



## Subject card

Subject name and code	Advanced ocean engineering technologies, PG_00057283						
Field of study	Ocean Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study 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	1	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Ship Manufacturing Technology, Quality Systems and Materials Science -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Milena Supernak					
	Teachers	mgr inż. Dariusz Duda dr inż. Milena Supernak					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	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	5.0		40.0		75
Subject objectives	Extending the current knowledge in the field of metallurgy and materials science, including selected technological aspects. To acquaint students with the materials used on construction of floating and ocean engineering objects. Acquiring the ability to analyze phenomena and effects structural occurring in selected material groups, determining and their properties utility. Acquiring the ability to obtain information about new materials from sources popular science as well as national and English-language scientific and technical literature.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W07] has knowledge on the development perspectives of ocean technology objects and systems, knows the newest and most relevant achievements in ocean technology	student's knowledge of there is enough material science full and practical that along with they know from other subjects will enable him to select correctly materials and processes processing for the purpose produced sufficiently modern and reliable construction	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
	[K7_W08] has knowledge necessary to understand economical, social and legal conditions and effects of engineering activities, knows general principles of initiating and develop forms of private entrepreneurship and has knowledge on the protection of industrial and intellectual property and on the copyrights	the student knows the principles of material design, which are necessary to apply the principles of sustainable development, knows how to conduct literary studies and distinguishes between concepts in the field of industrial and intellectual property protection	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
	[K7_W09] has organized, widened knowledge on the principles of sustainable development	the student has enough knowledge of materials science i can integrate it with knowledge from other subjects in for use in comprehensive process structure design or technological process based on sustainable development	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
Subject contents	Characteristics of the structure, properties, manufacturing method, operating conditions and applicationsmaterial solutions used in the construction of floating objects. It includes the following groupsmaterials:- Constant- Aluminum alloys- Special purpose alloys-Concrete used in ocean engineering		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	60.0%	100.0%
Recommended reading	Basic literature	1. Dobrzański L.A.: Metalowe materiały inżynierskie, WNT Warszawa 2004 2. Dobrzański L.A.: Materiały inżynierskie i projektowanie materiałowe, WNT Warszawa 2006 3. M. Blicharski: Wstęp do inżynierii materiałowej, WNT, Warszawa 2001 4. Ciszewski A. i inni: Materiałoznawstwo, Oficyna wyd. Politechniki Warszawskiej, Warszawa 2006 5. PRS- Przepisy klasyfikacji i budowy jachtów Morskich- 1996	
	Supplementary literature	1. Ashby F.A., Jones D.R.: Materiały inżynierskie. Tom I i II. WNT, Warszawa, 1995. 2. Callister W.D.: Materials Science and Engineering. Wiley and Sons, 2000-2006. 3. D.R. Askeland, P.P. Phulé: The Science and Engineering of Materials, 4th ed	
	eResources addresses	Adresy na platformie eNauczanie: Zaawansowane technologie w oceanotechnice_W/L_PG_00057283/ PG_00057282 - Moodle ID: 22472 <a href="https://enauzanie.pg.edu.pl/moodle/course/view.php?id=22472">https://enauzanie.pg.edu.pl/moodle/course/view.php?id=22472</a>	
Example issues/ example questions/ tasks being completed	Overview of the main material groups. Basics of material selection for products and components Shaping the structure and properties of metals and alloys by technological methods. Dependence of working conditionsand mechanisms of consumption of engineering materials. The significance and development trends of EngineeringMaterial		
Work placement	Not applicable		