



## Subject card

Subject name and code	Water and Sewage Management, PG_00042500						
Field of study	Environmental Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksandra Sokołowska					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	15.0	0.0	0.0	0.0	35
	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	35	4.0	75.0	114		
Subject objectives	The aim of the course is to get acquainted with models of water and sewage management in industrial plants.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W09] has deepened, ordered, theoretically developed knowledge related to: hydrology, drainage, water management, flood protection or resource and water intake or water and sewage management	The student is able to evaluate the suitability of a given model of water and sewage management to environmental conditions and the type of industry.			[SW3] Assessment of knowledge contained in written work and projects		
	[K7_U08] is able to assess risks in the implementation of engineering projects and implement appropriate safety rules	The student is able to choose a model of water and sewage management in such a way as to minimize the risks to the natural environment.			[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_U06] can use the known mathematical methods and models, if needed, to modify them, for: analysis and design of water systems and their components or water flows, migration of pollutants or water and wastewater treatment and sewage sludge handling	The student is able to design a water and sewage management model and present it using the Sankey diagram			[SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task		
	[K7_U07] can plan and carry out laboratory and field experiments leading to assessment of the efficiency of water treatment, waste water treatment, waste management and sewage sludge management	The student is able to plan a water and sewage management model suitable for a given industrial plant.			[SU2] Assessment of ability to analyse information		

Subject contents	Models of water and sewage management in industrial plants, Sankey diagram Water and sewage management in industrial plants. Specialized devices for industrial wastewater treatment.		
Prerequisites and co-requisites	Knowledge of basic devices and technologies of water and wastewater treatment.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Water and sewage management project for any industrial plant. Delivery time by the end of the semester.	60.0%	100.0%
Recommended reading	Basic literature	N. P. Cheremisinoff, Handbook of Water and Wastewater Treatment Technologies, 2002	
	Supplementary literature	Journal of Cleaner Production	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Models of water and wastewater management. Solutions used in the food industry. Solutions used in the power industry.		
Work placement	Not applicable		