



Subject card

Subject name and code	Spectroscopic Methods of Testing Drugs, PG_00039062						
Field of study	Biotechnology						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Tomasz Laskowski				
	Teachers		dr hab. inż. Tomasz Laskowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	60		15.0		25.0	100
Subject objectives	The aim of the course is to acquaint the Student with the advanced 2D NMR techniques, mass spectrometry techniques, UV-VIS experiments and the basic IR techniques. As a result of the course, Students will have full knowledge of the concepts of the spectroscopic techniques listed above, as well as they will be able to solve advanced structural problems considering biologically active compounds.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
Subject contents	1. Basics of NMR spectroscopy - concepts and spectrometers. 2. Advanced 2D NMR techniques. 3. UV-VIS spectroscopy. 4. Basics of MS. 5. Advanced MS techniques. 6. Basics of IR spectroscopy.						
Prerequisites and co-requisites	Student should know the basics of the 1D NMR spectroscopy and mass spectrometry.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Test I (NMR + UV-VIS)		60.0%		50.0%		
	Test II (MS + IR)		60.0%		50.0%		
Recommended reading	Basic literature		1. Organic Structural Spectroscopy (Lambert, Joseph B.; Shurvell, Herbert F.; Lightner, David A.; Cooks, R. Graham). 2. Spektroskopowe metody identyfikacji związków organicznych (Silverstein, R).				
	Supplementary literature		-				
	eResources addresses		Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none">Basing on the given set of COSY, HSQC, HMBC and NOESY experiments try to decide, which of the proposed structures of the given compound is the correct one.Basing on the MS spectrum of O-metylated poliol derivative, localize the hydroxyl groups.Basing on the set of UV-VIS spectra, establish the purity of a given compound and determine a number of spectral forms present in a solution.						
Work placement	Not applicable						