

<b>Study program:</b> Environmental protection			
<b>Type and level of study:</b> Master academic studies			
<b>Course Title:</b> Chromatographic Methods in Environmental Analysis			
<b>Teachers:</b> Mira Pucarević			
<b>Status:</b> Obligatory, semester III			
<b>ECTS:</b> 7			
<b>Prerequisite:</b> None			
<b>The goal of course</b> Expanding knowledge of the instrument and other chromatographic separation techniques and their application in the analysis of environmental contamination.			
<b>The outcome of the subject</b> Acquiring the techniques of chromatographic methods of separation and purification in the environment control. During the practical work, students will acquire the applicable technical knowledge for performing chromatographic analysis, from sample preparation to giving reports.			
<b>Syllabus</b> <i>Theoretical study</i> Basics of chromatographic separation. Qualitative and quantitative analysis. Preparation and conservation of environmental samples for chromatographic analysis. Solid-phase micro-extraction, "head space" and "purge and trap" techniques for volatile organic compounds. The techniques of injection for gas chromatography. Supercritical extraction and chromatography. Optimization of chromatographic separation. UPLC liquid chromatography, mobile phase selection, a diode array detector. <i>Practical classes</i> Preparation of samples for chromatographic analysis. Calibration and calculation for gas chromatography, selection of analysis conditions in the gas and liquid chromatography and optimization of the separation conditions, performing of data processing analysis and application of software. The method of the standard addition. The method of the internal standard.			
<b>Literature</b> 1. N. J. Marjanović, I. F. Jankoviš: Instrumentalne metode analize, Tehnološki fakultet i Zavod za izdavanje udžbenika, Novi Sad, 1983. 2. J. Mišović, T. Ast: Instrumentalne metode hemijske analize, TMF Beograd, 1992. 3. DA Skoog, FJ Holler, SR Crouch, Introduction to instrumental analysis, 6th Ed. Brooks/Cole, 2006 4. S Ahuja, N. Jespersen, Modern Instrumental Analysis, Elsevier Science, 2006 5. M. Kaštelan-Macan: Kemijska analiza u sustavu kvalitete, Školska knjiga Zagreb, 2003. 6. S.M. Milosavljević: Strukturne instrumentalne metode, Hemijski fakultet Beograd, 1994.			
<b>Number of lectures:</b>			Other classes
Lectures: 2	Practices: 2	Other forms of teaching: 1	
Student research work:			
<b>Teaching methods</b> Lectures, analysis of practical and literature examples, public presentation of seminar papers.			
<b>Score (maximum 100 points)</b>			
<b>Pre-commitments</b>	<b>Poens</b>	<b>The final exam</b>	<b>Poens</b>
Activity during lectures	10	Written exam	
Practical classes	10	Oral examination	40
Colloquia	30		
Seminars	10		
<i>Total</i>	60		40