GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00058656		
Field of study	Transport and Logistics		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish Teaching in English is feasible om demand. Some lecture notes are in Polish only.
Semester of study	2	ECTS credits	4.0
Learning profile	general academic 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 hab. inż. Jakub Montewka	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	30.0	0.0	60

E-learning hours included: 0.0

Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=16588

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	0.0	0.0	60

Subject objectives

The objective of the course is to familiarize the student with the basic issues related to the design, operation, and modernization of waterways, including the classification of waterways, their infrastructure, the hydrotechnical structures that make up an inland waterway, as well as the navigation and teleinformation infrastructure of the waterway. The ship types and the physical basis of their movement are described. Finally, development trends of inland and maritime routes in the framework of the EU policy of the trans-European transport network TEN -T are presented.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U06] The student is able to notice their non-technical aspects, including environmental, economic and legal aspects when formulating and solving project tasks. Applies the principles of occupational health and safety	The student is able to determine the boundary conditions of the analyzed problem, being aware of the existence of a wide range of influence of systems in many aspects.	[SU3] Assessment of ability to use knowledge gained from the subject
[K7_W02] The student has an extensive knowledge of modeling transport processes, including the knowledge necessary to describe and evaluate the functioning of selected elements of the transport system	The student is able to perform a simple task related to modeling a selected process occurring in transport systems.	[SW3] Assessment of knowledge contained in written work and projects
[K7_K02] The student is aware of the importance of non-technical aspects and the effects of engineering activities, including its impact on the natural environment and the related responsibility for decisions made	The student is aware of the multi-aspect nature of transport systems.	[SK5] Assessment of ability to solve problems that arise in practice
[K7_U04] The student is able to use the known methods and mathematical models, as well as computer simulations to analyze, design and evaluate the functioning of transport systems or their components	The student skillfully selects tools to suit the needs, correctly interprets the obtained results and skillfully indicates the limitations related to the modeling process.	[SU4] Assessment of ability to use methods and tools
[K7_U01] The student can obtain information from literature, databases and other, properly selected sources, also in English; is able to integrate the obtained information, interpret it, as well as draw conclusions and formulate and justify opinions	The student skillfully conducts literature research on the issue he is analyzing and draws valid conclusions.	[SU5] Assessment of ability to present the results of task

Subject contents

1. Classification of inland waterways, line and point infrastructure of these roads;
2. Basic hydrotechnical structures forming an inland waterway.
3. Basics of planning of waterways in classical manner and using risk based methods.
4. Current methods for determining the safe width, depth and capacity of waterways.
5. Methods of assessing the safety of navigation on waterways.
6. Types of ships and physical principles related to buoyancy, stability, and resistance of marine and inland vessels.
7. Elements of navigation and tele- IT infrastructure that ensure safe operation of waterways.
8. Development trends of inland and maritime waterways in the context of the TEN -T policy of the trans-European transport network.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final test completed	51.0%	50.0%
Assignments completed	51.0%	50.0%

Recommended reading

Basic literature

1. Jan Kulczyk Jan Winter, ***Śródlądowy transport wodny***, Wrocław 2003
2. Stanisław Gucma (redakcja), Morskie drogi wodne. **Projektowanie i eksploatacja w ujęciu inżynierii ruchu**. Gdańsk, 2015
3. PIANC, Harbour approach channels design guidelines. PIANC report No 121. Brussels, 2014
4. Fisheries and Oceans Canada, Safe waterways, Part 1(a), Guidelines for the safe design of commercial shipping channels.
5. US Army Corps of Engineers, Hydraulic design of deep-draft navigation projects. Washington 2006

Supplementary literature

1. Ryszard Rolbiecki, Krystyna Wojewódzka-Król, Aleksandra Gus-Puszczewicz, Transport wodny śródlądowy w zrównoważonym rozwoju. Wyd. Uniwersytetu Gdańskiego 2020.
2. Rozporządzenie Ministra Infrastruktury z dnia 28 kwietnia 2003 r. w sprawie przepisów żeglugowych na śródlądowych drogach wodnych
3. Ustawa z dnia 20 lipca 2017 r. - Prawo wodne
4. USTAWA z dnia 21 grudnia 2000 r. o żegludze śródlądowej
5. https://www.nik.gov.pl/aktualnosci/rozwoj-srodladowych-drog-wodnych.html
6. The overseas coastal area development institute of Japan, Technical standards and commentaries for port and harbour facilities in Japan. Tokyo 2009.

	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	