



Subject card

Subject name and code		Ergonomy and safety, PG_00044635						
Field of study		Transport						
Date of commencement of studies		October 2021	Academic year of realisation of subject			2023/2024		
Education level		first-cycle studies	Subject group			Humanistic-social subject group		
Mode of study		Full-time studies	Mode of delivery			at the university		
Year of study		3	Language of instruction			English		
Semester of study		6	ECTS credits			2.0		
Learning profile		general academic profile	Assessment form			assessment		
Conducting unit		Department of Machine Design and Vehicles -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)		Subject supervisor		dr inż. Sławomir Sommer				
		Teachers		dr inż. Sławomir Sommer				
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	5.0		15.0	50	
Subject objectives		The aim of the course is to teach students to act in accordance with the principles of ergonomics in professional and private life.						
Learning outcomes		Course outcome		Subject outcome		Method of verification		
		[K6_U07] able to identify the effects of management, progress in technology, spatial policy, environmental protection, health and safety on the operation and development of transport and include these in the process of planning, designing, building and operating means and systems of transport		The student explains the concepts of ergonomics. It describes its goals and area of application. It is defined by the human - machine - environment system. Designs the human work environment taking into account the design principles. He uses various human models. It presents the safety and reliability of the human - machine - environment system. It presents the information ability of machines.		[SU3] Assessment of ability to use knowledge gained from the subject		
		[K6_U04] able to use transport terms properly and speak about a problem using modern audiovisual techniques		The student explains the concepts of ergonomics. It describes its goals and area of application. It is defined by the human - machine - environment system. Designs the human work environment taking into account the design principles. He uses various human models. It presents the safety and reliability of the human - machine - environment system. It presents the information ability of machines.		[SU5] Assessment of ability to present the results of task		
		[K6_W15] has basic knowledge of ergonomics, safety and reliability in transport which is useful for solving simple tasks involved in transport		The student explains the concepts of ergonomics. It describes its goals and area of application. It is defined by the human - machine - environment system. Designs the human work environment taking into account the design principles. He uses various human models. It presents the safety and reliability of the human - machine - environment system. It presents the information ability of machines.		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		

Subject contents	LECTURE Meaning of ergonomics. Multidisciplinary character of ergonomics. Factors of material environment of work: microclimate (temperature, humidity, air flow, pressure, air pollution), radiation: (ionizing, ultraviolet, visible, heat, long waved), light and colors, noise and vibrations). Lighting, ventilation and air conditioning. Hazard from machines and mechanical facilities, electric facilities and transportation, fire hazard. Physical characteristic of factors, influence on humans body, reaction methods, personal secure systems. Conceptual and correctional ergonomics. Ergonomic quality level of maintenance of man work station. Mechanical and heuristic model of human behaviour. Prediction of humans activities results. Principles of ergonomic diagnostic process in vehicles. Modeling and simulation of human behavior in man machine- environment circle. Designing of man working station taking vehicle dashboard into account. Working safety analysis. EXERCISE Estimation of physical effort. Estimation of occupational hazard of man work station. Noise measurements of: cranes, passenger car, hydraulic pumps and motors, disturbing noises.		
Prerequisites and co-requisites	Knowledge of Physics (High School level).		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final test	50.0%	50.0%
	Practical exercises	75.0%	50.0%
Recommended reading	Basic literature	1. Koradecka D.: "Bezpieczeństwo pracy i ergonomia", tom I i II. CIOP, Warszawa, 1997. 2. Hempel L.: "Człowiek i maszyna - techniczny model współdziałania", materiały własne, 1984. 3. Wykowska M.: "Ergonomia", Wyd Akademii Górniczo-Hutniczej w Krakowie, Kraków, 1994.	
	Supplementary literature	No requirements	
	eResources addresses	Adresy na platformie eNauczanie: ERGONOMIA I BEZPIECZEŃSTWO PRACY W TRANSPORCIE - L-15/C-15/L-0/P-0, Transport, WILIŚ, I stopnia - inżynierskie, stacjonarne, sem06, (PG_00044635), semestr letni 2023/2024, LATO - Moodle ID: 35255 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35255">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35255</a>	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Definitions of ergonomics</li> <li>2. System: the man - machine - environment</li> <li>3. Factors of material environment of work</li> <li>4. Ergonomic quality level of maintenance of man work station</li> <li>5. Designing of man working station</li> <li>6. Noise measurements</li> </ol>		
Work placement	Not applicable		