



Subject card

Subject name and code	Radiation detectors, PG_00037318						
Field of study	Technical Physics						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2025/2026		
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		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Division of Physics of Organic and Perovskite Photovoltaic Structures -> Institute of Physics and Applied Computer Science -> Faculty of Applied Physics and Mathematics -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Grażyna Jarosz				
	Teachers		dr hab. inż. Grażyna Jarosz				
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	0.0	15
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 1515 Detektory promieniowania https://enauczanie.pg.edu.pl/2025/course/view.php?id=1515						
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	15		2.0		8.0	25
Subject objectives	To acquaint students with the construction and principles of operation of e-m radiation detectors						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W07		The student knows the basic parameters describing e-m radiation		[SW1] Assessment of factual knowledge		
	K6_W02		The student knows the phenomena used in the detection of e-m radiation		[SW1] Assessment of factual knowledge		
Subject contents	1. Electromagnetic Radiation, Sources, and Interactions with Matter. 2. Thermal Radiation. 3. Radiation Detectors, Classification. 4. The Eye a Natural Detector of Electromagnetic Radiation. 5. Detector Parameters. Detector Noise. 6. Thermal Detectors: Bolometers, Thermocouples, Pyrometers. 7. Semiconductor Photon Detectors. 8. CCD Arrays. 9. Ionizing Radiation Detectors. 10. Ionization Chambers. 11. Scintillation Detectors. 12. X-Ray and Gamma-Ray Detectors Used in Medicine.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	two test		51.0%		100.0%		
Recommended reading	Basic literature		G.H. Rieke, Detection of Light, Cambridge University Press				
	Supplementary literature		G.H. Rieke, Detection of Light, Cambridge University Press				
	eResources addresses						

Example issues/ example questions/ tasks being completed	P-n diode as photon detector
Work placement	Not applicable

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