



Subject card

Subject name and code	Fundamentals of Electronics and Electrotechnics, PG_00060532						
Field of study	Naval Architecture and Offshore Structures						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2023/2024		
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						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Leśniewski					
	Teachers	dr inż. Konrad Marszałkowski dr inż. Magdalena Kunicka dr inż. Wojciech Leśniewski					
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_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.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	[K6_U06] in compliance with a formulated specification and with the aid of appropriate tools and methods, is able to complete a simple engineering task within the range of design, construction and operation of ocean technology objects and systems	Student perform basic calculations of physical parameters in electric and magnetic 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_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.			[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice		
	[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.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		

Subject contents	<ul style="list-style-type: none"> • 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 														
Prerequisites and co-requisites	The knowledge of mathematics and physics of university level														
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Subject passing criteria</th> <th style="width: 25%;">Passing threshold</th> <th style="width: 25%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">50.0%</td> <td style="text-align: center;">35.0%</td> </tr> <tr> <td></td> <td style="text-align: center;">50.0%</td> <td style="text-align: center;">30.0%</td> </tr> <tr> <td></td> <td style="text-align: center;">50.0%</td> <td style="text-align: center;">35.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade		50.0%	35.0%		50.0%	30.0%		50.0%	35.0%
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Recommended reading	Basic literature														
	Supplementary literature														
	eResources addresses	Adresy na platformie eNauczenie: Podstawy elektrotechniki i elektroniki (PG_00060532 OiKM; PG_0060582 PiBJ; PG_00055284 PiBJ) 2023_2024 LATO - Moodle ID: 37226 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=37226													
Example issues/ example questions/ tasks being completed	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.														
Work placement	Not applicable														