GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Ergonomy and safety, PG_00044635		
Field of study	Transport		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
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		

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_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.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
[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_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

Subject contents	LECTURE Meaning of ergonomics. Multidisciplinational 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. Conceptional 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:

Example issues/ example questions/ tasks being completed

1. Definitions of ergonomics
2. System: the man - machine - environment
3. Factors of material environment of work
4. Ergonomic quality level of maintenance of man work station
5. Designing of man working station
6. Noise measurements

Work placement	Not applicable

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