University of Gdańsk

Subject card

Subject name and code	Fundamentals of Electrical Engineering - classes , PG_00201094		
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	0.0
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	2.0	0.0	0.0	0.0	2

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	2	1.0	1.0	4

Subject objectives

Transfer of knowledge and skills in the basics of electrical engineering.

Mastery of the fundamental principles of operating electrical devices.

<table>
<tr><td>Learning outcomes</td><td>
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<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[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</td><td>is able to:
- perform measurements of basic electrical quantities
- operate basic electrical instruments and devices
- work with electrical equipment</td><td>[SU3] text preparation/written work</td></tr>
<tr><td>[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</td><td>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</td><td>[SW3] text preparation/written work</td></tr>
<tr><td>[HML3-W12] knows and understands, at an advanced level, the key processes occurring in the life cycle of devices, facilities, and technical systems</td><td>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</td><td>[SW3] text preparation/written work</td></tr>
<tr><td>[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</td><td>is able to use appropriate documentation related to devices and installations.</td><td>[SU3] text preparation/written work</td></tr>
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<tr><td>Subject contents</td><td>Ohm's and Kirchhoff's laws. The concept of a branched direct current (DC) circuit. Methods for calculating circuits include forming equations using Kirchhoff's laws, circuit transformation, mesh analysis, nodal analysis, the superposition method, and applying Thevenin's and Norton's theorems.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Knowledge in the fields of algebra, trigonometry of complex numbers, and the fundamentals of electromagnetism.</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>61.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>KURDZIEL R.: Podstawy elektrotechniki. WNT, Warszawa 1973.
WYSZKOWSKI S.: Elektrotechnika okrętowa. Wydawnictwo morskie, Gdańsk 1972.</td></tr>
<tr><td>Supplementary literature</td><td>KOSTYSZYN R.: Elektroenergetyka okrętowa. Akademia Morska, Gdynia 2016</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>The questions and tasks are directly linked to the subject content.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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