



Subject card

Subject name and code	Ventilation and Air Conditioning, PG_00042743						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	4	Language of instruction			Polish		
Semester of study	8	ECTS credits			1.0		
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	10.0	5.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=20162						
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		14.0		30
Subject objectives	The aim of the course is to familiarize you with the basic knowledge of the types of ventilation and air conditioning and parameters of humid air and its changes, calculation / normative parameters of air external and internal as well as shaping the internal environment, current regulations legal and standards related to the topic.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W09] has ordered, theoretically founded knowledge in the field of water supply, sewage, heating, ventilation and air conditioning, and the principles of shaping the microclimate of rooms; knows legal regulations, standardization issues and recommendations for the design of water supply, sewage, heating and gas networks and installations	The student knows the parameters calculation of external and internal air, humid air conditions. The student knows the ventilation systems and air conditioning. Understands transformations air in the air handling units ventilation, depending on processes used.			[SW1] Assessment of factual knowledge		
	[K6_U06] knows and applies the basic provisions of construction law, water law and environmental law	The student identifies the standards and legal provisions in the field ventilation and air conditioning. Selects regulations and standards for the tasks of the range of ventilation.			[SU1] Assessment of task fulfilment		
Subject contents	LECTURES: Parameters of the condition of humid air. Processes of humid air transformation. Calculation / normative parameters of outdoor and indoor air. The microclimate of the rooms and thermal comfort. External and internal gains / losses of heat and moisture indoors. Ventilation and air conditioning in buildings. Ventilation systems. Choosing the type of ventilation. Legal regulations and standards. TUTORIALS: Analytical calculations related to the change of parameters of the humid air condition and practical use of the h x (Mollier) chart.						
Prerequisites and co-requisites	Knowledge of thermodynamics						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Test	60.0%			70.0%		
	The computational exercise	60.0%			30.0%		

Recommended reading	Basic literature	<p>1. Jaskólski M., Micewicz Z., Wentylacja i klimatyzacja hal krytych pływalni. IPPU MASTA, Gdańsk, 2000.</p> <p>2. Malicki M., Wentylacja i klimatyzacja. PWN, Warszawa 1980.</p> <p>3. Pelech A., Wentylacja i klimatyzacja. Podstawy. Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław, 2009.</p> <p>4. Szymański W., Wolańczyk F., Termodynamika powietrza wilgotnego. Przykłady i zadania, OWPRz, Rzeszów, 2008.</p> <p>5. Przepisy prawne: http://isap.sejm.gov.pl/ , normy związane z tematem, warunki techniczne COBRTI Instal.</p>
	Supplementary literature	<p>1. Recknagel, Sprenger i in., Poradnik. Ogrzewanie i klimatyzacja. EWFE, Gdańsk, 2008.</p> <p>2. Żarski K., Termodynamika. Zagadnienia praktyczne w ogrzewnictwie i klimatyzacji. Ośrodek Informacji Technika instalacyjna w budownictwie, Warszawa, 2005.</p> <p>3. Wytyczne producentów, karty katalogowe armatury i urządzeń.</p> <p>4. Venture Industries Sp. z o. o. Wentylacja i Klimatyzacja. Materiały pomocnicze do projektowania</p>
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Determination of parameters of humid air on the Mollier diagram	
Work placement	Not applicable	