



Subject card

Subject name and code	Marine Special Systems, PG_00060569						
Field of study	Naval Architecture and Offshore Structures						
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	6	ECTS credits			6.0		
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 inż. Jacek Nakielski				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	0.0	15.0	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		8.0		67.0	150
Subject objectives	The aim of the course is to familiarize students with the construction, operation, and design of contemporary, especially unconventional, devices used in shipbuilding and the offshore industry, as well as in port handling.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	Rozróżnia rodzaje stosowanych obecnie okrętowych systemów specjalnych wraz z ich funkcjami, konstrukcją oraz sposobem działania. Potrafi określić ich przydatność w różnego rodzaju systemach okrętowych, portowych i obiektach offshore zarówno do przeładunków jak i poszukiwania, badania i eksploatacji podmorskich surowców mineralnych.			[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_K03] is aware of the impact of non-technical aspects on the engineer's work and the impact of engineering activities on the natural environment	They will be able to determine the nature of the working loads of the designed device and calculate stresses in important structural elements and joints using modern computer software.			[SK5] Assessment of ability to solve problems that arise in practice		
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems	Analizuje wieloaspektowo warianty możliwych rozwiązań konstrukcyjnych, dokonuje odpowiedniego wyboru. Wykonuje dokumentację techniczną oraz rysunkową dla wybranego okrętowego systemu specjalnego.			[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Lecture:</p> <p>During the lecture, students will become familiar with the construction and principles of operation of maritime special systems including:</p> <p>1. Handling equipment:</p> <ul style="list-style-type: none"> • Containers, palletized cargo, large objects (e.g., platforms, wind turbine components, etc.); • Dry bulk goods (coal, metal ores, timber, grain, foodstuffs, fertilizers, cement); • Liquid cargoes (crude oil, petroleum processing products, chemicals, liquefied gas cargoes). <p>2. Waterway dredging equipment (bucket dredgers, suction dredgers, suction-cutter dredgers, etc.), as well as equipment for extracting resources lying on the seabed (gravel, polymetallic nodules, etc.).</p> <p>3. Specialized equipment:</p> <ul style="list-style-type: none"> • Used for laying submarine cables and pipelines; • Found on offshore platforms and units. <p>Exercises:</p> <p>During exercises, students analyze the operational states of example special equipment, determine the values and locations of maximum loads, and then calculate the stresses occurring there.</p>														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 898 794 927">Subject passing criteria</th> <th data-bbox="799 898 1137 927">Passing threshold</th> <th data-bbox="1142 898 1481 927">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 934 794 963">Project</td> <td data-bbox="799 934 1137 963">51.0%</td> <td data-bbox="1142 934 1481 963">30.0%</td> </tr> <tr> <td data-bbox="456 969 794 999">Exercises</td> <td data-bbox="799 969 1137 999">51.0%</td> <td data-bbox="1142 969 1481 999">30.0%</td> </tr> <tr> <td data-bbox="456 1005 794 1034">Lecture</td> <td data-bbox="799 1005 1137 1034">51.0%</td> <td data-bbox="1142 1005 1481 1034">40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Project	51.0%	30.0%	Exercises	51.0%	30.0%	Lecture	51.0%	40.0%
Subject passing criteria	Passing threshold	Percentage of the final grade													
Project	51.0%	30.0%													
Exercises	51.0%	30.0%													
Lecture	51.0%	40.0%													
Recommended reading	Basic literature	-													
	Supplementary literature	-													
	eResources addresses	Adresy na platformie eNauczenie:													
Example issues/ example questions/ tasks being completed	<p>Explanation of the principle of operation using coupled booms?</p> <p>What are the basic loading systems for tankers?</p> <p>Describe a selected method used for dredging waterways.</p> <p>What is the function of a tensioner on a unit for laying submarine pipelines?</p>														
Work placement	Not applicable														