



Subject card

Subject name and code	Industrial ventilation and air conditioning systems, PG_00057352						
Field of study	Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	February 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Optional 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 polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Sanitary Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Sylwia Fudala-Książek				
	Teachers						
Lesson types and methods of instruction	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 get acquainted with the well-established knowledge in the field of ventilation and air conditioning and shaping the internal environment of special-purpose rooms, current legal regulations and standards related to the topic, installation materials and criteria for their selection, design methodology, methods and technologies for the implementation of these installations, as well as related with them non-technical conditions.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[K7_W02] has extended and deepened knowledge of physics, chemistry, thermodynamics, fluid mechanics, material science, necessary to understand and describe basic thermal and flow phenomena occurring in and around power equipment and systems, transmission networks and internal installations		The student is using the knowledge of physics, chemistry, thermodynamics, fluid mechanics, and materials science, the student is able to design ventilation and air conditioning systems for special and industrial facilities. He knows and describes the technologies necessary to reduce the demand for heat and electricity for ventilation and air conditioning.			[SW1] Assessment of factual knowledge	
	[K7_W10] knows the basic installations of advanced energy systems, transmission networks and internal installations and their impact on the environment		The student describes the goals and methods of operation of ventilation and air conditioning systems. He presents operational issues concerning technical solutions of ventilation and air-conditioning of specialized rooms. It defines the sustainable management of energy sources and methods of environmental protection.			[SW1] Assessment of factual knowledge	
Subject contents	LECTURE: Ventilation systems of hospitals, operating theaters, drug production plants, industrial halls. Protection of work zones against hazards related to the emission of pollutants. Local exhaust ventilation. Methodology of calculating air supply and exhaust streams. Designing a network of cables. Equipment selection. The importance and application of air conditioning. Comfort air conditioning. Industrial air conditioning. Moist air. Calculation of the thermal load of objects - heat gains and losses. Examples of air conditioning systems solutions. Energy demand in air conditioning systems. PROJECT: Design of laboratory ventilation and air conditioning.						
Prerequisites and co-requisites	Basic knowledge of thermodynamics, fluid mechanics as well as ventilation and air conditioning.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	60.0%	50.0%
	Lecture	60.0%	50.0%
Recommended reading	Basic literature	1. Klimtyzacja i wentylacja w szpitalach. Teoria i praktyka eksploatacji Andrzej Wolski, Krzysztof Kaiser 2. M. Jaskólski, Z. Micewicz - Wentylacja i klimatyzacja hal krytych pływalni. IPPU MASTA, Gdańsk 3. T. Szymański, W. Wasiluk, Systemy wentylacji przemysłowej. Skrypt Politechnika Gdańsk 4. H. Recknagel Poradnik Ogrzewanie, klimatyzacja. EWFE, Gdańsk	
	Supplementary literature	1. K. Kaiser, A. Wolski . Hałas i zanieczyszczenia w wentylacji pomieszczeń. 2. M. Galiński. Miejskowa wentylacja wywiewna.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Systems used in operating theaters.		
Work placement	Not applicable		