

Level: bachelor				
Course title: Practicum of Instrumental Analysis				
Status: elective				
ECTS: 6				
Requirements: none				
Learning objectives Providing a broad base of practical knowledge, in addition to the accompanying theory, for handling of analytical instruments to solve specific chemical analytical tasks. Understanding the role, importance and application of the selected instrumental analysis techniques. Developing practical skills that enable proper sampling, sample preparation for the measurement and handling of simpler and more complex devices during instrumental analysis. Training students to process the data obtained by instrumental analytical techniques. Enabling students to apply the standard methodology in solving specific problems and tasks in the field of instrumental analysis from sampling through sample preparation and instrumental analysis to data processing and analysis of results.				
Learning outcomes Learning application and importance of the selected instrumental analysis techniques for the solution of specific analytical tasks. Demonstrate knowledge and understanding of the basic facts, concepts, principles and theories for solving different instrumental analytical tasks. Proper handling of the simpler and more complex instruments for chemical analysis of the selected types of samples. Implement appropriate sampling procedures, sample preparation, measurements (optical (eg, UV Vis, FTIR, AAS), electroanalytical, chromatographic, NMR, etc.) and data processing in solving specific practical problems by using the selected techniques of instrumental analysis. Reliable, precise and accurate measurements during the execution of selected instrumental methods of analysis.				
Syllabus <i>Theoretical instruction</i> Specifics of taking and preparing samples for analysis; Selected methods of instrumental analysis; Chemometrics; Special analysis of different samples (water, air, land, raw materials and products, foodstuffs, biological materials). It is also possible to obtain additional information from the analysis in the field of forensics, archaeology or art, or in the field of analysis of the selected compounds. <i>Practical instruction</i> Practical classes will be organized individually and in blocks. During the course, each student will choose a topic for experimental work / micro project. The appropriate literature will be selected, the analytical problem will be appointed, and a detailed plan will be prepared for experimental work. Experimental work takes 2-3 weeks, depending on the chosen theme. Results can be submitted in the form of project reports and exposed throughout the semester in terms of exercise in the form of presentations to the group, followed by an open discussion.				
Weekly teaching load				Other:
Lectures: 1	Exercises:	Other forms of teaching: 3	Student research:	