

Course Unit Descriptor

Study Programme: Bachelor Academic Studies in Chemistry - Quality Control and Environmental Management, Bachelor Academic Studies in Environmental Protection – Environmental Protection Analyst			
Course Unit Title: Chromatographic Methods in Environmental Analysis			
Course Unit Code: IZZS-504			
Name of Lecturer(s): Associate Professor Jelena Molnar Jazić			
Type and Level of Studies: Bachelor of Science Degree			
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: 6			
Prerequisites: None			
Course Aims: Introducing students to chromatographic methods and their application in environmental analysis.			
Learning Outcomes: Training students to independently apply chromatographic techniques in the analysis of the environment, starting from sample preparation to providing reports on the performed chromatographic analysis.			
Syllabus: <i>Theory</i> Fundamentals of chromatographic analysis. Preservation of environmental samples and preparation techniques for chromatographic analysis. Basics of gas chromatography. Detectors in gas chromatography. Basics of liquid chromatography. Detectors in liquid chromatography. Application of chromatographic techniques in qualitative and quantitative analysis of the environment. <i>Practice</i> Practical instructions are in compliance with theoretical instructions. Environmental samples preparation techniques for chromatographic analysis. Chromatographic analysis - optimization of chromatographic conditions, analysis, data processing using software. The method of standard addition. Internal standard methods. Quality control in chromatographic analysis and good laboratory practice.			
Required Reading: 1. O. David Sparkman, Zelda E. Penton and Fulton G. Kitson: Gas Chromatography and Mass Spectrometry A <i>Practical Guide</i> , 2 nd Edition, Elsevier Inc, 2011. 2. Colin F. Poole: Gas Chromatography, Elsevier Inc, 2012. 3. Robert L. Grob, Eugene F. Barry (Eds): Modern Practice of Gas Chromatography, A John Wiley & Sons, Inc. Publication, 2004. 4. T.R. Crompton: Chromatography of Natural, Treated and Waste Waters, Tayol&Francis Group, 2004. 5. Joachim Weiss: Handbook of Ion Chromatography (Volume 1 and 2), Third edition, Wiley-Vch, 2004.			
Weekly Contact Hours: 5	Lectures: 2	Practical work: 3	
Teaching Methods: Lectures, laboratory work and seminar			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Active class participation	5	Written exam	30
Practical work	35	Oral exam	20
Preliminary exam	10		