GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	The impact of the energy facilities on the environment, PG_00064771		
Field of study	Power Engineering, Power Engineering		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2027/2028
Education level	second-cycle studies	Subject group	Specialty subject group 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	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Fluid-Flow Machinery -> Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Włodarski	
	Teachers	dr inż. Wojciech Włodarski	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	15.0	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	8.0	37.0	75

Subject objectives

The aim of the course is to broaden knowledge of the environmental impact of selected types of technical facilities.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U02] formulates and tests hypotheses concerning problems related to energy conversion processes, their efficiency, control, safety and impact on the environment, as well as simple research problems	is able to combine the description and evaluation of system and non-technical aspects when solving engineering tasks in the field of design, technology and operation of machines	[SU3] Assessment of ability to use knowledge gained from the subject
[K7_W01] explains and describes, based on general knowledge in the field of scientific disciplines forming the theoretical foundations of Power Engineering, the structure, principles of operation and evironmental impact of energy systems, machines and devices, transmission grids and internal installations	assesses the suitability and correctly selects the methods and tools best suited to solve engineering tasks typical for the specialisation being pursued	[SW1] Assessment of factual knowledge

Subject contents

Course content – lecture

Characteristics of environmental pollution. Impact of selected types of technical facilities on the environment. Calculation of pollutant emissions from fuel combustion. Modelling of atmospheric dispersion. Noise generated by wind turbines. Assessment of the effects of the release of harmful substances into rivers, lakes and coastal waters. Determination of radiation doses received from the consumption of food products contaminated with radioactive substances.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	51.0%	100.0%

Recommended reading	Basic literature	A. Ziębik, M. Szega, W. Stanek "Systemy energetyczne a środowisko" Wydawnictwo Politechniki Śląskiej 2015 K. Maczek "Wybrane zagadnienia ochrony powietrza w inżynierii cieplnej" Kraków 1998 W. Lewandowski, R. Aranowski "Technologie ochrony środowiska w przemyśle i energetyce" PWN 2016 E. Klimiuk, M. Pawłowska, T. Pokój "Biopaliwa. Technologie dla zrównoważonego rozwoju" PWN 2012 M. Szubel, W. Goryl "Drewno w energetyce" Poznań 2017
	Supplementary literature	A. Ziębik, M. Szega, W. Stanek "Systemy energetyczne a środowisko" Wydawnictwo Politechniki Śląskiej 2015 K. Maczek "Wybrane zagadnienia ochrony powietrza w inżynierii cieplnej" Kraków 1998 W. Lewandowski, R. Aranowski "Technologie ochrony środowiska w przemyśle i energetyce" PWN 2016 E. Klimiuk, M. Pawłowska, T. Pokój "Biopaliwa. Technologie dla zrównoważonego rozwoju" PWN 2012 M. Szubel, W. Goryl "Drewno w energetyce" Poznań 2017
	eResources addresses	
Example issues/ example questions/ tasks being completed	the impact of wind energy systems on the environment	
Practical activites within the subject	Not applicable	

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