganic processes.				
Literature 1. J. Fry, Synthetic Organic Electrochemistry; John Wiley and Sons, Inc.: New York, 2 nd Edition, 1989. 2. Henning Lund, Ole Hammerich Eds., <i>Organic Electrochemistry</i> , Fourth Ed. Marcel Dekker, Inc. New York 2001. 3. Shono, T. <i>Electroorganic Synthesis</i> ; Academic Press: London, 1991				
Number of active teaching hours				Other classes
Lectures: 5	Practice: -	Other forms of classes: -	Independent work: Seminar papers	
Teaching methods Lectures, seminar papers, oral part of examination				
Examination methods (maximum 100 points)				
Exam prerequisites	No. of points:	Final exam	No. of points:	
Student's activity during lectures	10	oral examination	25	
practical classes/tests	-	written examination		
Seminars/homework	30		
Project				
Other	35			
Grading system				
Grade	No. of points	Description		
10	91 - 100	Excellent		
9	81 - 90	Exceptionally good		
8	71 - 80	Very good		

7	61 - 70	Good
6	51 - 60	Passing
5	≤ 50	Failing

(Table 5.2) Course unit description