GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Environment Protection, PG_00041640		
Field of study	Ocean Engineering, Ocean Engineering		
Date of commencement of studies	October 2020	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 scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	3.0
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 inż. Konrad Marszałkowski	
	Teachers	dr inż. Konrad Marszałkowski dr inż. Mohamed Behilil mgr inż. Paweł Szalewski	

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	15.0	45
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie: Ochrona środowiska W, OCE, sem 04, letni 21/22, (PG_00041640) - Moodle ID: 22247 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22247						

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	45	3.0	27.0	75

Subject objectives	To acquaint students with the technical and legal issues of environmental protection .

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K03] understands non-technical aspects and effects of operation as an engineer, its influence on the environment and is aware of the responsibilities for the decisions taken	Student explains what are the environmental management systems, how the environmental impact assessment is make, what is the principle of sustainable development. Student uses the ISO 14001 standard. Student describes methods of reduction of pollutants emission to the atmosphere. Student lists the environment protection equipment used on ships. Student describes rules of environmental friendly operations of reloading goods, fuels and oils. Student lists the environment protection equipment used in harbors.	[SK3] Assessment of ability to organize work [SK4] Assessment of communication skills, including language correctness [SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills [SK2] Assessment of progress of work
[K6_W03] has a basic knowledge on hydromechanics, thermodynamics, machine construction, ecology, materials science and electronics necessary to understand the construction and operation principles of ocean technology objects and equipment	Student explains what are the environmental management systems, how the environmental impact assessment is make, what is the principle of sustainable development. Student uses the ISO 14001 standard. Student describes methods of reduction of pollutants emission to the atmosphere. Student lists the environment protection equipment used on ships. Student describes rules of environmental friendly operations of reloading goods, fuels and oils. Student lists the environment protection equipment used in harbors.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Environmental management systems - models and definitions. Aspects and significant environmental aspects of transport. Package of ISO 14000 standards. Environmental impact assessments. Examples of environmental policies. EMAS Directive and the ISO 14001 standard. The idea and practice of integrated management. The concept of sustainable development.
Methods of reducing the pollution from means of transportation to atmosphere. Equipment of ships with environment protection devices (oil separators of bilge water and oily water from tank cleaning, sewage treatment plants, waste incinerators, ballast water cleaning systems, SCR reactors annd scrubbers). Safety devices and procedures used during operations of reloading of goods and bunkering of fuels and oils. Harbors equipment with means of environment protection.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Midterm colloquium	50.0%	50.0%
Semester dissertation	100.0%	50.0%

Recommended reading

Basic literature	1. Kaniewski E., Tymański S.: Ochrona środowiska. Gdynia, WSM, 1987. 2. Małaczyński M.: Ochrona środowiska morskiego przed zanieczyszczeniami ze statków. PG, Gdańsk, 1980. 3. Wiewióra A.: Ochrona środowiska morskiego w eksploatacji statków. WSM, Szczecin, 1999 r.
Supplementary literature	1. International Convention for the Prevention of Pollution from Ships MARPOL 73/78. 2. ISO 14001 Standard.
eResources addresses	Ochrona środowiska W, OCE, sem 04, letni 21/22, (PG_00041640) - Moodle ID: 22247 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=22247

Example issues/ example questions/ tasks being completed

1. Annexes to the Marpol Convention

2. Environment protection devices on ships.

Work placement

Not applicable