GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Environmental threats in medical engineering, PG_00055772		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	1.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Energy and Industrial Apparatus -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Bartosz Dawidowicz	
	Teachers	dr inż. Bartosz Dawidowicz	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	0.0	0.0	15

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	15	1.0	9.0	25

Subject objectives

Presentation of basic knowledge about the essence of an environmental risks associated with biomedical engineering. Presentation methods to counteract these threats, and to present selected examples neutralization and elimination of those risks.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_K02] he/she is aware of importance of professional dealing and to fulfill ethics obligations, he/she understands other (non-technical) abilities of mechanical engineering professional, their influence on the society and security of environment, he/she is aware of importance of social cooperation	He is able to solve technical problems in accordance with the rules and professional ethics, he knows what the consequences are. Can work with other teams to solve the problem.	[SK5] Assessment of ability to solve problems that arise in practice
[K6_U06] he/she has skills to work in industry and follow the rules of safety regulations, he/she is able to analyze basic economics problems to delineate the direction of solution by using engineering methods	Solves technical problems in the field of medical engineering in accordance with the applicable rules, and performs economic analyzes in this area.	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_K01] he/she knows his/her proficiencies and his/her limitations in performing professional tasks, he/she is aware of needing to improve his/her skills through the whole life, he/she has entrepreneurship and innovation skills, he/she is aware of engineering skills from the society point of view	He can search and obtain the necessary information on the most modern technical solutions. Knows how to use the acquired information in the development and implementation of innovative technical solutions. He knows his competences and the value of engineering knowledge.	[SK5] Assessment of ability to solve problems that arise in practice
[K6_W12] he/she has basic knowledge in the field of fundamental medical sciences, human body anatomy, and physiology, salvage service	Has theoretical knowledge of the construction and operation of medical equipment and the principles of its use.	[SW1] Assessment of factual knowledge

Subject contents	Lecture: Hazards - basic concepts. The types of hazards. Sources, causes and origin of hazards. The influence of hazards of an environmental. Protection against hazards, personal protection, protection of equipment and facilities. Methods and apparatus for removal and neutralization of the effects of hazards. Measurement and monitoring of environmental pollution.
Prerequisites and co-requisites	Knowledge of physics, mechanics, thermodynamics and materials science. Basic knowledge of biology and chemistry.
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
Test	56.0%	100.0%

Recommended reading	Basic literature	1. Romanowska-Słomka I.: Zagrożenie biologiczne w służbie zdrowia. Wykazy. Charakterystyka. OSPIP, 2006. 2. Ranecki J.: Ratownictwo chemiczno- ekologiczne, SA PSP-Poznań, 1998. 3. Wojnarowski A, Obolewicz-Pietrusiak A.: Podstawy Ratownictwa Chemicznego, Warszawa 2001r. 4. Tomasz W. Grausz: Zagrożenia Czynnikami Chemicznymi w Miejscu Pracy, Państwowa Inspekcja Pracy Główny Inspektorat Pracy, Warszawa 2013. 5. Izabela Waga: Zagrożenia czynnikami biologicznymi w miejscu pracy, Państwowa Inspekcja Pracy Główny Inspektorat Pracy, Warszawa 2013. 6. M. Janiak, A. Wójcik: Medycyna zagrożeń i urazów radiacyjnych, Wydawnictwo Lekarskie PZWL, Warszawa 2005.
	Supplementary literature	Professional journals: • Inżynieria Biomedyczna - http://www.inzynieria-biomedyczna.com • Zakażenia - http://mavipuro.pl/czasopisma/zakazenia-xxi-wieku • Nowiny Lekarskie - https://jms.ump.edu.pl/nowiny/authors.php?lang=pl • Podstawy i Metody Oceny Środowiska Pracy - https://www.ciop.pl • Promotor BHP - https://promotor.elamed.pl • and other.
	eResources addresses	Uzupełniające Adresy na platformie eNauczanie: Zagrożenia środowiskowe w inżynierii biomedycznej - Moodle ID: 42089 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42089
Example issues/ example questions/ tasks being completed	Factors causing threat. Examples of threats. Methods of reducing the sources of danger Measures to protect against threats.	
Work placement	Not applicable	

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