

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 management buildings			
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	15
1.5. Course abbreviation	VGG		Seminar	
1.6. Semester	V		E-learning	
1.7. Credit value (ECTS)	4	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	mr. sc. Vladimir Križaić mr. sc. Sanjana Buć	2.4. Assistant (s)	mr. sc. Vladimir Križaić mr. sc. Sanjana Buć
2.2. Calling	s. lecturer lecturer	2.5. Title (s)	s. lecturer lecturer
2.3. Contact	vkrizaic @ mev.hr sbuc@mev.hr	2.9. Contact / s	vkrizaic @ mev.hr sbuc@mev.hr

3. COURSE DESCRIPTION

3.1. Course objectives	Acquisition of basic technological knowledge necessary for technology design and construction of water management facilities. Rationality of construction technology in the processes of making the VGG project .									
3.2. Requirements for enrollment and taking the course	None									
3.3. Learning outcomes	After successfully completing the course, students will be able to: <ol style="list-style-type: none"> 1. First rationally choose the most efficient form and to logy construction VGG 2. Perform hydraulic calculation of marine structures 3. Assess the specifics of building structures of hydraulic structures, water structures and design practices 4. Rational design of open watercourses 5. Rational design of pressure and open pipelines 6. Valorize the structural system and functional parts of engineering structures 									
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)	0.4	Class attendance		Seminar paper		Essay
	0.1	Teaching activity		Project		Report
	2.5	Colloquia		Practical work		Continuous assessment
	0, 5 0	Written exam		Experimental work		
	0, 5 0	Oral exam		Research		

3.8. Assessment and evaluation of student work during classes and at the final exam	<table border="1"> <thead> <tr> <th>Activity specification</th> <th>Percentage%</th> <th>points</th> </tr> </thead> <tbody> <tr> <td colspan="3">Evaluation during classes</td> </tr> <tr> <td>Class attendance</td> <td>8%</td> <td>8</td> </tr> <tr> <td>Teaching activity</td> <td>2%</td> <td>2</td> </tr> <tr> <td>Practical work</td> <td></td> <td></td> </tr> <tr> <td>Colloquium 1</td> <td>45 %</td> <td>4 5</td> </tr> <tr> <td>Colloquium 2</td> <td>45 %</td> <td>4 5</td> </tr> <tr> <td colspan="3"><i>Evaluation of exam work for students who did not take the colloquium</i></td> </tr> <tr> <td>Written exam</td> <td>90 %</td> <td>9 0</td> </tr> <tr> <td>In total:</td> <td>100%</td> <td>100</td> </tr> </tbody> </table>			Activity specification	Percentage%	points	Evaluation during classes			Class attendance	8%	8	Teaching activity	2%	2	Practical work			Colloquium 1	45 %	4 5	Colloquium 2	45 %	4 5	<i>Evaluation of exam work for students who did not take the colloquium</i>			Written exam	90 %	9 0	In total:	100%	100
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3.9. Evaluation criteria - elaboration by outcomes	<table border="1"> <thead> <tr> <th colspan="7">Method of passing the outcome</th> </tr> <tr> <th></th> <th>Class attendance</th> <th>Teaching activity</th> <th>Colloquium 1</th> <th>Colloquium 2</th> <th>Practical work</th> <th>In total</th> </tr> </thead> <tbody> <tr> <td>Outcome 1</td> <td></td> <td></td> <td>1 0</td> <td>5</td> <td></td> <td>1 5</td> </tr> <tr> <td>Outcome 2</td> <td></td> <td></td> <td>1 0</td> <td>5</td> <td></td> <td>1 5</td> </tr> <tr> <td>Outcome 3</td> <td></td> <td></td> <td>10</td> <td>5</td> <td></td> <td>15</td> </tr> <tr> <td>Outcome 4</td> <td></td> <td></td> <td></td> <td>15</td> <td></td> <td>15</td> </tr> <tr> <td>Outcome 5</td> <td></td> <td></td> <td></td> <td>15</td> <td></td> <td>15</td> </tr> <tr> <td>Outcome 6</td> <td></td> <td></td> <td></td> <td>15</td> <td></td> <td>15</td> </tr> <tr> <td>Outside the outcome</td> <td>8</td> <td>2</td> <td></td> <td></td> <td></td> <td>10</td> </tr> <tr> <td>In total</td> <td>8</td> <td>2</td> <td>3 0</td> <td>6 0</td> <td>0</td> <td>100</td> </tr> </tbody> </table>							Method of passing the outcome								Class attendance	Teaching activity	Colloquium 1	Colloquium 2	Practical work	In total	Outcome 1			1 0	5		1 5	Outcome 2			1 0	5		1 5	Outcome 3			10	5		15	Outcome 4				15		15	Outcome 5				15		15	Outcome 6				15		15	Outside the outcome	8	2				10	In total	8	2	3 0	6 0	0	100
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Scoring outcomes (in order to pass the colloquium / exam the student must achieve at least 50% points for each learning outcome)

Rating Points

89 - 100 Excellent (5)

76 - 88 Very good (4)

63 - 75 Good (3)

51 - 62 Sufficient (2)

0 - 49 Insufficient (1)

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>
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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>
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3.12. Written works	
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3.13. Required reading	1.	P. Stojić: Hidrotehničke građevine I i II, FGZ Split, 1997, 1998
	2.	Z. Tadejević, M. Pršić: Maritime Hydraulics I, script of the Faculty of Civil Engineering, Zagreb, 1981.
	3.	M. Pršić, Z. Tadejević: Riječni plovni putevi, skripta Građevinskog fakulteta Zagreb, 1988
	4.	Z. Kos: Hydrotechnical land reclamation, drainage, Zagreb, 19 89
	5.	I. Legac: Cestovne prometnice, Zagreb, 2006

3.14. Supplementary literature	1.	B. Đorđević: Korištenje vodnih snaga I i II, Naučna knjiga, Beograd, 1981, 1984.
	2.	P. Stojić: Hydropower, FGZ Split, 1995.
	3.	Ž. Vuković: Osnove hidrotehnike I / 1 i 2, Akvamarine, Zagreb, 1994, 1995.
	4.	Technician - Construction Manual, Construction Book, 1985

4. ADDITIONAL INFORMATION ABOUT THE COURSE	
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4.1. Quality control	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.
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4.2. Contacting the teacher	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.
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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.
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4.4. The contribution of the course to the study program	Apply the basics of construction technologies through the creation and design of VGG
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5. DEVELOPMENT OF THEMATIC UNITS (the number of elaborated hours is identical to the number of lectures and exercises of the course)	
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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 		

		<ul style="list-style-type: none"> • case study • field teaching... 		
1.	Introduction to the course content, basics of VGG	Presentation, pp presentation	Distinguish VGG systems	11
2.	Constructions of typical maritime buildings. Offshore construction technology	Presentation, pp presentation	Distinguish offshore construction technologies	12
3.	Sea waves - theory, forecast and design of waves and sea levels	Presentation, pp presentation	Distinguish water bodies	12
4.	Sizing of buildings on the sea	Presentation, pp presentation	Explain auxiliary systems	12
5.	Overview of the main groups of VGG - dams, embankments and devices for water evacuation,	Presentation, pp presentation	Explain the waves	13
6.	Determination of gates, plugs and drains.	Presentation, pp presentation	Explain hydro sizing	13
7.	The need and type of regulation of watercourses with sizing of reservoirs and embankments .	Presentation, pp presentation	Distinguish control systems	14
8.	Description of drainage system	Presentation, pp presentation	Apply reclamation systems	14
9.	Sizing of watercourses and ancillary structures on watercourses	Presentation, pp presentation	Use watercourse sizing	14
10.	Calculation of embankments and ancillary facilities along embankments	Presentation, pp presentation	Apply embankment sizing	14
11.	Sewage systems	Presentation, pp presentation	Distinguish sewer systems	15
12.	Basic elements of the pumping station	Presentation, pp presentation	Explain pumping systems	15
13.	Defining pressure gravity pipelines	Presentation, pp presentation	Explain the technology of pressure pipelines	15
14.	Compiled and GIS projects of line structures (pipes and watercourses)	Presentation, pp presentation	Apply GIS	15
15.	Hydraulic calculation of the bridge, culverts	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 to the course content, basics of VGG	Differentiate VGG systems	Distinguish construction technologies	11
2.	Constructions of typical maritime	Guided task, examples	Distinguish embankment technologies must	12

	structures	of breakwaters		
3.	Sea waves - theory, forecast and design of waves and sea levels	Guided task - wave actions	Distinguish the properties of action	12
4.	Sizing of buildings on the sea	Guided task - wave dynamics	Use modeling	12
5.	Overview of the main groups of VGG- dams, embankments	Guided task - engineering structures	Distinguish types of constructions	13
6.	Determination of gates, plugs and drains	Guided task, examples of water const. elements	Distinguish const. elements	13
7.	The need and type of regulation of watercourses with sizing of reservoirs and embankments	Guided task, examples of sizing	Explain sizing	14
8.	Colloquium	Independent production	To rate	
9.	Sizing of watercourses and ancillary structures on watercourses	Guided task, examples of sizing	Explain sizing	14
10.	Reclamation and calculation of embankments and ancillary facilities	Guided task, examples of sizing	Apply sizing	14
11.	Sewage systems	Guided task, examples of sewage	Distinguish sewer technology	15
12.	Basic elements of the pumping station	Guided task, examples	Distinguish pumps	15
13.	Def iniranje pressure gravitational pipeline . Development of GIS line projects (pipelines and watercourses)	Guided task, examples of GIS	Explain GIS	15
14.	Hydraulic calculation of the bridge, culverts	Guided task, examples	Explain sustainability	16
15.	Colloquium	Independent production	To rate	