GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Aeromechanics, PG_00056247		
Field of study	Design and Construction of Yachts		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	3.0
Learning profile	practical profile	Assessment form	assessment
Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Artur Karczewski	
	Teachers	dr inż. Artur Karczewski dr hab. inż. Paweł Dymarski	

Lesson types and methods of instruction							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	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	30	5.0	40.0	75

Subject objectives

The aim of the course is to reach knowledge in the field of gas medium mechanics, and the skills in the use of mathematical description of the motion of this medium and the interaction between it and bodies moving in it for practical use in engineering.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W02	The student has structured basic knowledge in the field of fluid mechanics of a gaseous medium.	[SW1] Assessment of factual knowledge
K6_U02	The student is able to carry out calculations and an experiment in the field of basic issues of interaction between the medium and the body moving in it.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task

Subject contents

The lectures: Forces and relations in a fluid medium; Liquids - gases; Static pressure, flow, velocity measurement, lift and drag; The flat plate problem; Flow description; Gas flows - elements of thermodynamics; subsonic, subsonic, supersonic velocities; Reynolds, Mach numbers; The problem of the boundary layer.

Lab: 1. Speed measurement 2. A numerical example of a selected profile 3. Measurement of the selected profile and calculation of its characteristics 4. Measurement of the characteristics of the selected profile in the wind tunnel 5. Lab exam

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	51.0%	100.0%
Recommended reading	Basic literature	J.W. Slooff -The Aero- and Hydromechanics of Keel Yachts	
	Supplementary literature	L. Larsson, R. E. Eliasson, M. Orych Principles of yacht design	
	eResources addresses	Adresy na platformie eNauczanie: Aeromechanika - Jachty, I st., stac., Z2023/24 (sem. 3) - Moodle ID: 35031 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35031	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		