GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Metrology II, PG_00038394		
Field of study	Electrical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2022/2023
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Metrology and Information Systems -> Faculty of Electrical and Control Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Wołoszyk	
	Teachers	dr inż. Marek Wołoszyk dr inż. Michał Ziółko	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	20.0	0.0	0.0	20

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	20	3.0	27.0	50

Subject objectives: Introduce students with the methods and tools for measuring electrical quantities

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U02	The student takes measurements individually or as part of a team. The student prepares and documents the results using various techniques. The student controls the completion of the task within the prescribed time.	[SU1] Assessment of task fulfilment
K6_W05	The student prepares multiple measurement results (measurement series). The student takes measurements of basic electrical parameters and prepares their results. The student performs measurements of RLC parameters using bridge methods and specialized instruments. The student uses an electronic oscilloscope. The student analyzes the operation of basic electronic analog measuring systems. The student analyses the recorded waveforms with the use of computer technique.	[SW3] Assessment of knowledge contained in written work and projects
K6_K02	The student directs the work of the team or within the team takes measurements, documents them or prepares the results.	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents: **LABORATORY** Analysis of measurement data. Calibration. Measurement of RLC parameters. Oscilloscope measurement. Power measurement of three phase circuits. Measurement of sinusoidal and distorted waveforms. Analog signal processing for measurement. Computer processing of measurement signals. Measurement of ground earth resistance and the fault loop impedance. Magnetic measurement.

Prerequisites and co-requisites: Basic knowledge of electrical engineering and electrical circuit analysis. Knowledge of the Metrology course.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Practical exercise</td><td>60.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Praca zbiorowa (red. Roskosz R.): Miernictwo elektryczne. Laboratorium. Wydawnictwo Politechniki Gdańskiej, 2007.</td></tr>
<tr><td>Supplementary literature</td><td>1. Chwaleba A., Poniński M., Siedlecki A.: Metrologia elektryczna. WNT, 2003.
2. Turmański S.: Technika pomiarowa. WNT, 2007.
3. Lisowski M.: Podstawy metrologii. Oficyna Wydawnicza Politechniki Wrocławskiej, 2011.</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">1. Explain the concepts of median and modal values.

2. Measurement error of insensitivity in a Wheatstone bridge.

3. The methods used for the LPS measurements.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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