



## Subject card

Subject name and code	WATERWAYS AND HARBORS, PG_00044657						
Field of study	Transport						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
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_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.				
	[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.				
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		
	exercise		100.0%		20.0%		
	design		100.0%		40.0%		
	final test		60.0%		40.0%		

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

<p>Example issues/ example questions/ tasks being completed</p>	<ol style="list-style-type: none"> <li>1. Define and give a list the elements of the port territory</li> <li>2. Provide a definition and list the elements of the port aquarium</li> <li>3. Define and list the port infrastructure elements</li> <li>4. Define and list the elements of the port superstructure</li> <li>5. List Polish ports of fundamental importance for the maritime economy</li> <li>6. Provide a breakdown of the ports according to their location in the layout / edge configuration. Give 1 example for each type)</li> <li>7. Provide the port division due to their functions. Give 1 example for each type)</li> <li>8. Provide a division of ports according to the type of cargo they handle. Give 1 example for each type)</li> <li>9. Provide a breakdown of ports according to their ownership. Give 1 example for each type)</li> <li>10. Provide the port breakdown for tidal conditions. Give 1 example for each type)</li> <li>11. Characterize and provide the rules of shaping and dimensioning (in the drawing) of the following elements of port aquatories: <ul style="list-style-type: none"> <li>- anchorage on one and two anchors)</li> <li>- approaching port's channels (one-way and two-way)</li> <li>- internal port channels (unilaterally operated and bilaterally operated)</li> <li>- port basins (short and long)</li> <li>- open entrance to the port</li> <li>- port turntables</li> </ul> </li> <li>12. List the general principles of designing the spatial layout of port aquatories. Give the current trends in shaping aquatories.</li> <li>13. List the general principles of designing the spatial layout of port territories. What are the zoning rules in ports?</li> <li>14. Give the typical spatial layouts of the mooring line and in which terminals they are used</li> <li>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?</li> <li>16. List and briefly describe the structure of the selected quay currently used in seaports <ul style="list-style-type: none"> <li>For the terminal: <ul style="list-style-type: none"> <li>- conventional general cargo</li> <li>- mass conventional</li> <li>- mass modern with high speed</li> <li>- fuel</li> <li>- container</li> <li>- ro-ro</li> </ul> </li> </ul> </li> </ol> <p>and provide typical:</p> <ul style="list-style-type: none"> <li>- types of cargo:</li> <li>- approximate annual turnover:</li> <li>- mooring line layout:</li> <li>- reloading system and type of equipment for servicing mooring berths:</li> <li>- cargo storage methods:</li> </ul> <p>(illustrate selected issues with drawings)</p>
<p>Work placement</p>	<p>Not applicable</p>