

Subject card

Subject name and code	Underwater Technology, PG_00045098								
Field of study	Ocean Engineering, Ocean Engineering								
Date of commencement of studies	October 2020		Academic year of realisation of subject			2022/	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	6		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 Technolo					ology			
Name and surname	Subject supervisor		dr hab. inż. Lech Rowiński						
of lecturer (lecturers)	Teachers		dr hab. inż. Lech Rowiński						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM	
	Number of study hours	30.0	0.0	0.0	0.0		0.0	30	
	E-learning hours included: 0.0							loun.	
Learning activity and number of study hours	Learning activity	Participation in classes include 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_W08] has knowledge of the principles of sustainable development		Student knows environmental conditions under water surface and their influence on humans and on technical means used in underwater activity. Student understand influence of underwater activity on natural environment. He knows principal solutions utilized to overcome threat to humans equipments and environment.			[SW1] Assessment of factual knowledge			
	[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					[SU1] Assessment of task fulfilment			
Subject contents	Lecture: 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	No requirements								
Assessment methods	Subject passing criteria		Passing threshold			Percentage of the final grade			
and criteria	Test on every lecture		60.0%			100.0%			

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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
		Hydro International Offshore
eRe		"Ocean news and Technology
	eResources addresses	Adresy na platformie eNauczanie: Techniki głębinowe BOJ 2023 - Moodle ID: 29816 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29816
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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