



Subject card

Subject name and code	Technology of Composite Structures, PG_00057224						
Field of study	Ocean Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Theory and Ship Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Lech Rowiński					
	Teachers	dr hab. inż. Lech Rowiński					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	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		5.0		15.0	50
Subject objectives	To provide student with basic knowledge regarding materials and technologies used in manufacturing of the composite structures of boats and ships.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W05] has an organized, widened knowledge on design, construction and operation of ocean technology objects and systems	knows influence of exploitation process on technical and operational parameters of composite structures			[SW1] Assessment of factual knowledge		
	[K7_W06] has an organized, widened knowledge on engineering methods and design tools allowing the conducting of advanced projects within the construction and operation of ocean technology objects and systems	knows structural materials and manufacturing methods of composite structures and computer programs aiding structure development			[SW1] Assessment of factual knowledge		
	[K7_U07] in compliance with a formulated specification and with the aid of appropriate tools and methods, is able to complete an advanced engineering task within the range of design, construction and operation of ocean technology objects and systems	is able to design and describe process of procurement of composite structure meeting specified requirements			[SU1] Assessment of task fulfilment		
Subject contents	<p>Lecture: Review and the selection of non-metal materials applied in shipping constructions. The relationship of the construction with the technology in composite constructions. Review of constructional joints and the principles in designing process. Basic constructional calculations. The technological process of composite constructions. Technologies of forming the elements of the construction from reinforced resins. Technological gear and tools. Technological materials. The organization of the technological process. Investigation of the effectiveness of the technological process. The completion of constructional elements and finishing works. Technological requirements resulting from the recipes of classifying companies and norms.</p> <p>Project: Design of indicated composite structure and procurement process of this structure</p>						

Prerequisites and co-requisites	No requirements		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Basic design of the structure or process	60.0%	50.0%
	Short tests during lessons	60.0%	50.0%
Recommended reading	Basic literature	<p>1. Marine Design Manual for Fiberglass Reinforced Plastics. Gibbs & Cox Inc. New York 1960</p> <p>2. T. Sano, T. S. Srivatsan: "Advanced Composites for Aerospace, Marine, and Land Applications, Wiley-TMS, 2014</p>	
	Supplementary literature	<p>Journals:</p> <p>1. "Composites Science and Technology", Elsevier.</p> <p>2. "Professional boat builder magazine"</p>	
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Technologia konstrukcji kompozytowych (PG_00057224) SMOOJ W - Moodle ID: 33210 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33210</p> <p>Technologia konstrukcji kompozytowych (PG_00057224) SMOOJ W - Moodle ID: 33210 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=33210</p>	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		