

Title of Course	Test Methods for Chemical Compound Structure		
Semester	Autumn/Spring		
Teaching Hours per Course:	Total	- Lectures:	- Tutorials:
		60	30
ECTS Credits	3		
The content of education			
Aims of Course	The aim of the course is to acquire by the student the knowledge and skills concerning studying the structure of chemical compounds using different research methods.		
Program	<p>Lectures: Definition of the structure of chemical compound. Magnetic Nuclear Resonance (NMR). Atomic nuclei active in the magnetic field. NMR spectrum and its relationship to the structure of the compound. Chemical shift. ¹H NMR, ¹³C NMR. Spectroscopy of electron paramagnetic resonance (EPR). Infrared spectroscopy (IR). IR absorption of various organic compounds. Hydrogen bonds (between- and intramolecular) and their detection. Mass spectrometry (MS). The basis of measurement. Ions sources, ions separation and mass spectra recording. Fragmentation of organic compounds of various structure. Selected techniques (e.g. gas chromatography) used with mass spectrometry. Scanning electron microscopy (SEM). Combination of SEM with micro-area X-ray analysis (EDS). Examples of combined use of various methods to establish the structure of chemical compound.</p> <p>Project: Description of a proposal to solve a given research problem related to the identification of chemical compounds and research of their structure (including: proposing and describing method of sample preparation, prediction of spectra for a given chemical compound and their interpretation, etc.). Presentation of the completed project.</p>		
Conditions of completion	To pass the course it is necessary to obtain positive marks of: - test (lectures) - project task. The final mark is an average of the above marks.		
Teacher	Iwona Wilińska, PhD.		