GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Optoelectronic Devices and Systems, PG_00048689		
Field of study	Electronics and Telecommunications		
Date of commencement of studies	February 2024	Academic year of realisation of subject	2024/2025
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	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Metrology and Optoelectronics -> Faculty of Electronics, Telecommunications and Informatics		
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_W06] Knows and understands, to an increased extent, the basic processes taking place in the life cycle of devices, facilities and technical systems.	knows and understands factors, phenomena nad processes influencing accuracy, resolution and drift in optoelectronic circuits.	[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	selects optical wavefront sensors following the requirements; designas systems using optical fiber gyroscopes, low-coherence interferometers and microinterferometers;	[SU2] Assessment of ability to analyse information
[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 construction and the operation of optical wavefront sensors, adaptive optics systems, ellipsometric systems, microinterferometers and optical fiber gyroscopes; knows and understands construction and the operation of optical components specific to those systems;	[SW1] Assessment of factual knowledge
[K7_U06] can analyse the operation of components, circuits and systems related to the field of study; measure their parameters; examine technical specifications; interpret obtained results and draw conclusions	can analyse the operation of optical wavefront sensors, adaptive optics systems, ellipsometric systems, microinterferometers and optical fiber gyroscopes; can analyse the operation of optical components specific to those systems;	[SU2] Assessment of ability to analyse information

Subject contents

1. Optoelectronic systems and their applications,
2. Optical and Fiberoptic gyroscopes,
3. Optical wavefront sensors and their applications,
4. Systems using microinterferometers,
5. Ellipsometric and polarimetric systems
6. Systems using low-coherence interferometry
7. Systems using adaptive optics

Prerequisites and co-requisites

No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
colloquium	55.0%	100.0%

Recommended reading

Basic literature	K.J. Gasvik: Optical Metrology P.K.Rastogi: Optical Measurement Techniques and Applications T.Yoshizawa Handbook of optical matrology
Supplementary literature	A set of publications
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Work placement

Not applicable