GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Fundamentals of Electronics and Electrotechnics, PG_00060582		
Field of study	Design and Construction of Yachts		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Obligatory subject group 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	Faculty Of Mechanical Engineering And Ship Technology -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Leśniewski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	15.0	15.0	0.0	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	6.0	9.0	75

Subject objectives

Familiarize students with the basics of electrical engineering and electronics

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U06] able to perform basic engineering tasks in the field of yacht design, construction and operation according to the formulated specification, using appropriate methods and tools	The student is able to perform basic calculations of the values of electrical parameters in the designed yacht circuits.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K6_W08] has knowledge of physics, including solid state physics and optics, necessary to understand the basic physical phenomena occurring in ocean engineering	Understands the physical phenomena occurring in electrical and electronic systems used in ocean engineering.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_W04] has knowledge in the field of computer science, electronics, electrical engineering, automation and control, information technology, computer graphics, useful for understanding the possibilities of their use in ocean engineering	Knows the basics of electrical engineering and electronics in accordance with the requirements of engineering work in the shipbuilding industry.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_K02] can work in a team, assuming various roles, can act in a rational and ethical way	Performs laboratory tasks in accordance with his/her role in the team.	[SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills

<table>
<tr><td>Subject contents</td><td>• Electric current, sources of electricity, basics of electrical circuits.
• Magnetic field and electromagnetism.
• Sources of electricity 1.
• AC circuits, power in AC systems.
• Sources of electricity 2
• Control systems in electrical engineering and electronics.
• Ship energy systems and electrical installations.
• Electronic Components I
• Electric drives of ships and floating objects.
• Electronic components II
• Measurements of non-electrical quantities and long-distance signal transmission.
• Classification regulations in shipbuilding:
• Electrical installations and control systems.
• Basics of radio technology</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>The knowledge of mathematics and physics of university level</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>50.0%</td><td>35.0%</td></tr>
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<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td></td></tr>
<tr><td>Supplementary literature</td><td></td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Description and solution electrical circuits. in the time domain and symbolic method.

Impedance replacement of electrical circuits. Resonances in the electrical circuits

Magnetic circuits - solving systems.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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