GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Safety management of transport systems, PG_00062427						
Field of study	Transport						
Date of commencement of studies	February 2027		Academic year of realisation of subject	2026/2027			
Education level	second-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	1		Language of instruction	Polish			
Semester of study	1		ECTS credits	2.0			
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 inż. Joanna Wachnicka				
	Teachers						

Lesson types	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	5.0	15.0	50

Subject objectives	
	The purpose of the course is to familiarize students with the theoretical foundations and practical implementation of security management of transportation systems, with particular emphasis on risk-based methods Familiarize students with the process of preparing transportation security plans, as well as examples of practical activities implementing measures and the results of their effectiveness. . On this basis, students should prepare in teams drafts of transport safety plans in selected areas using modern methods and tools.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_K03] demonstrates the ability to identify ethical dilemmas and recognize and evaluate alternative courses of action	The student is able to create a program to improve the safety of Transportation in the selected area. He knows how to perform an analysis of the impact of the designed variants of the road route on the analyzed area and on the level of safety and reduction of victims of traffic accidents (country, province, district city). Applies proven in world practice procedures of creating such programs including: development of diagnosis and conditions for implementation program selection of vision and strategy and strategic objectives adopted for the next decade. Proposing directions for strategic actions, a set of activities and tasks with schedule, cost estimates and principles of implementation and monitoring. In the development applies modern methods forecasting, estimating and analysis of selected issues detailed . It presents the results in the form of a report with application of the GPS platform and graphical tools.	[SK3] Assessment of ability to organize work
	[K7_U01] creates innovative solutions to complex and unstructured problems, taking into account the variability of the environment by synthesizing information from many sources, using analytical, simulation and experimental methods	The student will be able to use the methods learned for managing safety systems in road, water, air and rail transportation to effectively and methodically improve safety. He or she will be able to use available databases to perform analyses and calculations to improve the safety of transportation systems.	[SU1] Assessment of task fulfilment
	[K7_K01] recognizes the importance of knowledge related to the field of study in solving cognitive and practical problems	The student has an in-depth knowledge of in the basics of security transportation and management transportation security. He knows tools for managing transportation security (programming at the national level, procedure management). Can apply methods of risk management in transportation. Is able to develop security program of transportation at the regional and local levels. Knows procedures for managing safety of the infrastructure road infrastructure: brd audit and inspection brd. Knows the theories and models used in safety transportation and methods of forecasting measures safety. Can assess the impact of a planned road on traffic safety in the network of cooperating roads and develop a classification of sections of dangerous. It is acquainted with practical examples of measures for the safety of road transport, rail, mass transit, water and air.	[SK5] Assessment of ability to solve problems that arise in practice

	Course outcome	Subject outcome	Method of verification
	[K7_W05] takes into account in its analyzes in an in-depth manner both the technical, environmental, economic, legal and ethical context, being aware of responsibility for the consequences of its decisions, supporting the development of individual entrepreneurship	The student understands the importance of security in the operation of the transportation system and applies methods of communicating safety to traffic participants traffic and the public. It pays attention to recognition of the mechanisms influence elements of the transportation system transportation system on hazards in transportation with particular taking into account the role of operators (drivers, motorists, pedestrians) of the means of transportation. Able to conduct analyses and evaluations of of multivariant solutions, whose documented results presents in an understandable and accessible to the audience.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture

LECTURES: Classification of hazardous sections, Assessment of the impact of a planned road on traffic safety in the cooperating road network, Brd audit and brd inspection, Fundamentals of transport safety, Basic problems of transport safety, Tools for transport safety management (national level programming, management procedure) , Rail transport safety, Transport safety management, Risk management in transport, Theories and models applied to transport safety, Forecasting of safety measures, Safety management in road and rail tunnels, National maritime transport safety system, Inland transport safety, Air transport safetyEXERCISES: Performing hazardous section classification, risk calculation and mapping using ArcGIS and ArcMap software. Performing an analysis of the impact of the proposed road on the surrounding road system. Estimating risks in water and rail transportation. Rescue and first aid classes.

Prerequisites and co-requisites

Knowledge of the basics of transportation safety and security reliability of transportation systems.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
wykonane zadania	50.0%	50.0%
Test zaliczeniowy	50.0%	50.0%

Recommended reading	Basic literature	{1]. Krystek R. i inni: Zintegrowany System Bezpieczeństwa Transportu. WKŁ Warszawa 2010/2011 [2]. Jamroz K.: Metoda Zarządzania Ryzykiem w Inżynierii Drogowej. Wydawnictwo Politechniki Gdańskiej, Gdańsk 2011. [3]. Jamroz K. i inni: Ochrona Pieszych. Podręcznik Organizatora Ruchu Pieszego. SKRBRD, Gdańsk, Kraków, Warszawa 2014. [4]. Elvik R., Vaa T.: The Handbook of Road Safety Measures. Elsevier 2004. [5]. Wicher J.: Bezpieczeństwo samochodów i ruchu drogowego. WKŁ Warszawa 2002 [6]. Chruzik K.: Inżynieria bezpieczeństwa w transporcie. Wydawnictwo Politechniki Śląskiej 2016. [7]. Gucma L.: Wytyczne zarządzania ryzykiem morskim. WNAM Szczecin 2009. [8]. Skorupski J.: Metody wymiarowania bezpieczeństwa ruchu lotniczego. Oficyna Wydawnicza PW 2008. [9]. Łuczak K.: Zarzadzanie bezpieczeństwem w lotnictwie cywilnym. Uniwersytet Śląski 2016 [10]. Open Access: The Vision Zero Handbook. Theory, Technology and Management for a Zero Casualty Policy. Springer 2020.
	Supplementary literature	Journals: 1. Bezpieczeństwo Ruchu Drogowego BRD Wydawca ITS Warszawa 2. Transport Miejski i Regionalny SITK 3. Drogownictwo - SITK itp. 4. Transport Problems 5. Journal of KONBIN
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Practical activites within the subject	Not applicable	

Document generated electronically. Does not require a seal or signature.