GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Measurement techniques, PG_00064775		
Field of study	Power Engineering, Power Engineering		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2027/2028
Education level	second-cycle studies	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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Fluid-Flow Machinery -> Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Włodarski	
	Teachers	dr inż. Wojciech Włodarski	

Lesson types

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	38.0	75

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_W04] demonstrates knowledge encompassing selected issues in the field of advanced detailed knowledge, particularly in the scope of methods, techniques, tools, and algorithms specific to Power Engineering	is able to plan and carry out experiments, including measurements and computer simulations, critically interpret the results obtained and draw conclusions	[SW1] Assessment of factual knowledge
[K7_U01] utilizes acquired analytical, simulation, and experimental methods, as well as mathematical models for analysis and evaluation of energy systems, machines and devices, transmission grids and internal installations	uses analytical, simulation and experimental methods to formulate and solve engineering tasks	[SU1] Assessment of task fulfilment

<table>
<tr><td>Subject contents</td><td>Course content – lecture
Content covered in the lecture:

1. historical development of the experimental method

2. elements of the experimental method

3. approximation of the test object function

4. analysis of measurement errors

5. selected measurement techniques

6. measurement data acquisition

Contents realised in laboratory classes:

1. Practical use of experiment planning methods

2. selected measurement techniques e.g. measurement of pressure, temperature, force, speed, resistance, inductance, power

3. evaluation of measurement errors

4. experimental determination of the coefficients of a technical object model</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td></td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
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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	
Practical activites within the subject	Not applicable	

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