

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	Principles of Spectrodcopic Techniques, PG_00050110								
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering								
Date of commencement of studies	October 2024		Academic year of realisation of subject			2027/2028			
Education level	first-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	4		Language of instruction			Polish			
Semester of study	7		ECTS credits			2.0	2.0		
Learning profile	general academic profile		Assessment form			asses	assessment		
Conducting unit	Division of Complex Systems Spectroscopy -> Institute of Physics and Applied Computer Science -> Faculty of Applied Physics and Mathematics								
Name and surname	Subject supervisor		dr inż. Marcin Dampc						
of lecturer (lecturers)	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	15.0	0.0	0.0	15.0		0.0	30	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation i classes incluc plan			Self-study S		SUM		
	Number of study hours	30		2.0		18.0		50	
Subject objectives	Presenting basic concepts of optical spectroscopy and physics behind the designated methods. Learning the skill of selecting appropriate technique for a specific physical/chemical/medical problem and learning about the limitations of each experimental technique.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_W02] knows and understands, to an advanced extent, selected laws of physics and physical phenomena as well as methods and theories explaining the complex relationships between them, constituting the basic general knowledge in the field of technical sciences related to the field of study		Describes interactions of electromagnetic radiation with matter based on quatum mechanics, electromagnetism and atomic physics.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge			
	[K6_W54] Knows and understands, to an advanced extent, selected aspects of biomedical diagnostics		Is capable of selecting appropriate spectrometry technique for investigating specific property of matter.			[SW3] Assessment of knowledge contained in written work and projects			

Basics in optical spectroscopy         Electromagnetic radiation         Quantization of energy         Emission and absorption of radiation         Optical spectroscopic equipment         Optical monochromators and spectrographs         Interferameters         Detectors         Infrared, absorption, Fourier, Raman, laser and microwave spectroscopy         Rotational spectra         Vibrational spectra         Vibrational spectra         Resensement methods         Inclure       40.0%         Assessment methods         Inclure       40.0%         Subject passing criteria       40.0%         Invaluence PMN Warszawa 1993         2. Keptick, Postany spectrascopy, NW Warszawa 1993         3. J. M. Holds, High resolution spectroscopy, NW Warszawa 1993         2. Keptick, Postany spectroscopy, WW Warszawa 1993         3. J. M. Holds, High resolution spectroscopy, WW Warszawa 1993         3. J. M. Holds, High resolution spectroscopy, J. Warszawa 1993 <td< th=""><th>Subject contents</th><th>Introduction</th><th></th><th></th></td<>	Subject contents	Introduction						
Electromagnetic radiation         Quantization of energy         Envision and absorption of radiation         Optical spectroscopic equipment         Optical monochromators and spectrographs         Interferometers         Detectors         Infrared, absorption, Fourier, Raman, laser and microwave spectroscopy         Rotational spectra         Vibrational spectra         Raman spectra         Assessment Interferometers         Infrared, absorption, Fourier, Raman, laser and microwave spectroscopy         Rotational spectra         Raman spectra         Vibrational spectra         Rasessment Interferomethods and oritleria         Basic Ilterature       1         Vibrational spectra         Recommended reading       Basic Ilterature         1       W. Dentroder. Spectroscips isservae. PWN, Warszawa 1993.         2       Z. Kepk, Polasawy spectroscopic all servaes. PWN, Warszawa 1993.         2       Z. Kepk, Polasawy spectroscopic all servaes. PWN, Warszawa 1993.         3       J. M. Healt PW, Warszawa 1993.         4       H. Barantaka, A. Labudrinks, actional consolution were spectroscopic and wilding								
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	example questions/							
	Work placement	Not applicable						

Document generated electronically. Does not require a seal or signature.