Level: master

Course title: Applied Infra-Red Spectroscopy

Status: elective

ECTS: 5

Requirements: none

Learning objectives

To introduce students to the technical aspects of the transmission and reflection infra red spectroscopy, as well as the conditions for recording infrared spectra. Training students for solving problems in the field of application of infrared spectroscopy. Analysis of different physical and chemical properties of materials. Application of mathematical and computational methods for processing and interpretation of infrared spectra.

Learning outcomes

Student will be able to describe and explain the theoretical principles of modern infrared spectroscopy and explain the possibility of extracting chemical information from the infrared spectra. Apply mathematical equations and software for processing of infrared spectra. Properly measure transmission and reflection spectra of samples in different forms.

Syllabus

Theoretical instruction

The theoretical basis of IR spectroscopy, transmission techniques, attenuated total reflection techniques ATR, diffusion reflection technique DRIFT, Near Infrared region, the far-infrared region, IR spectroscopy and chemometrics. The application of infrared spectroscopy for the identification of compounds and structural analysis. IR spectroscopy in quantitative analysis.

Weekly teaching load				Other:
Lectures: 3	Exercises: 3	Other forms of teaching: 1	Student research:	