

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	District Heating, PG_00058819								
Field of study	Environmental Engineering								
Date of commencement of studies	October 2022		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	3		Language of instruction			Polish			
Semester of study	5		ECTS credits			5.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Department of Sanitary Engineering -> Faculty of Civil and Environmental Engineering								
Name and surname of lecturer (lecturers)	Subject supervisor dr inż. Arkadiusz Os				z Ostojski				
	Teachers		dr inż. Arkadiusz Ostojski						
	dr hab. inż. Ewa Zaborowska								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	:t	Seminar	SUM	
	Number of study hours	30.0	0.0	0.0	30.0		0.0	60	
	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	60		5.0		60.0		125	
Subject objectives	The aim of the subject is to acquaint students with the basic knowledge in the range of heating, current regulations and standards related to the subject, the systems performance and fittings. The subject objective is to acquire skills in the range of professional nomenclature, utilising and converting different sources of information and data bases, application of calculation methodology and the principles of designing.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_U11] can use selected computer programs to support design, including CAD graphics programs		Student uses CAD software for the preparation of drawings in technical documentation.			[SU4] Assessment of ability to use methods and tools			
	[K6_WU9] 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 [K6_U12] can design installations, networks and facilities: water supply, sewage, heating and gas		Student knows basic types of heating systems and tap hot water systems. Classifies heating substations. Specifies elements, describes and explains principles of automatic control systems in heating systems and heating substations. Student prepares a project of a heating system with a gas boiler in a multi-family residential building.			[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects [SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject			

Subject contents	Project: Projec					
	Selection of boiler and circulating pur bansion tank. Safety valves. Discuss ystem project. Method of final testing	Safety devices of closed, water ssion of the requirements for the ing of the installation.				
Prerequisites and co-requisites	Fundamental knowledge in the range of thermal engineering. Drawing skills in AutoCAD. Knowledge from the courses: Basics of thermal engineering (PG_00043370).					
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade			
	Written exam - heat protection of the building + heating installation	50.0%	40.0%			
	Written exam - heating substations	50.0%	30.0%			
	Project	100.0%	30.0%			
Recommended reading	Basic literature	1) Koczyk H. (red.): Ogrzewnictwo. Podstawy projektowania cieplnego i termomodernizacji budynków. Poznań: Wydawnictwo Politechniki Poznańskiej 2000 2) Krygier K., Klinke T., Sewerynik J.: Ogrzewnictwo, wentylacja i klimatyzacja. Warszawa: Wydawnictwa Szkolne i Pedagogiczne 1997. 3) Pieńkowski K., Krawczyk D., Tumel W.: Ogrzewnictwo. T. 1. Białystok: Rozprawy Naukowe nr 63, 1999.				
	Supplementary literature	1) Koczyk H. (red.): Ogrzewnictwo p eksploatacja. Poznań: Systherm Se	red.): Ogrzewnictwo praktyczne. Projektowanie, montaż, Poznań: Systherm Serwis 2005.			
	eResources addresses Adresy na platformie eNauczanie: Ogrzewnictwo 2024/2025 IŚ studia stacjonarne sem. V - Moodle I 42411 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=42411					
Example issues/ example questions/ tasks being completed						
Work placement	Not applicable					

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