GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00062013		
Field of study	Mechanical and Naval Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	8.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Automation and Marine Energy -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Damian Bocheński	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	36.0	0.0	9.0	18.0	0.0	63

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	63	0.0	0.0	63

Subject objectives

To familiarize students with typical solutions for marine propulsion systems and development trends in this field.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] is able to identify, formulate and develop the documentation of a simple design or technological task, including the description of the results of this task in Polish or in a foreign language and to present the results using computer software or other aiding tools	The student is able to develop and document a solution to a simple design problem in the field of marine propulsion, and to present the obtained results using appropriate computer tools.	[SU1] Assessment of task fulfilment
[K6_U14] is able to analyse the operation of devices and compare the construction solutions applying usage, safety, environmental, economic and legal criteria	The student is able to conduct a comparative analysis of solutions in the field of marine propulsion.	[SU2] Assessment of ability to analyse information
[K6_W11] has knowledge of analysis, design, technology and manufacturing of selected technical systems, machinery and equipment, metrology and quality control, knows and understands methods of measurement and calculation of basic quantities describing the operation of technical systems, knows basic calculation methods used to analyse experimental results	possesses basic knowledge of marine propulsion systems	[SW1] Assessment of factual knowledge
[K6_W08] has a knowledge of the analysis and design of selected technical systems, machines and technical equipment, selection of construction materials, manufacturing and operation, including their life cycle	possesses the knowledge required to carry out simple projects in the field of marine propulsion systems	[SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>Course content – lecture

Approximate methods for determining the power required to propel a vessel, illustrated using a specific ship type. Operational load profiles and the selection of a propulsion system configuration. Development of performance characteristics for the propulsion system of a typical cargo ship: determination of resistance curves and required thrust, preliminary selection of the propeller, establishment of contractual parameters, and an initial analysis of the interaction between the various components of the propulsion system.

Course content – laboratory

Programowy symulator okrętowego układu energetycznego - przygotowanie do uruchomienia, uruchomienie i nadzór w czasie pracy wybranych instalacji rurociągów siłownianych i ich elementów.

Course content – project

Software-based simulator of a ship’s power system – preparation for start-up, start-up, and operational monitoring of selected engine-room piping systems and their components.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></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>Project</td><td>100.0%</td><td>30.0%</td></tr>
<tr><td>Lecture</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Laboratorium</td><td>100.0%</td><td>20.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>1. Balcerski A.: Siłownie okrętowe. Podstawy termodynamiki, silniki i napędy główne, urządzenia pomocnicze, instalacje. Skrypt PG, Gdańsk 1990.
2. Giernalczyk M., Górski Z.: Siłownie okrętowe. Cz. I, Gdynia 2011.</td></tr>
<tr><td>Supplementary literature</td><td>1. Urbański P.: Podstawy napędu statków, Gdańsk 2005.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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