

Level: bachelor				
Course title: UV/VIS and IR spectroscopy in environmental analysis				
Status: elective				
ECTS: 7				
Requirements: none				
Learning objectives Understanding the principles and possibilities of UV / VIS and IR spectroscopy in the qualitative and quantitative analysis of environmental samples (water, air, soil, and sediment).				
Learning outcomes After completing the course, students should be able to define the basic principles of UV / VIS and IR spectroscopy; describe the instrumentation in the UV / VIS and IR spectroscopy; analyze environmental samples using UV / VIS and IR spectrophotometer, process and interpret the results of analysis and report the results of the analysis performed.				
Syllabus <i>Theoretical instruction</i> Introduction to the basic principles of UV / VIS spectroscopy, the basic instrumentation (equipment needed for the analysis of liquid, gaseous and solid samples). The absorption of UV radiation. The intensity of absorption. Recording the spectrum. The choice of solvent. Selection rules. Chromophores. Introduction to the basic principles of IR spectroscopy, the basic instrumentation (equipment needed for the analysis of liquid, gaseous and solid samples). The absorption of IR radiation. Frequency of vibration. The factors that determine the positions of the absorption maxima of the functional groups. The interpretation of the IR spectrum. Quantitative Analysis. <i>Practical instruction</i> Practical instruction follows the theoretical one.				
Weekly teaching load				Other:
Lectures: 1 (15)	Exercises: LV 3 (45)	Other forms of teaching: 1 (15)	Student research:	