

Study Programme: Chemistry			
Course Unit Title: Analytical Aspects of Green Chemistry			
Course Unit Code: IHA-507			
Name of Lecturer(s): Full professor Slobodan Gadžurić; Assistant professor Sanja Belić			
Type and Level of Studies: Master Academic Studies			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 5			
Prerequisites: None			
Course Aims:			
<ul style="list-style-type: none"> • Expanding knowledge and critical understanding of principles of green chemistry as one of the most modern chemistry disciplines and its application in contemporary analytical chemistry, organic and pharmaceutical synthesis, environmental protection and energy preservation and conservation. • Expanding students' knowledge of application of various modified analytical methods and techniques in accordance with green chemistry principles. 			
Learning Outcomes:			
<ul style="list-style-type: none"> • Explain significance of sustainability for the environment, • Independently choose the appropriate methodology and plan, design and conduct the necessary experiments in solving problems in new or unfamiliar multidisciplinary context. • Demonstrate independence and originality in decision-making in complex and unexpected situations. • Demonstrate ethical and social responsibility, professionalism, integrity and reliability in reporting on research results. • Successfully communicate with professionals from the same or different area • Demonstrate the need for further professional development. 			
Syllabus:			
<i>Theory</i>			
Nontoxic and benign solvents in chemical synthesis and industry. Ionic liquids. Biocatalysts. Homogeneous and heterogeneous catalytic processes. Liquid-liquid extraction using the environmental friendly solvents. Sustainable and alternative energy sources. Energy storage. Application of analytical techniques and methods in green chemistry.			
<i>Practical instructions</i>			
The experiments are designed to illustrate the concepts discussed during the lectures and to familiarize students with green chemistry materials, tools, and techniques. The lab is considered an integral part of the course.			
Required Reading:			
1. <i>Handbook of Green Analytical Chemistry</i> , Miguel de la Guardia, Salvador Garrigues, (Eds.), John Wiley & Sons, 2012.			
2. <i>Green Chemistry and Engineering Processes</i> , Mukesh Doble, Anil Kumar Kruthiventi, Elsevier Inc., 2007.			
3. <i>Ionic Liquids in Chemical Analysis</i> , Edited by Mihkel Koel, CRC Press, 2009.			
Weekly Contact Hours: 60	Lectures: 30	Practical work: 30	
Teaching Methods:			
Lectures and laboratory work			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Test I	50	Written exam	(100)
Test II	50	