GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Nanosensors, PG_00020901					
Field of study	Nanotechnology					
Date of commencement of studies	February 2023		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	2		ECTS credits		3.0	
Learning profile	general academic profile		Assessment form		exam	
Conducting unit	Instytut Nanotechnologii i Inżynierii Materiałowej -> Faculty of Applied Physics and Mathematics					
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Leszek Wicikowski				
	Teachers	dr inż. Leszek Wicikowski				

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	15.0	30
	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	30	2.0	18.0	50

Subject objectives	nsight into the latest research and developments in the field of development and construction of micro and nanosensors

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K7_U07	The student is able to use knowledge about nanosensors to determine howto monitor processes. He can choose the type of sensor adequate to the phenomenon being monitored	[SU3] Assessment of ability to use knowledge gained from the subject
	K7_W04	The student knows the methods of manufacturing nanosensors. He can indicate materials suitable for their production, He understands physical phenomena occuring in nanosensors	[SW1] Assessment of factual knowledge
	K7_W03	The student knows the latest research and developments in production of nanosensors. He is familiar with scientific literature on nanosensors	[SW2] Assessment of knowledge contained in presentation
	K7_W02	The student is able to classify types of nanosensors. He can determine the scope of their use. He knows the advantages and disadvantages of the appropriate sensors	[SW1] Assessment of factual knowledge

Subject contents	ntroduction to Nanosensors. Definition and Classification of Nanosensors Materials for Nanosensors Mechanical Nanosensors Thermal Nanosensors Optical Nanosensors Magnetic Nanosensors Nanobiosensors. Future Trends of Nanosensors

Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	seminar	50.0%	50.0%
	final test	50.0%	50.0%

Recommended reading	Basic literature	NANOSENSORS PHYSICAL, CHEMICAL,AND BIOLOGICALVinod Kumar Khanna, CRC Press, Taylor & Francis Group 2012
	Supplementary literature	scientific literature
	eResources addresses	Adresy na platformie eNauczanie: Nanoczujniki - Moodle ID: 34669 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34669
Example issues/ example questions/ tasks being completed	Distinguish between sensors and transducers giving examples. Justify the statement, All transducers contain a sensor and mostly, although not always, sensors will also be transducers.List and describe the important parameters and characteristics of a sensor.	
Work placement	Not applicable	