GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Introduction to electronics and electrotechnics, PG_00052079		
Field of study	Nanotechnology		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study 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	2	Language of instruction	Polish
Semester of study	4	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Ryszard Barczyński	
	Teachers	dr hab. inż. Marcin Łapiński dr hab. inż. Ryszard Barczyński dr inż. Marek Chmielewski	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	15.0	0.0	60
	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	60	5.0	60.0	125

Subject objectives

The objectives of the course are to learn:

- the basic quantities, laws and principles necessary for performing electrical measurements and analyzing systems;
- the basics of semiconductor technology, properties of materials and elements;
- the basic systems necessary for conducting electrical measurements correctly and consciously.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U05	Based on the given assumptions, the student is able to design and test a simple measurement system.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K6_W08	The student is able to analyze and design a simple electronic circuit.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
K6_U07	The student is able to propose a simple solution for measuring the electrical properties of a material or element.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K6_W09	The student acquires skills in using measuring devices - oscilloscopes, generators, power supplies.	[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
K6_U04	The student builds a laboratory measurement system, performs measurements and analyzes their results.	[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task [SU1] Assessment of task fulfilment

Subject contents

- Basic laws of electricity.
- Electronic circuit elements - passive and active.
- Basic electronic circuits - linear and nonlinear..

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
labs	51.0%	33.0%
Project	51.0%	33.0%
Exam	51.0%	34.0%

Recommended reading

Basic literature	• Barbara Pióro, Marek Pióro, "Podstawy elektroniki" (dwa tomy). • Augustyn Chwaleba, Bogdan Moeschke, Grzegorz Płoszajski, "Elektronika".
Supplementary literature	Paul Horowitz, Winfield Hill, "Sztuka Elektroniki"
eResources addresses	Adresy na platformie eNauczanie: Wstęp do elektroniki i elektrotechniki NT 2025 - Moodle ID: 44549 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44549

Example issues/ example questions/ tasks being completed

Explain the principle of operation of a linear rectifier.

Build a low-pass filter with a given cutoff frequency.

Work placement

Not applicable

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