GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Non-mettallic materials, PG_00056242		
Field of study	Design and Construction of Yachts		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2021/2022
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to practical vocational preparation
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	5.0
Learning profile	practical 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	mgr inż. Piotr Bela dr inż. Tomasz Seramak dr hab. inż. Leszek Matuszewski 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	30.0	0.0	15.0	60

E-learning hours included: 0.0

Adresy na platformie eNauczanie:
Materiały niemetalowe BBJ WIMIO - Moodle ID: 18597
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18597

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	12.0	53.0	125

Subject objectives

Provide basic knowledge regarding organic synthetic materials (plastics) that are utilized in machine and boat building as well as principles of selection of materials for structures, glues and surface coats.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W03	Is able to indicate influence of material parameters on hydrodynamic and mechanical properties of a boat components	[SW1] Assessment of factual knowledge
K6_U05	Is able to define process of selection of material for an element of boat structure	[SU2] Assessment of ability to analyse information

Subject contents

Basic definitions and nomenclature (monomers and polymers); Review of non-metallic materials - natural and synthetic (cellulose, proteins, natural caoutchouc); Material characteristics for different application areas; Thermoplastics and elastomers. Mechanical and thermal properties of thermoplastics. Duromers and their chemistry. Resins and reinforcements for marine application. Technological process of reinforced structures. Technological process of a large structural element of reinforced synthetic resin.

Prerequisites and co-requisites

Basic chemistry. Basic mechanical properties of materials

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Laboratory raport	80.0%	50.0%
Short test during every lesson	60.0%	50.0%

Recommended reading	Basic literature	1.Dobrosz K.,Matysiak A.,Tworzywa sztuczne Warszawa WSZiP 1985 2.Kłosowska-Wołkowicz Z..Królikowski W.,Penczek P..Żywice i laminaty poliestrowe. Warszawa WNT 1980 3.Kozłowski J.,Wilczopolski M..Materiałoznawstwo okrętowe czIII Okrętowe Tworzywa Polimerowe. Gdynia WSMW 1982 4.Królikowski W., Tworzywa wzmocnione i włókna wzmacniające,Warszawa WNT 1988 5.Żuchowska D.,Polimery konstrukcyjne. Warszawa WNT 1995
	Supplementary literature	1. Błędzki A.K. i inni: Recykling materiałów polimerowych, Wydawnictwa Naukowo Techniczne, Warszawa, 1997. 2. Composites World (https://www.compositesworld.com)
	eResources addresses	Materiały niemetalowe BBJ WIMIO - Moodle ID: 18597 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18597
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	