

MEĐIMURJE POLYTECHNIC IN ČAKOVAC



POLYTECHNIC OF MEĐIMURJE AND ČAKOVEC

SYLLABUS COURSE

ACADEMIC YEAR: 2020/2021

1. GENERAL INFORMATION ABOUT THE COURSE

1.1. Course title	Water supply and drainage			
1.2. Study program (s)	Undergraduate professional study Sustainable Development			
1.3. Course status (O, I)	Mandatory	1.6. Teaching methods (number of hours)	Lectures	30
1.4. Course code			Exercises	30
1.5. Course abbreviation	THIS		Seminar	
1.6. Semester	III		E-learning	
1.7. Credit value (ECTS)	5	1.7. Place and time of classes	Premises of the Polytechnic of Međimurje in Čakovec, according to the schedule published on the website	

2. TEACHING STAFF

2.1. Carrier	Goran Sabol	2.4. Assistant (s)	Goran Sabol	
2.2. Calling	lecturer	2.5. Title (s)	lecturer	
2.3. Contact	gsabol@mev.hr	2.9. Contact / s	gsabol@mev.hr	

3. COURSE DESCRIPTION

3.1. Course objectives	To enable the student to understand and solve problems related to water structures of water supply, drainage and wastewater treatment. Introduce the student to the processes and systems of water supply and ways of its disposal.
3.2. Requirements for enrollment and taking the course	None
3.3. Learning outcomes	After successfully completing the course, students will be able to: 1. Justify investments and funds in the construction and expansion of agglomerations and water supply systems and sewers 2. Recommend adequate solutions for public wastewater drainage systems 3. Recommend adequate solutions when expanding the water supply system 4. Develop a situational plan of the water supply system and network 5. Review the current situation with the projected period for water supply networks 6. Analyze pipeline and network calculations
3.4. Course content	The course presents contents related to classical and modern technology of construction projects

3.5. Types of teaching	x	Lectures	x	Exercises		Blended e-learning		Independent tasks		Laboratory																																																																						
		Seminars and workshops		Distance education	x	Field work		Multimedia and network		Mentoring work																																																																						
		Other:																																																																														
3.6. Performance language	Croatian																																																																															
3.7. Monitoring student work (enter the number of ECTS credits for each activity so that the total number of ECTS credits corresponds to the credit value of the course, 1 ECTS = 30 hours)	2,0	Class attendance				Seminar paper				Essay																																																																						
	0,5	Teaching activity				Project				Report																																																																						
	1,5	Colloquia				Practical work				Continuous assessment																																																																						
	0,5 0	Written exam				Experimental work																																																																										
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3.10. Specifics related to taking the course	<p>If a student collects 50% of the points of each outcome, he / she directly takes the exam .</p> <p>If a student does not achieve a sufficient number of points on the midterm exam, he / she cannot take the next midterm exam.</p> <p>Once achieved points in intermediate exams for each learning outcome are no longer deleted unless the student decides to correct the result for a particular learning outcome, whereby the points won until then are deleted and newly achieved points for that learning outcome are entered.</p> <p>The final grade is obtained on the exam period and is the sum of points earned during classes.</p> <p>Students who did not take the colloquium access the written part of the exam where all learning outcomes are checked .</p>	
3.11. Student obligations	<p>Full-time students are required to attend at least 70% of the total number of hours of lectures and exercises in order to exercise the right to take the exam.</p> <p>Part-time students are required to attend at least 30% of the total number of hours of lectures and exercises in order to exercise the right to take the exam.</p> <p>If the student has not fulfilled all the obligations provided by the course, he is obliged to attend the lectures again and meet the conditions for taking the exam.</p> <p>Attendance can be offset by online consultations, organized webinars and added assignments given by teachers. One lesson lasts 45 minutes, and several hours form a teaching unit. Absence from one teaching unit is counted as one absence. Delays and apologies are recorded separately. In the event that a student is absent from more than 50% of classes, and has a justifiable reason / apology, a request should be submitted to the Department Council, which then decides on the justification of student absences with the obligatory opinion of the course leader.</p>	
3.12. Written works		
3.13. Required reading	1.	Gulić: Water supply, DGHi - Zagreb, 2003
	2.	J. Margeta: Sewage settlement - Split, 1998.
3.14. Supplementary literature	1.	Fair - Geyer: Elements of water supply and Waste - Water Disposal - John Wiley
	2.	Steel, McGhee: Water supply and Sewerage International student Edition - McGraw-Hill
	3.	Hydrogeology for builders / Zlatko Pollak. - Zagreb: Poslovna knjiga: Građevinski fakultet; Osijek: Faculty of Civil Engineering, 1995.
4. ADDITIONAL INFORMATION ABOUT THE COURSE		
4.1. Quality control	<p>The quality of the program, teaching process, teaching skills and level of mastery of the material will be established by conducting a written evaluation based on questionnaires, and in other standardized ways and in accordance with the acts of the Polytechnic of Međimurje in Čakovec.</p>	
4.2. Contacting the teacher	<p>Students can contact the teacher during the consultation period and during classes, while for short questions and explanations they can contact any day during working hours by coming in person or by landline. It is also possible to ask questions by e-mail, which will be answered in 48 hours at the latest. It is desirable that students come to the consultation as often as possible for any ambiguities.</p>	

4.3. Informing about the course	It is the obligation of each student to be regularly informed about the course. All notifications about the holding or possible postponement of classes will be posted on the bulletin board and on the website of the Polytechnic at least 24 hours in advance.
4.4. The contribution of the course to the study program	Apply the basics of water supply engineering structures

5. DEVELOPMENT OF THEMATIC UNITS (the number of elaborated hours is identical to the number of lectures and exercises of the course)

LECTURES				
Hours	Topic and description of the lecture	Method of work	Lecture learning outcomes	Course learning outcome
		<ul style="list-style-type: none"> • direct teaching (presentation, instruction, pp presentation) • Discovery learning (independent, guided, discussion, debate) • Group / collaborative learning • case study • field teaching... 		
1.	Introduction to the course content, basics of water supply.	Presentation, pp presentation	Distinguish water supply systems	I1
2.	Introduction, importance of water supply and drainage	Presentation, pp presentation	Distinguish drainage systems	I1
3.	Pipelines, water supply networks, types of pipes and collectors	Presentation, pp presentation	Distinguish the properties of pipelines	I2
4.	Sewer systems, wastewater types and amounts of the relevant waste water	Presentation, pp presentation	Distinguish sewer systems	I2
5.	Channel system sizing, minimum profiles and channel bottom drops	Presentation, pp presentation	Explain sizing	I2
6.	Facilities on the sewerage network (siphons, rain relief), retention basin	Presentation, pp presentation	Distinguish system elements	I2
7.	Calculations of wastewater quantities, longitudinal falls, dimensioning of network facilities	Presentation, pp presentation	Explain the calculation	I2
8.	Facilities on the water supply system	Presentation, pp presentation	Distinguish system elements	I3
9.	Reservoir and pumping station projects .	Presentation, pp presentation	Distinguish reservoirs	I3
10.	Water consumption calculations, catchment facilities	Presentation, pp presentation	Explain the budget	I3

11.	Situational plan of water supply system and network, catchment design	Presentation, pp presentation	Implement a situational plan	14
12.	System situation plan and technical report	Presentation, pp presentation	Implement a situational plan	14
13.	Design of pumping stations and selection of pumps Q / H diagrams	Presentation, pp presentation	Explain the design	15
14.	Calculation of pipelines and networks, general longitudinal profiles and siphons	Presentation, pp presentation	Explain the budget	15
15.	Calculations and rain relief project	Presentation, pp presentation	Explain sustainability	16
EXERCISES / SEMINARS				
Hours	Topic and description of the lecture	Method of work <ul style="list-style-type: none"> • direct teaching (presentation, instruction, pp presentation) • Discovery learning (independent, guided, discussion, debate) • Group / collaborative learning • case study • field teaching... 	Lecture learning outcomes	Course learning outcome
1.	Introduction, importance of water supply and drainage	Distinguish water system technologies	Distinguish water supply systems	11
2.	Pipelines, water supply networks, types of pipes and collectors	Guided task, examples of pipelines	Distinguish drainage systems	11
3.	Sewer systems, wastewater types and amounts of the relevant waste water	Guided task - sewage	Distinguish the properties of pipelines	12
4.	Channel system sizing, minimum profiles and channel bottom drops	Guided task - sizing	Distinguish sewer systems	12
5.	Facilities on the sewerage network (siphons, rain relief), retention basin	Guided task - conceptual solutions	Explain sizing	12
6.	Calculations of wastewater quantities, longitudinal falls, dimensioning of network facilities	Guided task, examples of sizing	Distinguish the elements of the system a	12
7.	Facilities on the water supply system	Guided task, examples of sizing	Distinguish water reservoirs	12
8.	Colloquium	Independent production	To rate	
9.	Reservoir and pumping station projects	Guided task, examples of practice	Distinguish reservoirs	13

10.	Water consumption calculations, catchment facilities	Adopt a water consumption budget	Explain the budget	13
11.	Situational plan of water supply system and network, catchment design . System situation plan and technical report	Adopt situational concepts	Implement a situational plan	14
12.	Design of pumping stations and selection of pumps Q / H diagrams	Adopt pumps	Implement a situational plan	15
13.	Calculation of pipelines and networks, general longitudinal profiles and siphons	Guided task, examples with profiles	Explain the design	15
14.	Calculations and rain relief project	Guided task, examples of engineering	Explain sustainability	16
15.	Colloquium	Independent production	To rate	