University of Gdańsk

Subject card

Subject name and code	Fundamentals of Electrical Engineering - laboratory classes , PG_00201095						
Field of study	Marine Hydrography						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
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	practical		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Piotr Bekier				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	10.0	0.0	0.0	10
	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	10		2.0		9.0	21
Subject objectives	Transfer of knowledge and skills in the basics of electrical engineering. Mastery of the fundamental principles for the operation of electrical devices						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[HML3-W03] knows and understands, at an advanced level, directions of development and the latest discoveries in the field of scientific disciplines forming the theoretical basis appropriate to the field of study	knows and understands at an advanced level: - the methodology for measuring electrical quantities in direct current (DC) and alternating current (AC) systems - the similarities and differences between various types of electrical devices	[SW3] text preparation/written work
[HML3-U11] is able to use navigation devices, means of technical observation and communication as well as measuring instruments, as well as apply in practice various techniques of measurement and observation in the field of professional activity related to the field of study	is able to: - perform measurements of basic electrical quantities - operate basic electrical instruments and devices - work with electrical equipment	[SU3] text preparation/written work
[HML3-U08] is able to independently use the professional literature available in traditional and electronic form, make an assessment, critical analysis and synthesis as well as the correct interpretation of the information obtained	is able to: - use appropriate documentation related to devices and installations	[SU3] text preparation/written work
[HML3-W12] knows and understands, at an advanced level, the key processes occurring in the life cycle of devices, facilities, and technical systems	knows and understands at an advanced level: - the methodology for measuring electrical quantities in direct current (DC) and alternating current (AC) systems - the similarities and differences between different types of electrical devices	[SW3] text preparation/written work

Subject contents

Introductory Classes cover circuits of direct current (DC) and alternating current (AC), focusing on understanding their principles and differences. They also include the basics of construction and operation of electrical machines and devices, providing an overview of their design, components, and functioning. Students learn techniques and tools for measuring basic electrical quantities such as voltage, current, resistance, and power. The classes introduce key electrical apparatus, including relays, circuit breakers, and transformers. A strong emphasis is placed on safety during the operation and maintenance of electrical systems, ensuring adherence to proper practices and safety standards.

Prerequisites and co-requisites

Knowledge in the field of algebra, trigonometry of complex numbers, and the fundamentals of electromagnetism.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	61.0%	100.0%

Recommended reading

Basic literature	KURDZIEL R.: Podstawy elektrotechniki. WNT, Warszawa 1973. WYSZKOWSKI S.: Elektrotechnika okrętowa. Wydawnictwo morskie, Gdańsk 1972.
Supplementary literature	KOSTYSZYN R.: Elektroenergetyka okrętowa. Akademia Morska, Gdynia 2016
eResources addresses	

Example issues/ example questions/ tasks being completed

The questions and tasks are directly related to the content of the subject.

Work placement

Not applicable

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