



Subject card

Subject name and code	Water supply systems II, PG_00058813						
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			3.0		
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. Dominika Sobotka					
	Teachers	dr inż. Nicole Nawrot dr inż. Dominika Sobotka					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	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 acquire by the student the ability to use technical knowledge to solve problems using the classical methods of designing elements of the water distribution system.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U13] knows the rules of application and can choose the materials of the sanitary industry	The student knows the properties of materials used in the construction of water networks and devices and is able to choose them.	[SU2] Assessment of ability to analyse information
	[K6_U12] can design installations, networks and facilities: water supply, sewage, heating and gas	The student is able to define the technological scheme of objects and define the parameters of devices.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
	[K6_U11] can use selected computer programs to support design, including CAD graphics programs	The student is able to use computer programs supporting hydraulic calculations of the water supply network and the selection of pumps.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
	[K6_K02] understands the need to formulate and communicate to the public information and opinions on the achievements of environmental engineering and other aspects of the sanitary industry engineer's activity; is aware of the importance and understands the non-technical aspects and effects of engineering activities; makes efforts to provide such information and opinions in a widely understandable way, presenting different points of view	The student is aware of and understands the consequences of the environmental impact of activities in the field of engineering design and operation of water supply.	[SK5] Assessment of ability to solve problems that arise in practice
[K6_U03] can prepare documentation regarding the implementation of an engineering task/project and prepare a text or presentation including a discussion of the results of the implementation	The student is able to independently make a preliminary design, including hydraulic calculations and drawings. In addition, it defines the parameters of devices and selects them from the catalog.	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information	
Subject contents	<p>Design a water distribution system for a city district (max. 30,000 - 40,000 thousand inhabitants) along with the facilities (pumping stations, network tank and intake concept) based on the output data and design assumptions agreed with the course instructor. The project is a conceptual design stage with elements of a construction project in the field of:</p> <ul style="list-style-type: none"> • water balance for residents and industry, • water supply network routing on a city plan, • dimensioning of the trunk network using the Cross method along with its infrastructure, • determination of the pressure line run on the profile for Q_{dmax}, Q_{hmax} and $Q_{hmax} + Q_{ppoz}$, • determining the dimensions of the network tank and pump parameters along with their selection from the catalog, • zoning of the water supply network. 		
Prerequisites and co-requisites	Basic knowledge of fluid mechanics and hydraulics, geology. Knowledge of the principles of hydraulic calculations, knowledge of the following subjects: installation materials and soil mechanics.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Calculations	70.0%	35.0%
	Graphic part	70.0%	35.0%
	A technical description	70.0%	30.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Materials for classes from the 4th semester of the Water supply course 2. Projektowanie sieci wodociagowych, Wiktor Petrozolin , wyd. ARKADY, 1967 3. Wodociagi: zapotrzebowanie, ujecie, dostarczanie, gromadzenie, rozprowadzenie wody, Tadeusz Gabryszewski, PWN, 1973 4. Obliczanie systemow zaopatrzenia w wode, Edward Mielcarzewicz , wyd. ARKADY, 2001 5. Zaopatrzenie w wode i odprowadzenie sciekow, Marek Kalenik , wyd. SGGW, 2009 6. Zaopatrzenie w wode, Ziemowit Suligowski, Sylwia Fudala Ksiazek, wyd. Seidel Przywecki, 2014 7. Sieci i obiekty wodociagowe, Elzbieta Osuch Pajdzińska , Marek Roman, Oficyna Wydawnicza Politechniki Warszawskiej, 2008 	

	Supplementary literature	<p>1. Rozporządzenie Ministra Infrastruktury z dnia 14 stycznia 2002 r. w sprawie określenia przeciętnych norm zużycia wody (Dz.U. Nr 8 poz. 70) (isap.sejm.gov.pl)</p> <p>2. ROZPORZĄDZENIE MINISTRA ROZWOJU I TECHNOLOGII z dnia 20 grudnia 2021 r. w sprawie szczegółowego zakresu i formy dokumentacji projektowej, specyfikacji technicznych wykonania i odbioru robót budowlanych oraz programu funkcjonalno-użytkowego</p> <p>3. Warunki techniczne wykonania i odbioru sieci wodociągowych, COBRTI Instal, 2001</p> <p>4. Ustawa z dnia 7 czerwca 2001r. r. o zbiorowym zaopatrzeniu w wodę i zbiorowym odprowadzeniu ścieków (Dz.U. Nr 72/2001, poz.747, z późniejszymi zmianami)</p> <p>5. Rozporządzenie Ministra Spraw Wewnętrznych i Administracji z dnia 24 lipca 2009 r. w sprawie przeciwpożarowego zaopatrzenia w wodę oraz dróg pożarowych. (Dz. U. Nr 124, poz. 1030)</p> <p>6. PN-EN 805:2002 Zaopatrzenie w wodę Wymagania dotyczące systemów zewnętrznych i ich części składowych</p>
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.