



## Subject card

Subject name and code	Plastic Materials Technology, PG_00045062						
Field of study	Ocean Engineering, Ocean Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2022/2023		
Education level	first-cycle studies		Subject group				
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		2.0		
Learning profile	general academic profile		Assessment form		assessment		
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	0.0	0.0	0.0	30.0	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		3.0		22.0	55
Subject objectives	Review of non-metallic materials used in shipbuilding. Construction relationship with technology in composite structures. Review of structural nodes and principles of their design. basic construction calculations. Technological process of composite structures. Molding technologies items composite structures. Technological equipment and tools. Technological materials. Assembly structural elements and finishing works. Design and technological requirements resulting from regulations of classification societies and standards						
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		The student knows the rules of creating polymer composites i methods of making reinforced polymer composites. The student knows the basic rules use of construction technology shipbuilding. The student knows basic elements of the structure hull, calculations and rules dimensioning.		[SU1] Assessment of task fulfilment		
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems		The student knows the basic concepts in the field of plastics synthetic. knows the basic technological processes as a result whose property is acquired utilities of synthetic materials and knows the basic types of materials synthetic.		[SW2] Assessment of knowledge contained in presentation		
Subject contents	Lecture: Review and selection of non-metallic materials used in ship structures. The connection between construction and technology in composite structures. Review of structural nodes and principles of their design. basic construction calculations. Technological process of composite structures. Technologies of forming structural elements from composites. Technological equipment and tools. Technological materials. Organization of the technological process. Research on the effectiveness of the technological process. Construction of thermoplastic structures. Assembly of structural elements and finishing works. Design and technological requirements resulting from the regulations of classification societies and standards. Laboratory: Materials for the production of composites and technological materials Preparation of technological equipment Contact forming Vacuum forming Vacuum injection molding Thermoplastic molding Molding thermoplastic composites by injection						
Prerequisites and co-requisites	No requirements						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Essay	60.0%	100.0%
Recommended reading	Basic literature	1. Berger M. i inni: Poliestry wzmocnione w budownictwie okrętowym, Wydawnictwo Morskie, Gdynia, 1961. 2. Kozłowski J., Wilczopolski M., Wituszyński K.: Konstrukcje okrętowe z kompozytów polimerowych ; Wydawnictwo Morskie, Gdańsk, 1982. 3. Przepisy klasyfikacji i budowy jachtów morskich (JAC), Czę ć II, Kadłub 1996/1998 4. Przepisy klasyfikacji i budowy łodzi motorowych (MOT), Czę ć II, Kadłub 1996/1998	
	Supplementary literature	1. Jan Rabek, Współczesna wiedza o polimerach, wyd PWN, Warszawa 2009 2. Jan Pielichowski, "Technologia tworzyw sztucznych", Wydawnictwo Naukowo-Techniczne , wyd VI, 2003	
	eResources addresses	Adresy na platformie eNauczanie: Technologia Tworzyw Sztucznych BOJ 2022 - Moodle ID: 27110 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27110">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27110</a>	
Example issues/ example questions/ tasks being completed	Design the hull structural node		
Work placement	Not applicable		