



## Subject card

Subject name and code	CONSTRUCTION AND MAINTENANCE OF PORTS AND WATERWAYS, PG_00044233						
Field of study	Civil Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group			Optional subject group		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Geotechnics, Geology and Marine Civil Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Remigiusz Duszyński					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	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	0.0		20.0		50
Subject objectives	Presentation of the principles of organization and spatial planning of areas around and in the port area. Presentation of requirements for the construction, operation and operation of port terminals, including specialized terminals. Understanding the principles of spatial planning of new locations for potential reloading terminals, including presentation of a feasibility study.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W09] knows the principles of determining of loads acting on basic constructions (e.g. general, industrial, bridge, water, marine, transport objects) and rules of its constructing	Student knows the basic principles of spatial planning and the operation of seaports.					
	[K6_W16] Has deeper and adequate knowledge of civil engineering, within offered specialization	Characterizes port terminals and types of cargo. He knows the spatial arrangement of terminals, the influence of types and parameters of loads on the shape of terminals.					
	[K6_U17] has specialized skills in civil engineering within offered specialization	Explains the principles of organization and spatial planning of seaports and port-related areas.					
	[K6_W07] has basic knowledge on natural processes (hydrological, hydraulic or geological) and its influence on building subsoil; understands specific aspects of surface and underground water, which constraints the design and exploitation of buildings and engineering objects	Basic knowledge of the design of aquatories and port territories.					
	[K6_U07] Can design and properly dimension basic elements of construction or basic foundations of general, hydrotechnical and bridge constructions	Creates a simple feasibility study for new port terminal locations					

Subject contents	<p>1. Basic terms and definitions: port, sea port, inland port. Port functions, port locations. Large European ports - characteristics. Polish ports. 2. Geometric parameters of ships as modular sizes for sea port planning. Characteristic ship and maximal ship. 3. Characteristics of the port-related areas, spatial planning of new port locations. 4. Characteristics of port terminals, types of terminals and cargoes. Spatial arrangement, the influence of types and parameters of loads on the shape of terminals. 5 Road and rail transport in handling container, bulk and groupage terminals. 6 Pipeline, rail and road transport in servicing liquid fuel terminals. 7 Inland ports. Water transport. Spatial and functional elements of river ports.</p>		
Prerequisites and co-requisites	Knowledge in the field of water and marine construction		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	60.0%	50.0%
	practise	100.0%	50.0%
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>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>
	Supplementary literature		Bird J., <i>Seaports and Seaport Terminals</i> . Hutchinson and Co. Ltd, London 1971
	eResources addresses		Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	<p>1. Definition and list the elements of the port territory 2. Definition and list the elements of the port aquarium 3. List Polish ports of fundamental importance for the maritime economy 4. Specify the division of ports according to their functions. Give 1 example for each type 5. Enter the division of ports according to the type of cargo handled by them. Give 1 example for each type 6. Give the port breakdown according to the tidal conditions. Give 1 example for each type 7. Characterize and provide the rules of shaping and dimensioning (in the drawing) of the following elements of port aquatories: -stands on the roadstead- external port channels (one-way and two-way)- internal port channels (unilaterally operated and bilaterally operated)- port basins- open entrance to the port- awanport- port turntables</p>		
Work placement	Not applicable		

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