GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Measurement techniques, PG_00057265		
Field of study	Power Engineering, Power Engineering, Power Engineering		
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Zakład Maszyn Przepływowych -> Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Włodarski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	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	7.0	13.0	50

Subject objectives

Providing general knowledge about the methodology of the experiment, broadening the knowledge of selected measurement techniques.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W03] knows advanced aspects of automation and automatic control of power systems or transmission networks and internal installations	The student is able to plan and carry out experiments, including measurements and computer simulations, critically interpret the obtained results and draw conclusions.	[SW1] Assessment of factual knowledge
[K7_U04] is able to plan and perform experiments using measurements and computer simulations, together with interpretation of results, is able to present and evaluate the course and results of work in a team realizing an advanced engineering project, is able to use technical documentation and to create it independently	The student uses analytical, simulation and experimental methods to formulate and solve engineering tasks.	[SU1] Assessment of task fulfilment
[K7_W02] has extended and deepened knowledge of physics, chemistry, thermodynamics, fluid mechanics, material science, necessary to understand and describe basic thermal and flow phenomena occurring in and around power equipment and systems, transmission networks and internal installations	The student is able to plan and carry out experiments, including measurements and computer simulations, critically interpret the obtained results and draw conclusions.	[SW1] Assessment of factual knowledge

Subject contents	Contents of the lecture: 1. Historical development of the experimental method 2. Elements of the experimental method 3. Planning the experiment 4. Approximation of the function of the research object 5. Assessment of measurement errors 6. Selected measurement techniques Content implemented as part of laboratory classes: 1. Planning of the experiment 2. Approximation of the function of the research object 3. Analysis of measurement errors 4. Selected measurement techniques
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	51.0%	100.0%

Recommended reading		
	Basic literature	Leon Kukiełka Podstawy badań inżynierskich Politechnika Koszalińska 2000 Zbigniew Polański Metodyka badań doświadczalnych Politechnika Krakowska 1978 Kazimierz Mańczak Technika planowania eksperymentu Wydawnictwo Naukowo Techniczne 1976 Roma Górecka Teoria i technika eksperymentu Politechnika Krakowska 1998 Mieczysław Korzyński Metodyka eksperymentu Wydawnictwo Naukowo Techniczne 2013 Zbigniew Polański Planowanie doświadczeń w technice Państwowe Wydawnictwo Naukowe 1984 Jerzy Godziszewski Zasady planowania doświadczeń i opracowywania wyników pomiaru Akademia Górniczo-Hutnicza w Krakowie 1982
	Supplementary literature	A. Strzałkowski, A. Śliżyński, "Matematyczne metody opracowywania wyników pomiarów", PWN, 1978
	eResources addresses	

Example issues/ example questions/ tasks being completed	Describe the types of measurement errors
Work placement	Not applicable