GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Safety and Reliability of Transport Systems, PG_00041690		
Field of study	Transport and Logistics		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
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	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Faculty of Ocean Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Roman Liberacki	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	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	10.0	35.0	75

Subject objectives

To acquaint students with hazards in transport and methods of reliability and risk assessment.

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 means and systems of transport	The student can choose the relevant standards and regulations applicable to the selection of the right solution to realize the transport task.	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_W05] has an organized knowledge on design, construction and operation of means and systems of transport	The student describes the basic definitions connected with the discipline: safety and reliability of transport systems. The student explains the models used to assess the reliability of components and systems.	[SW1] Assessment of factual knowledge

Subject contents

The qualification of reliability, reliability coefficients, mathematical models of valuations of the units and systems reliability. The human factor. Method of the valuation of the probability of the human mistakes. Typical hazards occurring in transport. The definition of risk, the measure of the risk, mathematical models of risk valuations. The criterion ALARP. The method FSA (Formal Safety Assessment) in navigation. Norms and standards OHSAS 18001, ISM and ISPS Code and the ISM Code and SPIS as the tools of safety management in shipping.

Prerequisites and co-requisites

Knowledge of subject bases of an operation of machines and devices.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written test	50.0%	50.0%
Presentation	100.0%	50.0%

Recommended reading	Basic literature	1. Girtler J., Kuszmider S., Plewiński L.: Wybrane zagadnienia eksploatacji statków morskich w aspekcie bezpieczeństwa żeglugi. WSM, Szczecin 2003. 2. Gołąbek A.: Wybrane zagadnienia bezpieczeństwa maszyn. Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2002. 3. Guidelines for Formal Safety Assessment (FSA) for Use in The Imo Rule-Making Process, International Maritime Organization 2002. 4. Radkowski S.: Podstawy bezpiecznej techniki. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2003. 5. Brandowski A., Metodyka formalnej oceny bezpieczeństwa statku (FSA), I-sza Międzynarodowa Szkoła Letnia Bezpieczeństwo na Morzu, Politechnika Gdańska, Gdańsk 2001. 6. Normy: OHSAS 18001:2007 7. ISM CODE 8. SPIS CODE
	Supplementary literature	1. Modarres M., What every engineer should know about Reliability and Risk Analysis, Center for Reliability Engineering, University of Maryland, College Park, Maryland, Marcel Dekker, Inc., New York, Basel, Hong Kong, 1993.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Describe the hazards in the water transport. 2. Explain the ALARP class risk criterion. 3. List the steps of the FSA method.	
Work placement	Not applicable	