



Subject card

Subject name and code	Reliability in transportation, PG_00064271						
Field of study	Transport						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
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	3		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Transportation Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Anita Milewska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	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		5.0		25.0	75
Subject objectives	Learning the basic concepts of reliability of non-renewable objects, reliability structures, introduction to the reliability of renewable objects and the use of these issues in transport.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W05] has knowledge in the field of traffic engineering, methods, algorithms, and technologies for traffic control, as well as safety and reliability in transportation		The student has basic knowledge of transport reliability, which also affects transport safety.		[SW1] Assessment of factual knowledge		
	[K6_U01] able to use technical documentation and literature, databases and other sources of transport related information; able to interpret information, make logical links and formulate opinions and conclusions based on the above		The student is able to use various sources of information in the field of transport and formulate conclusions related to the reliability of objects and systems.		[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
Subject contents	Course content – lecture						
	Basic concepts related to the reliability of non-renewable objects, functional characteristics, empirical characteristics, numerical characteristics, basic reliability structures (series, parallel, mixed) and their reliability function, system readiness, introduction to the reliability of renewable objects, systems with reserve; use of the introduced issues in relation to transport.						
	Course content – exercises						
Prerequisites and co-requisites	Use the information presented in the lecture.						
	Probabilistics, mathematical analysis, basics of transport systems.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Conjunction of conditions: pass the colloquium covering the scope of topics from lectures and tutorials, and get a positive grade of the current work on the tutorials.		55.0%		100.0%		

Recommended reading	Basic literature	D. Bobrowski: Modele i metody matematyczne teorii niezawodności w przykładach i zadaniach. WNT Warszawa 1985. T. Szopa: Niezawodność i bezpieczeństwo. Ofic. Wyd. Politechniki Warszawskiej, Warszawa 2009.
	Supplementary literature	F. Grabski, J. Jaźwiński: Funkcje o losowych argumentach w zagadnieniach niezawodności, bezpieczeństwa i logistyki. WKŁ Warszawa 2009 W. Zamojski: Teoria i technika niezawodności. Wrocław 1976.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Give an interpretation of the intensity of damage for a short time interval in relation to reliability. Discuss a system with a serial reliability structure.	
Practical activities within the subject	Not applicable	

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