



Subject card

Subject name and code	Methods of Safety Assessment in Transportation Systems, PG_00060649						
Field of study	Transport and Logistics						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2024/2025		
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			4.0		
Learning profile	general academic profile	Assessment form			exam		
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. Roman Liberacki				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	0.0	45
	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	45		4.0		51.0	100
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_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems	The student is able to apply knowledge of law and economics in pursuit of safe and financially rational construction and operation of transport vehicles and systems.			[SU1] Assessment of task fulfilment		
	[K6_W06] has established knowledge of engineering methods and design tools enabling the implementation of projects in the field of construction and operation of transport means and systems	The student knows the methods used in designing of vehicles for the required level of reliability.			[SW1] Assessment of factual knowledge		
	[K6_U01] can obtain information from literature, databases and other sources; verify and systematize the information obtained, interpret it and draw conclusions, formulate and justify opinions	The student is able to search for safety regulations and data necessary to assess reliability and safety of transportation systems.			[SU1] Assessment of task fulfilment		
	[K6_K03] understands non-technical aspects and effects of activity in the profession of an engineer and its impact on the environment; is aware of the responsibility for decisions made	The student understands that the existence of transport generates risks for people and the environment. The student is aware that the level of social and environmental safety depends on the decisions made by a transport engineer.			[SK5] Assessment of ability to solve problems that arise in practice		
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. Reliability in supply chains.						

Prerequisites and co-requisites	Basic knowledge of the probability theory.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam	50.0%	100.0%
Recommended reading	Basic literature	1. Girtler J., Kuzmider S., Plewiński L.: Wybrane zagadnienia eksploatacji statków morskich w aspekcie bezpieczeństwa żeglugi. WSM, Szczecin 2003. 2. Gołębek 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		