GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Underwater technology, PG_00056428		
Field of study	Ocean Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
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	2.0
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 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	30.0	0.0	0.0	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	3.0	17.0	50

Subject objectives

Provide the student with basic knowledge regarding underwater technology and equipments utilized in oceanology, offshore industries, aquaculture, military activities and tourism. Provide the student with design methods specific to underwater technology.

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 is able to determine the set of technical devices necessary to perform defined work under the water surface in indicated conditions	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems	The student knows the conditions and technical solutions characteristic of devices operating submerged in sea water	[SW1] Assessment of factual knowledge
[K6_W08] has knowledge of the principles of sustainable development	Student knows enviromental conditions under water surface and their influece on humans and on technical means used in underwater activity. He knows principal solutions utilized to overcome threat to humans equipments and environment.	[SW1] Assessment of factual knowledge

Subject contents

Features and parameters of the underwater environment; History of underwater technology; Man beneath the sea- diving and control of the system.Components of underwater systems and submersible; Critical materiqals and solutions used in underwater systems. Underwater tasks, tools and equipments; Work subsystem and components. Vizualization of water space, navigation, communication, oceanological equipment, manipulators. Motion systems of submersibles; Power sources and power supply systems. Resistance of structures against marine environment-hydrostatic pressure, corrosion.

Prerequisites and co-requisites

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Short test on every lecture	60.0%	100.0%
Recommended reading	Basic literature	1. Allmendinger E.E.: "Submersible vehicle systems design";The Society of Naval Architects and Marine Engineers (SNAME),601Pavinia Avenue,Jersey City, NY07306, 1990. 2. Brahtz J.F.: Oceanotechnika"; Wydawnictwo Morskie,1974. 3. Olszański R., Skrzyński S., Kłos R.: Problemy medycyny i techniki nurkowej, Okrętownictwo i Żegluga, 1997 4. Macke J., Kuszewski K., Zieleniec G.: Nurkowanie, Wydawnictwo Sport i Turystyka, Warszawa, 1989. 5. Rowiński L.: Technika Głębinowa, WIB, Gdańsk, 2008.	
	Supplementary literature	Journals: 1. Sea Technology 2. International Ocean Systems 3. Offshore 4. Oceanology International	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		