

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	Vehicle safety, PG_00040104								
Field of study	Mechatronics								
Date of commencement of studies	October 2023		Academic year of realisation of subject			2025/2026			
Education level	first-cycle studies		Subject group						
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			2.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Division of Mechanical Vehicles and Military Technology -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Wydziały Politechniki Gdańskiej								
Name and surname	Subject supervisor		dr hab. inż. Piotr Mioduszewski						
of lecturer (lecturers)	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	oject Seminar		SUM	
	Number of study hours	15.0	0.0	15.0	0.0		0.0	30	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	30	5.0			30.0		65	
Subject objectives	Providing basic knowledge about the most common causes of road accidents, the processes occurring during an accident, ways to prevent or minimize the effects of accidents and disasters and methods of accident reconstruction, as well as about active and passive safety systems used in motor vehicles.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_W08] knows and understands design and production processes of elements and simple mechatronic devices		The student is able to perform a computer reconstruction of a road accident.			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects			
	[K6_U06] is able to identify and formulate specification of simple, practical engineering tasks, distinctive for mechatronics		The student identifies factors influencing the occurrence and course of road accidents, explains the principles of vehicle motion mechanics and collision mechanics.			[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject			
Subject contents	Legal and medico-judicial issues of accidents. Forensic aspects of road accident scene investigation. Post- accident vehicle inspections. Modern active and passive safety systems in motor vehicles. Selected issues of accident reconstruction: driver reaction process, time-space analysis of accident, deformation and energy absorption of vehicle bodies. Reconstruction methods of typical types of accidents: involving cars, involving two-wheeled vehicles, involving pedestrians, simulated accidents. Computer-aided accident reconstruction.								
Prerequisites and co-requisites	Knowledge of the principles of kinematics and dynamics of vehicle movement. Knowledge of motion mechanics and collision mechanics. Basic knowledge of the structure and principles of operation of individual vehicle systems and assemblies								
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade				
	Test		50.0%		100.0%				
	Accident reconstruction task		100.0%						
Recommended reading	Basic literature		Podstawy rekonstrukcji wypadków drogowych. L. Prochowski, J. Unarski, W. Wach, J. Wicher. WKiŁ, Warszawa 2008						
	Supplementary literature		Wypadki drogowe. Vademecum biegłego sądowego. Praca zespołowa pod redakcję J. Wierciński i A. Reza. Wydawnictwo Instytutu Ekspertyz Sądowych im. Prof. dra Jana Sehna w Krakowie, Kraków 2002						
	eResources addresse								

Example issues/ example questions/ tasks being completed	Factors influencing the occurrence and course of road accidents. The course of a road accident. Criminal aspects of investigating the accident scene, post-accident vehicle inspections. The driver's reaction process. Spatio-temporal analysis of an accident. Deformation and energy absorption of vehicle bodies. Methods of reconstructing typical types of accidents. Construction and principle of operation of modern active and passive safety systems used in motor vehicles.
Work placement	Not applicable

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