GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	WATERWAYS AND HARBORS, PG_00044657		
Field of study	Transport		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-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	3	Language of instruction	Polish
Semester of study	5	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Urban Design and Regional Planning -> Faculty of Architecture		
Name and surname of lecturer (lecturers)	Subject supervisor		
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	15.0	0.0	15.0	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	5.0	35.0	100

Subject objectives

Acquainting with the issues of construction and operation and the use of port infrastructure elements (aquatories and territories), including port channels (approach channels to the port, inner port channels).

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W18] has proficiency in transport infrastructure as appropriate for their specialty	Student knows the basic principles of spatial planning and the operation of seaports.	
[K6_U13] able to select tools and methods, carry out assessments and simple tests of transport infrastructure and means of transport to an extent required of the specialty / learning profile	Student is able to define dimensions of selected port aquatories and a mooring line, adjusting them to the planned size of vessels.	

Subject contents

Location factors of sea ports, port functions. Spatial and functional layout of seaports. Characteristics and rules for dimensioning port aquatories (canals, pools, avanport). Types and characteristics of port territories (breakwaters, wharfs, piers, storage yards, technological zones). The specificity of port terminals (groupage, ro-ro, container, bulk, passenger terminals, fishing ports, yacht ports). Selected port hydrotechnical structures. Functional and spatial layout of the port territory compared to the aquarium layout. System of transport service of the port and port terminals.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
final test	60.0%	40.0%
design	100.0%	40.0%
excercise	100.0%	20.0%

Recommended reading	Basic literature	Agerschou H., Dand I., Ernst T., *Planning and design of ports and marine terminals*, wyd. drugie., Thomas Telford Ltd, 2004. Böse J. W., *Handbook of Terminal Planning*. Springer-Verlag New York, 2011. Gaythwaite J.W., *Design of Marine Facilities for the Berthing, Mooring, and Repair of Vessels*. Amer Society of Civil Engineers, 2004. Mazurkiewicz B. (red.), *Morskie budowle hydrotechniczne. Zalecenia do projektowania i wykonywania Z 1 - Z 45*. wydanie V, Fundacja Promocji POiGM, Gdańsk 2008. Mazurkiewicz B. Wiśniewski F., *Morskie budowle hydrotechniczne. Zalecenia do projektowania, wykonywania i utrzymania*. Fundacja Promocji POiGM, Gdańsk 2015. PIANC (Permanent International Association of Navigational Conferences) Thoresen C., *Port designers handbook. Recommendations and guidelines*. Thomas Telford, London, 2003. Tsinker P. (ed.), *Port engineering. Planning. Construction. Maintenance and security*. Wiley & Sons, 2004. Rozporządzenie Ministra Gospodarki Morskiej z dnia 23 października 2006 r. w sprawie warunków technicznych użytkowania oraz szczegółowego zakresu kontroli morskich budowli hydrotechnicznych. Rozporządzenie Ministra Transportu i Gospodarki Morskiej z dnia 1 czerwca 1998 r. w sprawie warunków technicznych, jakim powinny odpowiadać morskie budowle hydrotechniczne i ich usytuowanie. prace UNCTAD prace PIANC
	Supplementary literature	Bird J., *Seaports and Seaport Terminals*. Hutchinson and Co. Ltd, London 1971 Gucma S. (red.), *Morskie terminale promowe projektowanie i eksploatacja w ujęciu inżynierii ruchu*. Wyd. Fundacja Promocji POiGM, 2015. Mazurkiewicz B., *Encyklopedia inżynierii morskiej*. Wyd. Fundacja Promocji POiGM, Gdańsk 2009. Szwankowski St., *Funkcjonowanie i rozwój portów morskich*. Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2000.
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1. Define and give a list the elements of the port territory 2. Provide a definition and list the elements of the port aquarium 3. Define and list the port infrastructure elements 4. Define and list the elements of the port superstructure 5. List Polish ports of fundamental importance for the maritime economy 6. Provide a breakdown of the ports according to their location in the layout / edge configuration. Give 1 example for each type) 7. Provide the port division due to their functions. Give 1 example for each type) 8. Provide a division of ports according to the type of cargo they handle. Give 1 example for each type) 9. Provide a breakdown of ports according to their ownership. Give 1 example for each type) 10. Provide the port breakdown for tidal conditions. Give 1 example for each type) 11. Characterize and provide the rules of shaping and dimensioning (in the drawing) of the following elements of port aquatories: - anchorage on one and two anchors) - approaching port's channels (one-way and two-way) - internal port channels (unilaterally operated and bilaterally operated) - port basins (short and long) - open entrance to the port - port turntables 12. List the general principles of designing the spatial layout of port aquatories. Give the current trends in shaping aquatories. 13. List the general principles of designing the spatial layout of port territories. What are the zoning rules in ports? 14. Give the typical spatial layouts of the mooring line and in which terminals they are used 15. How is the mooring line length at the port's transshipment terminal calculated? What does the number of berths in the terminal depend on? 16. List and briefly describe the structure of the selected quay currently used in seaports For the terminal: - conventional general cargo - mass conventional - mass modern with high speed - fuel - container - ro-ro and provide typical: - types of cargo: - approximate annual turnover: - mooring line layout: - reloading system and type of equipment for servicing mooring berths: - cargo storage methods: (illustrate selected issues with drawings)
Work placement	Not applicable