



## Subject card

Subject name and code	Optoelectronic Devices and Systems, PG_00048689						
Field of study	Electronics and Telecommunications						
Date of commencement of studies	February 2027	Academic year of realisation of subject			2027/2028		
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	Metrology and Electronic Systems Department -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Katarzyna Karpienko					
	Teachers	dr inż. Katarzyna Karpienko					
Lesson types	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_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
	[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_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
Subject contents	<p>Course content – lecture</p> <ol style="list-style-type: none"> <li>1. Optoelectronic systems and their applications,</li> <li>2. Optical and Fiberoptic gyroscopes,</li> <li>3. Optical wavefront sensors and their applications,</li> <li>4. Systems using microinterferometers,</li> <li>5. Ellipsometric and polarimetric systems</li> <li>6. Systems using low-coherence interferometry</li> <li>7. Systems using adaptive optics</li> </ol>		
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	<p>K.J. Gasvik: Optical Metrology</p> <p>P.K.Rastogi: Optical Measurement Techniques and Applications</p> <p>T.Yoshizawa Handbook of optical metrology</p>	
	Supplementary literature	A set of publications	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Practical activities within the subject	Not applicable		

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