GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00057177		
Field of study	Ocean Engineering		
Date of commencement of studies	February 2022	Academic year of realisation of subject	2022/2023
Education level	second-cycle studies	Subject group	Optional subject group Subject group related to scientific research 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	5.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Zakład Hydromechaniki i Hydroakustyki Okrętu -> Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Paweł Dymarski	
	Teachers	dr hab. inż. Paweł Flaszyński mgr inż. Ewelina Ciba	

Lesson types and methods of instruction

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

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	75	15.0	35.0	125

Subject objectives

Extended knowledge of fluid mechanics, where the base level is the knowledge acquired during a course on fundamentals of fluid mechanics. The lecture covers an expanded scope on the boundary layer, turbulent flow, wakes, flow control, , as well as the basics of atmospheric flow in a wind farm scale.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U07] in compliance with a formulated specification and with the aid of appropriate tools and methods, is able to complete an advanced engineering task within the range of design, construction and operation of ocean technology objects and systems	Student is able to identifiy features of the investigated flow and propose a method for solving the flow problem.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject
[K7_U04] can apply mathematical methods and models and computer simulations to analyse, design, and assess the functioning of ocean technology objects and systems and their elements	Student is able to apply theoretical models to analyze aero/ hydrodynamic forces acting on bodies (profiles).	[SU1] Assessment of task fulfilment
[K7_W06] has an organized, widened knowledge on engineering methods and design tools allowing the conducting of advanced projects within the construction and operation of ocean technology objects and systems	Student is able to propose a method in a design process	[SW1] Assessment of factual knowledge
[K7_W05] has an organized, widened knowledge on design, construction and operation of ocean technology objects and systems	Student is able to use the learned theoretical models in a design and operation of marine structures	[SW1] Assessment of factual knowledge
[K7_W03] has a widened knowledge in the range of reliability and safety of ocean technology objects and systems and environmental protection in ocean technology	Student is able to use models to analyze critical loads on marine structures	[SW1] Assessment of factual knowledge

Subject contents	Potential flow around cylinder and profile, turbulence and turbulent flow, boundary layer, laminar-turbulent transition, flow control, wake, fundamentals of atmospheric boundary layer and aerodynamic wakes in a wind farm
Prerequisites and co-requisites	Fundamentals of fluid mechanics in accordance with the sylabus

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Lab	60.0%	30.0%
Classes	60.0%	35.0%
Lecture	60.0%	35.0%

Recommended reading

Basic literature	Fluid mechanics books
Supplementary literature	Measurement and numerical methods in fluid mechanics
eResources addresses	

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable