



Subject card

Subject name and code	Optoelectronic Devices and Systems, PG_00048689						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group		Optional subject group Specialty 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		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department Of Metrology And Optoelectronics -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Katarzyna Karpienko				
	Teachers		dr inż. Katarzyna Karpienko				
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						
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	Students are acquiring knowledge and skills to analyze, design, construction and testing of optoelectronic devices and systems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Can design a system adequate for the given application. Selects system elements using knowledge and analysis of technical documentation. Knows what tools (especially optoelectronic devices) and methods will be appropriate for implementing a specific process.	[SU2] Assessment of ability to analyse information
	[K7_W10] knows and understands, to an increased extent, the basic processes occurring in the life cycle of equipment, objects and technical systems, as well as methods of supporting processes and functions, specific to the field of study	Knows and understands the basic processes occurring in optoelectronic devices and systems consisting of them. Can indicate methods of supporting processes and functions of optoelectronic systems, e.g., validation methods, signal processing, and data acquisition.	[SW1] Assessment of factual knowledge
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	Knows and understands the structure and operation of advanced optoelectronic devices and systems. Knows and understands the operation of optical elements specific to these systems and systems. Identifies and names the relationships between system elements, knows signal acquisition and processing methods, and understands the physical phenomena that are the basis for the system's operation.	[SW1] Assessment of factual knowledge
Subject contents	<div>1. Optoelectronic systems and their applications,</div> <div>2. Optical and Fiberoptic gyroscopes,</div> <div>3. Optical wavefront sensors and their applications,</div> <div>4. Systems using microinterferometers,</div> <div>5. Ellipsometric and polarimetric systems</div> <div>6. Systems using low-coherence interferometry</div> <div>7. Systems using adaptive optics</div>		
Prerequisites and co-requisites	No requirements		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final test	50.0%	100.0%
Recommended reading	Basic literature	K.J. Gasvik: Optical Metrology	
		P.K.Rastogi: Optical Measurement Techniques and Applications	
		T.Yoshizawa Handbook of optical metrology	
	Supplementary literature	A set of publications	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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