Level: master	

Course title: Chemometrics (IHA-505)

Status: elective

ECTS: 8

Requirements: none

Learning objectives

To train the students for collecting the high-quality experimental data and their processing. Introduce students to the optimization and experimental design. Acquiring the necessary theoretical and practical knowledge in the signal processing. Extending the acquired knowledge of the calibration of the instrument and about the modelling and estimation of parameters. An introduction to pattern recognition and classification. An introduction to artificial intelligence and expert systems.

Learning outcomes

Students should know:
- The causes of uncertainty of analytical measurements;
- To assess the accuracy and precision of the results of chemical analysis, how the results are properly grouped, their tabular and graphical presentation;
- To apply knowledge in comparing the results of analytical measurements, calibration method, modelling and estimation of parameter, and pattern recognition;
- To demonstrate independence in planning the experiment; and
- To clearly and accurately analyze and interpret the results of the analysis.

Syllabus

Theoretical instruction

The notion of chemometrics. Statistics in processing the chemical data. Theory of sampling. Optimization and experimental design. Signal processing. Signal resolution. Calibration methods. Modelling and parameter estimation. Pattern recognition. Artificial intelligence. Expert systems.

Practical instruction

Practical instruction follows the theoretical instruction.

Weekly teaching load				Other:
Lectures: 3	Exercises: 2	Other forms of teaching: 3	Student research:	