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POLYTECHNIC OF ŠIBENIK

DEPARTMENT OF TRAFFIC

PROFESSIONAL UNDERGRADUATE STUDY OF TRAFFIC

Erasmus+ Course Catalogue

Academic year 2021-2022

Dean PhD Ljubo Runjić, college professor

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Šibenik, April 2021

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Course list

Professor	Component code	Course	ECTS
Olivari Luka	129836	Graphic communication	5
Perišić Ana		Statistics in traffic	4
Šego Darijo	140771	Traffic corridors and merchandise flows	4
Ljubić Hinić Martina	201139	Technology and organization of road traffic	7
Kardum Goleš Ivana	129833	English language I	3
Kardum Goleš Ivana	140775	English language III	3
Gaćina Nikolina	187586	Knowledge of goods	4
Poljičak Ana-Mari	142664	Traffic in tourism	3
Ljubić Hinić Martina	129846	Modern traffic systems	6
Radić Lakoš Tanja	129843	Traffic and ecology	4
Šego Darijo	140773	Traffic logistic	4
Poljičak Ana-Mari	140767	Transshipment resources	6
Mečev Dijana	142541	Economics of traffic	3
Beljo Ivana	140769	Operational research in traffic	4
Kardum Goleš Ivana	187599	English language II	3
Kardum Goleš Ivana	140784	English language IV	3
Olivari Luka	142538	Theory of vehicle movement	4

Full Course Curriculums

1. GENERAL INFORMATION			
1.1. Course lecturer	Luka Olivari	1.8. Course code in ISVU	129836
1.2. Course title	Graphic communications	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+30+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4
1.6. Year of study	1 st	1.13. Modernization	Yes
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% <input checked="" type="checkbox"/> More than 20 % <input type="checkbox"/>
2. COURSE DESCRIPTION			
2.1. Course objectives	<p>The aim of the course is to provide students with theoretical knowledge, acquired skills and practical examples to:</p> <ul style="list-style-type: none"> • Gain the knowledge and skills necessary to read, understand and produce technical drawings. • Use and understand the standards of drawing in technical drawings, orthogonal projections, spatial rendering and cross sections. • They use computers (the Auto-CAD computer program) when creating technical documentation. 		
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the CROQF.		
2.3. Learning outcomes on the study programme level	<p>LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English</p> <p>LO7: To apply computer tools for analysis and comparison of data, and suggest an optimal solution in traffic process</p> <p>LO8: To solve problems in traffic by using analytical and / or graphical methods</p>		
2.4. Expected learning outcomes on the course	Learning outcomes by Bloom: (maximum 2 verbs for LO)		Level of LO: 1 - memory, 2 - understanding,

level (4-10 learning outcomes)					3 - application, 4 - analysis, 5 - evaluation, 6 – synthesis.	
	1. Describe the basic concepts in graphical communication				1, 2	
	2. Draw orthogonal projections based on the given isometric view				4	
	3. Design an isometric representation of the body based on the given orthogonal projections				4	
	4. Distinguish the rules of technical presentation and apply them to the technical drawing.				4, 3	
	5. Draw a technical drawing in the AutoCAD computer program.				4	
2.5. Course content according to detailed curriculum schedule	Constructive allignment					
	No	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	1.	Introductory presentation (introducing students to the content and obligations of the course). The importance of graphical communications. Short history and development of graphic communications	1	Listen to a lecture. By working independently on a computer, they become acquainted with the course content, obligations, literature and documents on the e-learning course page.	At the colloquium or the written and oral exam they define and explain the basic concepts.	4 h
	2.	Technical letter, line types and widths, paper formats, scale and components of the technical drawing.	1, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical display. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; distinguish between the rules of the technical layout and apply them to the technical drawing;	4 h
	3.	Fundamentals of geometric structures.	1, 2, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; draw orthogonal projections based on a given isometric view;	4 h

					distinguish between the rules of the technical layout and apply them to the technical drawing;	
	4.	Technical spatial sketching and construction. Orthogonal projections. European and American display mode.	1, 2, 3	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; draw orthogonal projections based on a given isometric view; form an isometric representation of the body based on given orthogonal projections;	4 h
	5.	Display rules in technical drawings. Applying measures.	1, 2, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; draw orthogonal projections based on a given isometric view; distinguish between the rules of the technical layout and apply them to the technical drawing;	4 h
	6.	Markings on the technical drawing (marks of machining, roughness, tolerances of dimensions and shape)	1, 2, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; draw orthogonal projections based on a given isometric view; distinguish between the rules of the technical layout and apply them to the technical drawing;	4 h
	7.	Cross sections and rules for screwing.	1, 2, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; draw orthogonal projections based on a given isometric view; distinguish between the rules of the technical layout and apply them to the technical drawing;	4 h

	8.	Spatial presentation.	1, 3, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; form an isometric representation of the body based on given orthogonal projections; distinguish between the rules of the technical view and apply them to the technical drawing.	4 h
	9.	Introduction to Computer-Aided Design. CAD / CAM systems. Software packages and scope.	1, 4, 5	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; distinguish between the rules of the technical layout and apply them to the technical drawing; draw a technical drawing in an AutoCAD computer program.	4 h
	10.	Special markings on technical drawings and simplifications. Details on technical drawings. AutoCAD, interface and basic commands.	1, 4, 5	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; distinguish between the rules of the technical layout and apply them to the technical drawing; draw a technical drawing in an AutoCAD computer program.	4 h
	11.	AutoCAD, commands for drawing, using and creating a new layer.	1, 4, 5	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; distinguish between the rules of the technical layout and apply them to the technical drawing; draw a technical drawing in an AutoCAD computer program.	4 h
	12.	AutoCAD, commands for	1, 4, 5	Listen to a lecture and read literature.	At the colloquium or the written and	4 h

		applying measures, creating a template, printing drawings.		The exercises demonstrate the rules of technical presentation. Independent exercise.	oral exam: define and explain the basic concepts; distinguish between the rules of the technical layout and apply them to the technical drawing; draw a technical drawing in an AutoCAD computer program.	
	13.	AutoCAD, creation and manipulation of objects.	1, 4, 5	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; distinguish between the rules of the technical layout and apply them to the technical drawing; draw a technical drawing in an AutoCAD computer program.	4 h
	14.	AutoCAD, self-made workshop drawing.	1, 4, 5	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	At the colloquium or the written and oral exam: define and explain the basic concepts; distinguish between the rules of the technical layout and apply them to the technical drawing; draw a technical drawing in an AutoCAD computer program.	4 h
	15.	Final consideration, repetition and preparation for the exam.	-	Listen to a lecture and read literature. They prepare individually for the exam.	-	4 h

3. EVALUATION OF STUDENT WORK

3.1. Student obligations	In accordance with the Rulebook on Study and the Rulebook on Assessment and Evaluation of Student Performance: Full-time students are required to attend classes at least 70%, which is also a requirement for obtaining the lecturer's signature. Students can take the final exam in the course in two ways: a) during the course, by taking colloquiums and oral part of the exam; b) passing the written and oral part of the exam.					
3.2. Student work monitoring (enter the	Attending classes	2	Written exam	2 (without colloquiums)	Project	

share of ECTS credits for each activity so that the total number of ECTS credits corresponds to the course credit value)	Experimental work		Research		Practical work	
	Essay		Report		Continuous check	
	Colloquiums	2 (without written exam)	Seminar paper		Field works or Study trips	
	Teaching activities		The oral part of exam	1	(other)	
3.3. Student work-load	Student workload on all bases is 1 ECTS credit for 30 hours of work per semester and is estimated as going to fieldwork or study trips (30 hours), preparation of seminar work and presentation (30 hours).					
	Obligation			Hours (estimated)		
	1. Attending classes			60		
	2. Colloquiums and written exam individual preparation (drawing)			30		
	3. Colloquiums and written exam individual preparation (AutoCAD)			30		
4. Oral exam individual preparation			30			
4. FORMATION OF STUDENT GRADE						
4.1. Evaluation of written exam	Elements of evaluation	Bad	Satisfying	Above average		
	Technical drawing	Drawing incomplete, imprecise and sloppy. Made on inadequate paper size.	Drawing neatly crafted with a small number of imprecise errors, a clear distinction between types of lines.	Drawing very neatly made without errors.		
	Distinguish and apply the rules of technical drawing	Does not know the rules, does not apply or misapplies the elements of the technical representation.	Knows most of the rules of the technical view, correctly applies the basic, and with minor mistakes, the other elements of the technical view.	Knows the rules of the technical view, and correctly applies the elements of the technical view.		
	AutoCAD computer program	Does not know interface or basic commands. It is not capable of drawing in a computer program.	Knows basic and some advanced commands in a computer program, uses them with minor errors. He is able to create a technical drawing in a computer program with a little help and suggestions.	Knows basic and advanced commands in a computer program, uses them without errors. Able to fully draw a technical drawing in a computer program.		

4.2. Evaluation of oral exam	Knowledge and expression.	It responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.	It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supports them with examples. Knows the expert terminology.	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles of physical laws, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts and supports them with examples. Finds solutions that were not originally given. It notes correlations with related material. Fluent in professional terminology.		
4.3. Forming the final grade according to the evaluation elements						
	Colloquiums/ Written exam	2 10-12 points	3 13-15 points	4 16-17 points	5 18-20 points	
	Colloquiums/ AutoCAD	2 10-12 points	3 13-15 points	4 16-17 points	5 18-20 points	
	The oral part of exem	2 10-12 points	3 13-15 points	4 16-17 points	5 18-20 points	
	4.4. Formation of the final grade based on the absolute distribution	Percentage of acquired knowledge, skills and competencies (teaching + final exam)		Numerical grade		ECTS grade
90 – 100%		5 (excellent)		A		
80 – 89,9%		4 (very good)		B		
65 – 79,9%		3 (good)		C		
60 – 64,9%		2 (sufficient)		D		
50 – 59,9%		2 (sufficient)		E		

5. ADDITIONAL INFORMATION ABOUT COURSE			
	Title	Number of copies in the library	Availability via other media
5.1. Compulsory literature (available in the library and via other media)	<ol style="list-style-type: none"> 1. Koludrović, Č.: Tehničko crtanje u slici s kompjuterskim aplikacijama, Rijeka, 2009. 2. George Omura: Osnove programa AutoCAD 2008, MIŠ d.o.o. Zagreb, 2007. 	-	<p>City library</p> <p>City library</p>
5.2. Additional literature (at the moment of changes and/or amended of study programme)	<ol style="list-style-type: none"> 1. Teaching materials from the lectures and exercises on the e-learning system of the Polytechnic for the course 2. Opalić, M., Kljajin, M., Sebastijanović, S.: Tehničko crtanje, Zrinski d.d., Čakovec/Slavonski Brod, 2007. 3. Klem N., Koški Ž., Otković I.: Tehničko crtanje i CAD, Građevinski fakultet Sveučilišta u Osijeku, Osijek 2006. 4. Galeta T., Glazina V., Kljajin M.: AutoCAD Osnove za tehničko crtanje, Strojarski fakultet u Slavanskom brodu Sveučilišta u Osijeku, Slavonski brod 2005. 5. Herold Z.: Računalna i inženjerska grafika, Fakultet strojarstva i brodogradnje Sveučilišta u Zagrebu, Zagreb 2003. 6. Budimir D.: Vježbe iz AutoCAD-a, Fakultet prometnih znanosti Sveučilišta u Zagrebu, Zagreb 2010. 	-	<p>on-line (e-learning)</p> <p>-</p> <p>-</p> <p>-</p> <p>On-line</p> <p>On-line</p>
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	<p>The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.</p>		
5.4. Informing about the course and contacting the course lecturer	<p>It is the responsibility of each student to be regularly informed about the course, the coursework, and classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).</p>		

1. GENERAL INFORMATION			
1.1. Course lecturer	Ana Perišić	1.8. Course code in ISVU	129845
1.2. Course title	Statistics in traffic	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4
1.6. Year of study	2 nd	1.13. Modernization	Yes
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % □
2. COURSE DESCRIPTION			
2.1. Course objectives	The goal is to provide students with theoretical knowledge and practical skills needed for performing statistical analysis and interpretation of the results.		
2.2. Terms of course entry and required competences	4 year secondary education completed; qualification level 4.2 according to the CROQF.		
2.3. Learning outcomes on the study programme level	LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic. LO6: To analyze and present relevant facts from the field of traffic needed to reach conclusions. LO8: To solve problems in traffic by using analytical and / or graphical methods.		
2.4. Expected learning outcomes on the course level	Learning outcomes according to the Bloom`s taxonomy: (up to two verbs per LO)		Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation,

						<i>6-synthesis</i>
						1,2
						3, 4
						1,4
						5,3
						6,4
						4
						4
2.5. Course content according to detailed curriculum schedule	Constructive allignment					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
		Introduction into the course and detailed plan.	-	Attending lectures. Familiarize with course content, e-learning documents, literature and students' obligations and.	-	1 h
	1.	Introduction to combinatorics	3, 7	Attending lectures. Actively involving students through problem solving and discussion.	Students will define basic concepts and solve basic problems from the field of combinatorics through colloquia or written/oral exams. Students will apply probability theory in transport problems solving.	8 h
	2.	Introduction to combinatorics	3, 7	Attending lectures. Actively involving students through problem solving and discussion.	Students will define basic concepts and solve basic problems from the field of combinatorics through colloquia or written/oral exams. Students will apply probability theory in transport problems solving.	11 h

	3.	Introduction to probability theory.	3,7	Attending lectures. Actively involving students through problem solving and discussion.	Students will define basic concepts and solve basic problems from the field of probability theory through colloquia or written/oral exams. Students will apply probability theory in transport problems solving.	8 h
	4.	Introduction to probability theory. A priori probability, a posteriori probability, geometric probability	3,4,7,	Attending lectures. Actively involving students through problem solving and discussion.	Students will define basic concepts and solve basic problems from the field of probability theory through colloquia or written/oral exams. Students will apply probability theory in transport problems solving.	8 h
	5.	Random variable, distributions, expectation, variance.	3,4,7	Attending lectures. Actively involving students through problem solving and discussion.	Students will define basic concepts and solve basic problems from the field of probability theory through colloquia or written/oral exams. Students will select and apply probability models for different stochastic phenomena. Students will apply probability theory in transport problems solving.	8 h
	6.	Discrete random variable, binomial distribution, Poisson distribution.	3,4	Attending lectures. Actively involving students through problem solving and discussion.	Students will define basic concepts and solve basic problems from the field of probability theory through colloquia or written/oral exams. Students will select and apply probability models for different stochastic phenomena.	8 h
	7.	Continuous random variables. Normal distribution.	3,4,7	Attending lectures. Actively involving students through problem solving and discussion. Group problem solving and discussion. Exam preparation.	Students will define basic concepts and solve basic problems from the field of probability theory through colloquia or written/oral exams. Students will select and apply probability models for different stochastic phenomena. Students will apply probability theory in transport problems solving.	11 h

	8.	Descriptive statistics.	1,2,7	Attending lectures. Actively involving students through problem solving and discussion.	Students will define fundamental concepts of descriptive statistics and interpret indicator values from the field of descriptive statistics; will calculate and interpret values for the measures of central tendency and dispersion parameters through colloquia or written/oral exams. Students will apply methods of descriptive statistics in transport problems solving.	8 h
	9.	Measures of central tendency, dispersion parameters.	1,2,7	Attending lectures. Actively involving students through problem solving and discussion.	Students will define fundamental concepts of descriptive statistics and interpret indicator values from the field of descriptive statistics; will calculate and interpret values for the measures of central tendency and dispersion parameters through colloquia or written/oral exams. Students will apply descriptive statistic methods for solving transport problems.	8 h
	10.	Standardized values. Outliers. Data distribution.	1,2,7	Attending lectures. Actively involving students through problem solving and discussion. Group problem solving and discussion. Exam preparation.	Students will define fundamental concepts of descriptive statistics and interpret indicator values from the field of descriptive statistics; will calculate and interpret values for the measures of central tendency and dispersion parameters through colloquia or written/oral exams. Students will apply descriptive statistic methods for solving transport problems	11 h
	11.	Hypothesis testing. Chi-square test.	5,7	Attending lectures. Actively involving students through problem solving and discussion.	Students will state the statistical hypothesis and conduct a chi-square test through colloquia or written/oral exams. Students will	11 h

					apply statistical methods for solving transport problems	
	12.	Correlation and regression.	6,7	Attending lectures. Actively involving students through problem solving and discussion.	Students will conduct correlation and regression analysis and derive conclusions on variable relationship through colloquia or written/oral exams. Students will apply statistical methods for solving transport problems	11 h
	13.	Final conclusions. Exam preparation		Group problem solving and discussion. Exam preparation.		5 h

3. EVALUATION OF STUDENTS' WORK

3.1. Students' obligations	<p>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. All students are required to carry calculator and formulae list.</p> <p>Students who have during the course achieved:</p> <ul style="list-style-type: none"> • from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year; • from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period; • more than 50% - students have the right to take the final exam. <p>Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through three colloquia); b) by passing the exam (written and oral part of the exam).</p>					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit	Attendance	0.2	Written exam	3 (without colloquia)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	0.1
	Colloquium	3 (without written	Seminar paper		Other	

score of the course)		exam)				
	Class activity	0.2	Oral exam	0.5	Other	
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: <ol style="list-style-type: none"> 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 75 hours 					
4. GRADING SYSTEM						
4.1. Grading seminar papers						
4.2. Grading colloquia/ written and oral exam	Unsatisfactory		Satisfactory		Above average	
	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.		Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.	
4.3. Final grade according to evaluation elements	Final grade is determined on the oral exam after successfully passing the colloquia or written exam.					
4.3. Final grade according to absolute division	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Numerical grade		ECTS grade	
	90 – 100%		5 (excellent)		A	
	80 – 89,9%		4 (very good)		B	
	65 – 79,9%		3 (good)		C	
	60 – 64,9%		2 (satisfactory)		D	
50 – 59,9%		2 (satisfactory)		E		
5. ADDITIONAL COURSE INFORMATION						
5.1. Compulsory literature (available in the library)	Title				Number of copies in the	Availability via other media

and via other media)		library	
	Kovač Striko E., Fratović T., Ivanković B., Vjerojatnost i statistika, Udžbenici Sveučilišta u Zagrebu, Zagreb 2008.	1	Ne
5.2. Additional literature (at the moment of changes and/or amended of study programme)	<p>Šošić I., Serdar V., Uvod u statistiku, Školska knjiga, Zagreb, 2002.</p> <p>Šošić I., Primijenjena statistika, Školska knjiga, Zagreb, 2004.</p> <p>Azcel A. Sounderpandian J., Complete Business Statistics, McGraw Hill, 2009.</p> <p>Zenzerović Z., Statistički priručnik, Sveučilište u Rijeci, Pomorski fakultet u Rijeci, Rijeka, 2004.</p> <p>Čižmešija M., Kurnoga Živadinović N., Zbirka riješenih zadataka iz osnova statistike, Mirorad d.o.o., Zagreb, 2006</p> <p>Patrick R. McMullen, Poslovna statistika za stručne studije [prijevod Devčić, K., Perišić, A.], Veleučilište u Šibeniku, 2017 Nastavni materijali na e-learningu</p>	<p>12</p> <p>1</p> <p>-</p> <p>5</p> <p>2</p> <p>-</p>	<p>Ne</p> <p>Ne</p> <p>Ne</p> <p>Ne</p> <p>Ne</p> <p>Da</p> <p>Da</p>
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	<p>The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.</p>		
5.4. Informing about the course and contacting the teacher	<p>It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).</p>		

4. GENERAL INFORMATION			
4.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU	140771
4.2. Course title	Traffic corridors and merchandise flows	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30 + 0 + 30 + 0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4
1.6. Year of study	2 nd	1.13. Modernization	Yes
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % □
5. COURSE DESCRIPTION			
2.1. Course objectives	<p>The goal is that students on the basis of theoretical knowledge and case studies:</p> <ul style="list-style-type: none"> ▪ become familiar with the creation and development of all transport modes, ▪ analyze and comment of commodity exchange (trade) in the World and Croatia, ▪ distinguish the main transport corridors in Europe and Croatia. 		
2.2. Terms of course entry and required competences	Enrolled 2 nd academic year, 4 year secondary education completed; qualification level 4.2 according to the CROQF.		
2.3. Learning outcomes on the study programme level	<p>LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in Croatian and English.</p> <p>LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.</p> <p>LO3: Independently and responsibly search, interpret and integrate relevant literature for decision making.</p> <p>LO6: Analyze and present relevant facts from the traffic area required to reach conclusions.</p> <p>LO10: Compare and select technical and technological solutions for traffic and/or goods flows.</p> <p>LO12: Design a smaller transport process and critically evaluate it.</p>		
2.4. Expected learning outcomes on the course	Learning outcomes by Bloom: (maximum 2 verbs for LO)		Level of LO: 1 - memory, 2 - understanding,

level (4-10 learning outcomes)						3 - application, 4 - analysis, 5 - evaluation, 6 – synthesis.
	1. Present and comment on the historical development of the traffic branches.					6, 3
	2. List and explain the main factors for the creation and development of commodity flows.					1, 2
	3. Analyze and evaluate world trade in goods.					4, 5
	4. Present and comment on the traffic connection of the Republic of Croatia.					6, 4
	5. List and compare major transport corridors in Europe and the Republic of Croatia.					1, 2
	6. Comment on the objective and strategy of the Marco Polo Program and the current White Paper EU about transport.					4
	7. Use materials and tools to search scientific and professional literature in native and English languages.					3
8. Present the acquired knowledge, ideas, problems, and solutions independently and in a team.					6	
2.5. Course content according to detailed curriculum schedule	Constructive allignment					
	No	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	1.	Introductory presentation (introducing students to the course content and obligations)	-	Listening to the lecture. In the course of seminars, they are introduced to the course content and documents on the e-learning page of the course by working independently on a computer.	-	2 h
	2.	Geo-traffic factors of formation and location of commodity flows (General geo-traffic factors, natural predispositions, socio-economic factors)	2, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired	At the colloquium or the written and oral exam students know how to define, numerate and distinguish the main factors for the formation and development of commodity flows (general,	6 h

				knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	natural and socio-economic factors). Identify abbreviations of economic groups of the world. Seminar paper created and presented (by computer programs).	
	3.	The development of transport on land (development of road, rail, and pipeline transport)	1, 3, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or written and oral exam students know to present and comment on the historical development of transport on land. Analyze and evaluate the merchandise trade in land traffic, in the world. Seminar paper created and presented (by computer programs).	6 h
	4.	The development of transport on the water (history, World and European ports, shipping routes, ships for freight)	1, 3, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam students know how to present and comment on the historical development of water traffic, the development of seaports. Analyze and evaluate the merchandise of trade in the world's water transport. Categorize seaports, regions, and routes. Seminar paper created and presented (by computer programs).	6 h
	5.	The development of transport on the water (video films)	1, 3, 7, 8	They use multimedia and network. They listen to a lecture and read literature. At the	At the colloquium or written and oral exam students know present	6 h

				seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	seaports in the world. Identify and distinguish terminals at the seaport. Analyze and evaluate the cargo traffic of the seaport. Categorize seaports, ships, regions, and routes. Seminar paper created and presented (by computer programs).	
	6.	The development of traffic in the air (types of aircraft, aircraft manufacturers, airlines, airports and routes)	1, 3, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or written and oral exam students know to present and comment on the historical development of traffic in the air. Analyze and evaluate the merchandise in air traffic in the world. Categorize airports and airlines. Seminar paper created and presented (by computer programs).	6 h
	7.	The development of traffic in the air (video film)	1, 3, 7, 8	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or written and oral exam students know the present airport in the world. Identify and distinguish the types and capacity of aircraft for passenger and cargo transportation. Analyze and evaluate continental air routes. Seminar paper created and presented (by computer programs).	6 h

	8.	Transport corridors in Europe (Trans-European transport network, transport corridors in Western and Northern Europe, Pan-European transport corridors, pipeline corridors, inland waterways)	5, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or written and oral exam students know state and compare the main transport corridors in all parts of Europe and all branches of transport. Define the term of traffic corridor. List the countries through which each transport corridor passes. Seminar paper created and presented (by computer programs).	6 h
	9.	Transport corridors in the Republic of Croatia (Geographical location, traffic directions, traffic corridors in the road, rail, air, water, and pipeline transport)	4, 5, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students can identify and compare major traffic corridors in Europe and the Republic of Croatia. Present, critically evaluate the traffic connection of the Republic of Croatia in the road, rail, air, pipeline and inland waterway transport. Seminar paper created and presented (by computer programs).	6 h
	10.	Merchandise and traffic flows in the modern world (Concept and characteristics of traffic flow, commodity flows of food, raw materials, and industrial products)	3, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work	At the colloquium or the written and oral exam, students know how to define the concept of goods traffic. Categorize, analyze and evaluate the world trade of food, raw materials, and industrial products. List the countries with the largest	6 h

				at the seminar class, the brainstorming method and the discussion method on the topic are applied.	importers and exporters of all types of goods. Seminar paper created and presented (by computer programs).	
	11.	Merchandise and traffic flows of the Republic of Croatia (import and export of products, merchandise and traffic flows of the Republic of Croatia in land, water, and air)	3, 4, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam students know how to analyze and evaluate the trade of products in the Republic of Croatia. List the products that the Republic of Croatia imports/exports the most. Present, critically evaluate and comment on the traffic connection of the Republic of Croatia in all branches of traffic. Seminar paper created and presented (by computer programs).	6 h
	12.	Marco Polo Program (program objective, program activities, program projects)	6, 7, 8	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students can define the goal and strategy of the Marco Polo program. Distinguish activities Marco Polo. Critically evaluate the professional video films program. Seminar paper created and presented (by computer programs).	4 h
	13.	European Union White Paper on Transport (White Paper titles, key	6, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually	At the colloquium or written and oral exam, students define	6 h

		content areas, preparing the European transport area for the future, visions for developing a competitive and sustainable transport system, strategy - what needs to be done)		explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	objective and strategy of the current EU White Paper on transport. Comment on EU professional projects in the field of transport. Seminar paper created and presented (by computer programs).	
	14.	Study visit to the port of Rijeka	3, 4, 5		During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic of Croatia. To present and comment on the traffic connection of the Republic of Croatia in road and rail transport. List and compare major transport corridors in Europe and the Republic of Croatia.	8 h
	15.	Final considerations/Repeating and preparing for the exam.	-	They listen to a course lecture and prepare individuals for the exam.	-	40 h

6. EVALUATION OF STUDENT WORK

3.1. Student obligations	In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar papers. Students who have achieved during the course: from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot earn ECTS credits, and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must pass and pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period; more than 50% - students have the right to take the final exam. Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of
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	students (active participation in classes and through two exams); b) passing the exam (written and oral part of the exam).					
3.2. Student work monitoring (enter the share of ECTS credits for each activity so that the total number of ECTS credits corresponds to the course credit value)	Attending classes	1	Written exam	1 (without colloquiums)	Project	
	Experimental work		Research		Practical work	
	Esaaay		Report		Continuous check	
	Colloquiums	1 (without written part of exam)	Seminar paper	0,5	(other)	
	Teaching activities	1	The oral part of exam	0,5	(other)	
3.3. Student work-load	Student workload on all bases is 1 ECTS credit for 30 semester hours and is assessed as attendance (60 hours), preparation of seminar work and presentation (16 hours), preparation for the midterm/exam through self-study (44 hours).					
4. FORMATION OF STUDENT GRADE						
4.1. Evaluation of seminar paper	Elements of evaluation	Bad	Satisfying		Above average	
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.		The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.	
	Terminolog, writing style	Words and expressions are not in line with official terminology. The writing style is not appropriate, the sentences are too long, of a modest vocabulary and with frequent and repeated grammatical errors.	Words and expressions are in line with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and there are few grammatical errors.		Words and expressions are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.	
	Citing and referencing references	The sources are not listed at all. The references do not fit the topic and show a	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research		The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and	

		cursory approach to exploring the topic.	attitude.	comprehensive and shows a detailed research approach.	
4.2. Grading of the colloquium/written and oral exam	Bad		Satisfying		Above average
	It responds by memory, without a deeper understanding. It does not know or apply basic terms and concepts. It does not know how to apply or explain the contents of the course with examples.		It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		Knowledge is at the level of analysis, synthesis, and evaluation. It observes the legality, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.
4.3. Forming the final grade according to the evaluation elements	Active attendance on class	70-75% attendance	76-86% attendance	87-100% attendance	Mental map created, Case studies resolved
		2 points	4 points	7 points	3 points
	Seminar paper	2	3	4	5
		5 points	7 points	8 points	10 points
	Colloquiums/ Written part of exam	2	3	4	5
		50 - 64,9%	65 - 79,9%	80 - 89,9%	90 - 100%
		25 points	30 points	35 points	40 points
	Oral part of exam	2	3	5	5
25 points		30 points	35 points	40 points	
4.4. Formation of the final grade based on the absolute distribution	Percentage of acquired knowledge, skills and competencies (teaching + final exam)		Numerical grade		ECTS grade
	90 – 100%		5 (excellent)		A
	80 – 89,9%		4 (very good)		B
	65 – 79,9%		3 (good)		C

	60 – 64,9%	2 (sufficient)	D
	50 – 59,9%	2 (sufficient)	E
5. ADDITIONAL INFORMATION ABOUT COURSE			
5.1. Compulsory literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	Sego Darijo: Traffic corridors and merchandise flows, Script for internal use, Polytechnic of Sibenik, Sibenik 2016.		e-learning system
	Strategy for Transport Development of the Republic of Croatia for the Period 2014-2030. (selected chapters)		Internet website
	World trade organization http://www.wto.org/ (selected chapters)	-	Internet website
	Transport in EU http://ec.europa.eu/transport/index_en.htm(selected chapters)	-	Internet website
	Central Bureau of Statistics of the Republic of Croatia https://www.dzs.hr/		Internet website
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Teaching materials from lectures and seminars on the e-Learning system of the Polytechnic of Sibenik for the mentioned course. International trade statistics https://www.trademap.org/Index.aspx UN agency for food http://www.fao.org/home/en/	-	e-learning system Internet website Internet website
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. Informing about the course and contacting the course lecturer	It is the responsibility of each student to be regularly informed about the course, the coursework, and classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).		

1. GENERAL INFORMATION			
1.1. Course title	Road transport technology	1.8. Course code at ISVU	187604
1.2. Course lecturer	Martina Ljubić Hinić	1.9. Course code at MOZVAG	
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(45L+30P)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1st
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	3.
1.6. Year of study	3 rd	1.13. Modernization	X Yes <input type="checkbox"/> No
1.7. Credit point (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	<p>The aim is to provide students with theoretical knowledge and case studies to:</p> <ul style="list-style-type: none"> • define elements of road transport technology; • get to know the elements of road transport technology and their interdependence in planning the transport process; • understand the technical and technological characteristics of the elements; • adopt a critical way of concluding in organizing the modern transportation process; • learn and learn the basic principles of road transport technology and organization and the ability to adapt the characteristics of transport requirements to market demands; • apply the learned content of this course in business practice.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the HKO.
2.3. Learning outcomes on the study programme	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in Croatian and English.

level	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.
	LO3: Independently and responsibly search, interpret and integrate relevant literature needed to reach conclusions.
	LO4: Apply knowledge of natural and technical sciences to problems in the field of road transport.
	LO5: Apply basic legal and economic principles in an organization with CSR in technical and technological entities.
	LO6: Analyze and interpret relevant road transport facts needed to reach conclusions.
	LO8: Solve traffic problems using analytical and / or graphical methods.
	LO9: Assess and organize processes in the field of road transport and / or transport logistics.
	LO12: Design a smaller transport process and critically evaluate it.
	LO13: Follow trends in technology, technology and traffic safety.
2.4. Expected learning outcomes on the course level	<p>Learning outcomes according to Bloom's taxonomy:</p> <ol style="list-style-type: none"> 1. to demonstrate knowledge and understanding of course content by defining and describing the basic principles of road transport technology and organization 1, 2. to enumerate and explain the elements of road transport technology 1, 2 3. to distinguish and evaluate the technical and technological characteristics of the elements of road transport technology 3, 6 4. to analyze and compare the characteristics of transportation requirements 4, 2 5. to create a transport process, calculate fleet coefficients and indicators and recommend an optimal solution 5, 3, 6 6. to use materials and tools to search scientific and professional literature in their native and English languages 3 7. to present the acquired knowledge, ideas, problems and solutions independently and in a team 6

2.5. Course content according to detailed curriculum schedule	Constructive allignment					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	14.	Introduction into the course and detailed plan.	-	They listen to a lecture. During the individual work on the computer, they are introduced to the course	-	1 h

				content and documents on the e-learning page of the course.		
		Elements of the transport system. Substrate.	1, 2, 3, 6, 7	Listen to lectures and read literature.	In colloquium or the written and oral exam they define the elements of the transport system, describe and define the theory and types of the system, and list the different types of substrates and describe the characteristics of the substrate important for handling and management in the traffic process.	4 h
	15.	Transport devices.	1, 2, 3, 6, 7	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or the written and oral exam they define the transport devices, and state and describe their technical and technological features that are important for the optimal transport process.	5 h
	16.	Manipulation devices.	1, 2, 3, 6, 7	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they define, enumerate and describe manipulation means, and analyze and conclude which manipulation means to choose in relation to the characteristics of the transport process.	5 h
17.	Occurrence and development of road vehicles. Road freight vehicles.	1, 2, 3, 6, 7	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by	In colloquium or written and oral exams they indicate the historical development of road vehicles, and define and specify the types and types of cargo handling equipment and their	5 h	

				searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	technical and technological characteristics important for establishing the optimal transportation process. The terms of reference are drafted in groups, with discussion and proposal of measures to optimize the given transportation process.	
	18.	Road freight vehicles. Exploitation parameters.	1, 2, 3, 6, 7	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they define and specify the types and types of cargo handling equipment and their technical and technological characteristics, which are important for establishing the optimal transportation process. The terms of reference are drafted in groups, with discussion and proposal of measures to optimize the given transportation process.	5 h
	19.	Temporal analysis of the movement of vehicles. Analysis of the movement of vehicles from the standpoint of the distance traveled and the rated load capacity of the vehicles.	1, 2, 3, 4, 5, 6, 7	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they define the coefficients of the time analysis of the fleet, define the coefficients and indicators of the analysis of the distance traveled and the nominal bearing capacity of the fleet, solve the problem of the traffic process and suggest ways to improve the process. The terms of reference are drafted in groups, with discussion and suggestion of measures to optimize the given transportation process.	5 h
	20.	Maintenance of means of transport.	1, 2, 3, 4, 5, 6, 7	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the	In colloquium or written and oral exams they define the maintenance of means of transport, enumerate and describe the types of maintenance and their influence on the process of transport. The terms of reference	5 h

				basis of it and the read literature, come up with their own ideas, and ways to solve problems.	are drafted in groups, with discussion and suggestion of measures to optimize the given transportation process.	
	21.	Transportation process. 1st Colloquium	1, 2, 3, 4, 5, 6, 7	They listen to a lecture and prepare individually for the colloquium.	In colloquium or written and oral exams they can describe and compare the stages of the transport process in the classical and in modern transport processes.	26 h
	22.	Study trip (Faculty of Traffic Sciences in Zagreb, ORYX Safe Driving Center, Croatian Vehicle Center, ZET (bus and tram maintenance and Traffic Control and Management Center), and DOK-ING (production and maintenance of remote control machines, production and maintenance of electric vehicles)	1, 2, 3, 4, 5, 6, 7	They listen to a lecture.	In colloquium or written and oral exams they define, analyze and evaluate the technical and technological characteristics of the elements of road transport technology and their interdependence in planning the transport process.	13 h
	23.	Driver's working hours.	1, 3, 4, 6, 7	They listen to a lecture and read literature. In group exercises, they explore the content of this topic area by searching the database, and based on it and the literature they read, come up with their own ideas and ways to solve a case study. They use multimedia and network.	In colloquium or written and oral exams they define and describe the importance of stationary define, describe and analyze the elements of recording the working hours of truck drivers. The terms of reference are drafted in groups, with discussion and proposal of measures to optimize the given transportation process.	5 h
	24.	Roadways.	1, 2, 3, 5, 6, 7	They listen to a lecture and read literature. In group exercises, they explore the content of this topic area by searching the database, and based	In colloquium or written and oral exams they define and describe the road transport infrastructure and its role in the process of transport. The terms of reference are drafted	5 h

				on it and the literature they read, come up with their own ideas and ways to solve a case study. They use multimedia and network.	in groups, with discussion and proposal of measures to optimize the given transportation process.	
	25.	Garage - service facilities. Road traffic information system.	1, 2, 3, 5, 6, 7	They listen to a lecture and read literature. In group exercises, they explore the content of this topic area by searching the database, and based on it and the literature they read, come up with their own ideas and ways to solve a case study. They use multimedia and network.	In colloquium or written and oral exams they define and describe the road transport infrastructure, explain and comment on the role of transport infrastructure in the process of transport, and define and describe the basic features and role of the information system in modern transportation technologies. The terms of reference are drafted in groups, with discussion and proposal of measures to optimize the given transportation process.	5 h
	26.	Road traffic information system. Logistic concept.	1, 2, 3, 4, 5, 6, 7	They listen to a lecture and read literature. In group exercises, they explore the content of this topic area by searching the database, and based on it and the literature they read, come up with their own ideas and ways to solve a case study. They use multimedia and network.	In colloquium or written and oral exams they define and describe the basic features and role of the information system in modern transport technologies, and describe, state and explain the role of logistics and logistic concept with the aim of establishing an optimal modern transportation process. The terms of reference are drawn up in groups, with discussion and suggestion of measures measures to optimize the given transportation process.	5 h
	27.	Logistic concept. 2nd Colloquium.	1, 2, 3, 4, 5, 6, 7	They listen to a lecture and prepare individually for the colloquium.	In colloquium or written and oral exams they describe, state and explain the role of logistics and logistics concept with the aim of establishing an optimal modern transportation process.	26 h

	28.	Concluding considerations. Repeating and preparing for the exam.	6, 7	They listen to a lecture and prepare individually for the exam.	-	30 h
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3. EVALUATION OF STUDENT WORK

3.1. Students' obligations	<p>In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar paper. Students who have achieved during the course:</p> <ul style="list-style-type: none"> • From 0 - 24.9% of ECTS credits - they are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next academic year; • From 25-49.9% - are assessed by FX (insufficient) and must pass and pass the written exam (test). Written exam (test) can be held in regular or extraordinary exam period; • More than 50% - students have the right to take the final exam. <p>Writing a seminar paper is a prerequisite for obtaining a signature. Students can take the final exam in the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and two exams); b) during class (active participation in class and passing exams (written and oral part of the exam)).</p>					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance	1	Written exam	1 (without colloquia)	Project	1
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	1 (without written exam)	Seminar paper		Other	
	Class activity	1	Oral exam	1	Other	
3.3. Student workload	<p>Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:</p> <ol style="list-style-type: none"> 1. Attendance 45 h 2. Design of seminar work and presentation 30 h 3. Preparation for the mid-term / midterm exam 75 h 					

4. FORMATION OF GRADES

4.1. Grading of seminar work	Element of evaluation	Bad	Satisfying	Above average		
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.		
	Terminology, writing style	Words and expressions low in line with official terminology. The writing style is not appropriate, the sentences are too long, of a modest vocabulary and with frequent and repeated grammatical errors.	Words and expressions are in line with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and there are few grammatical errors.	Words and expressions are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.		
	Citing and referencing references	The sources are not listed at all. The references do not fit the topic and show a cursory approach to exploring the topic.	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.		
4.2. Grading of the colloquium / written and oral exam	Bad		Satisfying		Above average	
	It responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		Knowledge is at the level of analysis, synthesis and evaluation. It observes the legality, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.	
4.3. Forming the final grade according to the evaluation elements	Active attendance	70-75% of the presence	76-86% of the presence	87-100% of the presence	Case studies resolved	
		0 points	0 points	0 points		0 points
	Seminar paper	2	3	4	5	

		Made and handed over	Made and handed over	Made and handed over	Made and handed over
	Examination / Written examination	2	3	4	5
		50-64%	65-80%	81-90%	91-100%
		25-32 points	33-40 points	41-45 points	46-50 points
	Oral part of the exam	2	3	5	5
25-32 points		33-40 points	41-45 points	46-50 points	
4.4. Formation of final grade based on absolute distribution	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Number rating	ECTS grade	
	90 – 100%		5 (excellent)	A	
	80 – 89,9%		4 (very good)	B	
	65 – 79,9%		3 (good)	C	
	60 – 64,9%		2 (sufficient)	D	
50 – 59,9%		2 (sufficient)	E		
5. ADDITIONAL INFORMATION ON THE SUBJECT					
5.1. Required literature (available in the library and through other media)	Title			Number of copies in the library	Availability via other media
	3. Županović, I.: Tehnologija cestovnog prijevoza, FPZ, Zagreb, 2002. (selected chapters)			3	No
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	7. Baričević, H.: Tehnologija kopnenog prometa, PFR, Rijeka, 2001.			3 0	No Yes
	8. Ortuzar, J. de D., Willumsen, L.G. : Modelling Transport, John Wiley & Sons, United Kingdom, 2011.				
	9. Lectures				

5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the classroom and information obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employment status of students, employer survey and Alumni Association.
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).

2. GENERAL INFORMATION			
1.1. Course lecturer	Ivana Kardum Goleš	1.8. Course code in ISVU	129833
1.2. Course title	English language I	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	Assistant	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1
1.6. Year of study	1 st	1.13. Modernization	Yes
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X <input type="checkbox"/> More than 20 % <input type="checkbox"/>
2. COURSE DESCRIPTION			
2.1. Course objectives	The objective of the course is to master the basic vocabulary related to road and postal traffic as well as the predicted grammatical structures that include verb tenses, articles, personal pronouns and possessive pronouns, both in written and oral expression. The goal is also to expand the vocabulary related to the traffic, while grammar and newly acquired vocabulary are established and practiced in the exercises. Another goal of the course is to familiarize students with the basic parts of business writing. Foreign language teaching seeks to introduce students to new communication systems and facilitate their easier and more direct involvement in world events and to familiarize them with the elements of culture and civilization of English-speaking peoples. Learning a foreign language is in line with the desire to preserve the richness of diversity in a multilingual Europe, as well as to foster a culture of dialogue and civilization.		
2.2. Terms of course entry and required competences	4 year secondary education completed; qualification level 4.2 according to the CROQF.		
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions		

	Learning outcomes according to the Bloom`s taxonomy: (up to two verbs per LO)				Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis	
	8. to understand, apply and link basic terms from the professional terminology of English road traffic and use them in written and oral communication				2, 3	
	9. to apply grammatical structures in texts and assignments				3	
	10. to interpret and use tenses in real-life context				3, 4	
	11. to develop a shorter essay within the topics of the course				3	
	12. to reproduce an email in English				3	
	13. to communicate in a foreign language within the subjects of the course, to express one own opinions				6	
	14. to compare and evaluate different traffic solutions				5	
	15. to analyse medium complex texts and solve tasks				4	
	16. to use part of the general language competency at levels B1/B2				6	
2.5. Course content according to detailed curriculum schedule	Constructive allignement					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	29.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	2 h
30.	Trouble With The Car, Nouns and plurals	1, 2, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, understand, apply and link terms from the professional terminology of English	4 h	

					road traffic and use them in written and oral communication verb tenses are interpreted in a real linguistic context, use part of other language competences at B1 level.	
	31.	Helen Catches The Train – Izražavanje Sadašnjosti (Present Simple And Continuous)	1, 2, 3, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	32.	In The Train – Trouble With The Car (Izražavanje Sadašnjosti).	1,2, 3, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing	4 h

					and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	33.	At The Airport And Air Pollution Problem (Present Tenses)	1, 2,3, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	34.	Keeping Drunken Drivers Off The Road – Izražavanje Prošlosti (Past And Perfect Tenses)	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing	4 h

					and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	35.	Types Of Drivers – Verb Tenses	1,2, 3, 5, 6, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	36.	Moving About Towns – Verb Tenses I Kolokvij	1, 2, 3, 5, 6, 9	Listen to lectures and take part in discussion. Write the colloquium.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing	10 h

					and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	37.	Fitness To Drive – Relative Pronouns And Possessives	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	38.	Travelling By Tube – Personal And Reflexive Pronouns	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises. Discuss.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing	6 h

					and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	39.	The Engine Of A Car – Future Tenses – Will And Going To And Present Continuous	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h
	40.	About Cars In General – Future Perfect	1,2, 3, 4, 5, 6, 7, 8, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing	10 h

					and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	41.	A City At Sea- Living Under Cover – Future Tenses	1,2, 3, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	42.	„Jam Yesterday-Jam Tomorrow“; Passenger Transportation – Tenses Revision, Only Stricker Traffic Rules Can Prevent Accidents – Articles	1,2, 3, 6, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing	6 h

					and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	43.	Revision – II Kolokvij	1, 2, 3, 4,5, 6, 7, 8, 9	Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h

3. EVALUATION OF STUDENTS' WORK

3.1. Students' obligations	In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70% is required. Part-time students are required to attend classes at least 50%.The students' acquired knowledge is tested during the course classes. Special consideration is given to the student's evaluation during the course of the teaching process, with particular attention being paid to the student's active participation in teaching as well as his/her presentation of the written work that the student produces for homework. Of particular importance for the final evaluation are the two written tests that students take during the semester. If the student successfully passes both exams, he / she is exempted from the written part of the final exam and is obliged to take the oral exam only. The final exam consists of a written and an oral part. Ways to check learning outcomes are: essays, objective type assignments, discussion, roleplay, presentation creation, etc. The obligation of each student is to regularly inform oneself about the course. All notices about maintenance or eventual postponement of teaching will be published on the web site of the Polytechnic of Šibenik and the e-learning page of the course, where
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	all the information on the course as well as the teaching materials and the list of literature are also available.						
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance	0,5	Written exam	1 (without colloquia)	Project		
	Experimental work		Research		Practical work		
	Essay		Report		Continuous examination		
	Colloquium	1 (without written exam)	Seminar paper		Other		
	Class activity	0,5	Oral exam	1	Other		
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 3. Attending classes and exercises 45 hours 4. Preparing colloquia or exams through individual work 45 hours						
4. GRADING SYSTEM							
4.1. Grading seminar papers	-						
4.2. Grading colloquia/ written and oral exam	Unsatisfactory		Satisfactory		Above average		
	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.		Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.		
4.3. Final grade according to evaluation elements	Active course attendance	70-75% of attendance		76-86% of attendance		87-100% of attendance	
		3 points		7 points		20 points	
	Seminar paper						

	Colloquia/ Written exam	2	3	4		
		50-64,9%	65-79,9%	80-89,9%		
		25 points	30 points	35 points		
	Oral exam	2	3	4		
25 points		30 points	35 points			
4.3. Final grade according to absolute division	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Numerical grade		ECTS grade	
	90 – 100%		5 (excellent)		A	
	80 – 89,9%		4 (very good)		B	
	65 – 79,9%		3 (good)		C	
	60 – 64,9%		2 (satisfactory)		D	
	50 – 59,9%		2 (satisfactory)		E	
5. ADDITIONAL COURSE INFORMATION						
5.1. Compulsory literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media	
	Katja Bošković Gazdović: "English textbook of Transport I", Sveučilište u Zagrebu, Fakultet prometnih znanosti, Zagreb, 2002. (selected chapters)			10	X	
5.2. . Additional literature (at the moment of changes and/or amended of study programme)	Tamara Polić: „The English Language I and II, English Textbook of Road and Rail Transport and Postal Services with Grammar and Exercises for 1st Year Students“, Veleučilište u Rijeci, Prometni odjel, 2007.			10	X (elearning, handouts)	
	Adrian Pilbeam and Nina O’Driscoll: „Logistics Management“, Market Leader, Pearson Longman, 2010 A.J. Thomson, A. V. Martinet: "A practical English Grammar", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar Exercises", Oxford University A.J. Thomson, A.V. Martinat: "A Practical English Grammar exercises II", Oxford University					

<p>5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences</p>	<p>The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.</p>
<p>5.4. Informing about the course and contacting the teacher</p>	<p>It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).</p>

3. GENERAL INFORMATION			
1.1. Course lecturer	Ivana Kardum Goleš	1.8. Course code in ISVU	187599
1.2. Course title	English language II	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	Assistant	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1
1.6. Year of study	1 st	1.13. Modernization	Yes
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X <input type="checkbox"/> More than 20 % <input type="checkbox"/>
2. COURSE DESCRIPTION			
2.1. Course objectives	The aim of the course is to expand the vocabulary related to road and postal traffic as well as predicted grammatical structures that include tenses, the adjective comparison, adverbs, modal verbs, transformation of direct into reported speech in the present. The aim is also to expand the vocabulary related to traffic, while exercises determine and practice grammar and new vocabulary. Another goal of the course is to write different kinds of business letters. By attending a foreign language classes, students are introduced with new communication systems, enabling their easier and more direct involvement in world events and getting acquainted with the elements of English culture and civilization of the English speaking world. Learning a foreign language is in line with the aspiration to preserve the richness of the diversity of multi-faceted Europe as well as with fostering the development of the culture of dialogue and civilization.		
2.2. Terms of course entry and required competences	Completed course English language I		
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions		

	Learning outcomes according to the Bloom`s taxonomy: (up to two verbs per LO)				Level of LO: <i>1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis</i>	
	17. to understand and apply basic terms from the professional terminology of English road traffic in English				2, 3	
	18. to apply grammatical structures in texts and assignments				3	
	19. to interpret and use tenses in real-life context				3, 4	
	20. to develop an essay within the topics of the course				5, 6	
	21. to present own ideas for development of traffic problems				3	
	22. to communicate in a foreign language within the subjects of the course, to express one own opinions				6	
	23. to compare and evaluate different traffic solutions				5	
	24. to analyse medium complex texts and solve tasks				4	
	25. to use part of the general language competency at levels B1				6	
2.5. Course content according to detailed curriculum schedule	Constructive allignement					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	44.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	2 h
45.	CARS` ANATOMY - Adjectives and their formation	1, 2, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, understand, apply and link terms from the professional terminology of English road traffic and use them in written and oral	4 h	

					communication verb tenses are interpreted in a real linguistic context, use part of other language competences at B1 level.	
	46.	MANAGEMENT IN TRAFFIC - Adverbs and their formation	1, 2, 3, 4, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	47.	In the train – expressing present	1,2, 3, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve	4 h

					tasks, use part of other language competences at B1 level.	
	48.	MODERN TRANSPORTATION (HYDROFOILS) – Modal verbs	1, 2,3, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	49.	RAIL TRAFFIC IN EUROPE – Expressing habit	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h

	50.	Traffic in the USA – Tenses	1,2, 3, 5, 6, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	51.	Traffic for tomorrow – Tenses, Kolokvij	1, 2, 3, 5, 6, 9	Listen to lectures and take part in discussion. Write the colloquium.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h
	52.	Hovercraft – Indirect speech	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on	6 h

					texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	53.	Magnetic levitation trains – Personal and reflexive pronouns	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises. Discuss.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	54.	Steam engine cars – Future tenses	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context,	10 h

					can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	55.	Post office and their role in the progress of mankind – Future tenses	1,2, 3, 4, 5, 6, 7, 8, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h
	56.	Climate changes and telecommunication	1,2, 3,4, 5, 6, 7, 8, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own	4 h

				their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	57.	Sattellites	1,2, 3,4, 5, 6, 7, 8, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	58.	Revision – II Kolokvij	1, 2, 3, 4,5, 6, 7, 8, 9	Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions	10 h

						to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
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3. EVALUATION OF STUDENTS' WORK

3.1. Students' obligations	In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70% is required. Part-time students are required to attend classes at least 50%.The students' acquired knowledge is tested during the course classes. Special consideration is given to the student's evaluation during the course of the teaching process, with particular attention being paid to the student's active participation in teaching as well as his/her presentation of the written work that the student produces for homework. Of particular importance for the final evaluation are the two written tests that students take during the semester. If the student successfully passes both exams, he / she is exempted from the written part of the final exam and is obliged to take the oral exam only. The final exam consists of a written and an oral part. Ways to check learning outcomes are: essays, objective type assignments, discussion, roleplay, presentation creation, etc. The obligation of each student is to regularly inform oneself about the course. All notices about maintenance or eventual postponement of teaching will be published on the web site of the Polytechnic of Šibenik and the e-learning page of the course, where all the information on the course as well as the teaching materials and the list of literature are also available.					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance	0,5	Written exam	1 (without colloquia)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	1 (without written exam)	Seminar paper		Other	
	Class activity	0,5	Oral exam	1	Other	
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 5. Attending classes and exercises 45 hours 6. Preparing colloquia or exams through individual work 45 hours					

4. GRADING SYSTEM

4.1. Grading seminar papers

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4.2. Grading colloquia/ written and oral exam

Unsatisfactory	Satisfactory	Above average
Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.

4.3. Final grade according to evaluation elements

Active course attendance	70-75% of attendance	76-86% of attendance	87-100% of attendance	
	3 points	7 points	20 points	
Seminar paper				
Colloquia/ Written exam	2	3	4	
	50-64,9%	65-79,9%	80-89,9%	
	25 points	30 points	35 points	
Oral exam	2	3	4	
	25 points	30 points	35 points	

4.3. Final grade according to absolute division

Percentage of acquired knowledge, skills and competences (teaching + final exam)	Numerical grade	ECTS grade
90 – 100%	5 (excellent)	A
80 – 89,9%	4 (very good)	B
65 – 79,9%	3 (good)	C
60 – 64,9%	2 (satisfactory)	D
50 – 59,9%	2 (satisfactory)	E

5. ADDITIONAL COURSE INFORMATION			
	Title	Number of copies in the library	Availability via other media
5.1. Compulsory literature (available in the library and via other media)	Katja Bošković Gazdović: "English textbook of Transport I", Sveučilište u Zagrebu, Fakultet prometnih znanosti, Zagreb, 2002. (selected chapters)	10	X
5.2. . Additional literature (at the moment of changes and/or amended of study programme)	Tamara Polić: „The English Language I and II, English Textbook of Road and Rail Transport and Postal Services with Grammar and Exercises for 1st Year Students“, Sveučilište u Rijeci, Prometni odjel, 2007. Adrian Pilbeam and Nina O’Driscoll: „Logistics Management“, Market Leader, Pearson Longman, 2010 A.J. Thomson, A. V. Martinet: "A practical English Grammar", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar Exercises", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar exercises II", Oxford University	10	X (elearning, handouts)
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).		

PK-SP-2. Description of a new course an amended and/or changed or modernized course.

1. GENERAL INFORMATION ABOUT THE SUBJECT			
1.1. Title	Knowledge of goods	1.8. ISVU course code	187586
1.2. Lecturer	Nikolina Gaćina	1.9. MOZVAG course code	
1.3. Assistants and/or associates	None	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+0+15+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate Professional Study Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st – materials available On-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	2.
1.6. Study year	1 st	1.13. Modernization	X yes <input type="checkbox"/> no
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	<p>The goal is to provide students with theoretical knowledge and case studies:</p> <ul style="list-style-type: none"> • Defining the basic concepts of the science of knowledge of goods, • Understanding the specificity of particular types of goods, their identification, conditions of packaging, transport and storage, and environmental friendliness; • Understanding the need and importance of standardization and product quality, • Understanding the importance and types of strategic goods, • Apply the learned content of this course in business practice.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the CROQF.
2.3. Learning outcomes on the study programme	LO 1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in croatian and English.

level	LO 2: To organize and implement team work and critically judge the opinions and attitudes of team members	
	LO 3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions	
	LO 6: To analyze and present relevant facts from the field of traffic needed to reach conclusions	
	LO 10: To compare and choose technical and technological solutions in traffic and / or traffic logistics	
	LO 13: to track trends in the development of technique, technology and safety in traffic	
2.4. Expected learning outcomes on the course level	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)	LO Level: 1. <i>Recapture,</i> 2. <i>Understanding,</i> 3. <i>Application,</i> 4. <i>Analysis,</i> 5. <i>Evaluation,</i> 6. <i>Synthesis</i>
	1. Demonstrate knowledge and understanding of the content of the course by defining and describing the basic concepts of the science of knowledge of goods	1, 2
	2. Categorize and compare the basic concepts of the science of knowledge of goods	4, 5, 6
	3. Compare and distinguish product types, their identification, labeling, and transportation and storage conditions	4, 5
	4. Categorize and compare types of packaging material	4, 5
	5. Analyze and evaluate the specific characteristics and reasons for the application of particular packaging materials for different products	4, 5, 6
	6. Distinguish and compare different processes of food preservation in relation to the longevity and preservation of the nutritional value of the product	4, 5, 6
	7. Analyze and anticipate the importance of food and non-food commodities of today and today	4, 5
	8. Present the acquired knowledge, ideas, problems and solutions independently and in a team.	6

2.5. Course content according to detailed curriculum schedule	Constructive alignment					
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed

	59.	Introduction to the course and detailed curriculum. Introduction to writing a seminar paper.	-	Listen to the lecture.	-	2 h
		The basics of the science of knowing goods. Defining basic concepts.	1, 2	They listen to a lecture and read literature.	At the colloquium or the written and oral exam: define, describe, categorize and compare the basic concepts of the science of knowledge of goods.	4 h
	60.	Product identification. GS1.	1, 2, 3, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature.	At the colloquium or the written and oral exam they know: explain the reasons for the product identification, define GS1, enumerate the types of identification numbers and analyze their specific application.	10 h
	61.	Norms and norms. The basics of quality management.	1, 2, 3, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature.	At the colloquium or the written and oral exam they know: define norms and standardization, describe and analyze the meaning of standardization, classify norms, define basic concepts of quality.	6 h
	62.	ISO. ISO standards.	1, 2, 3, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature.	At the colloquium or the written and oral exam they know: define and explain the meaning and importance of ISO, enumerate and describe ISO standards and their form.	6 h
	63.	Packaging. Types of packaging material.	1, 2, 3, 4, 5, 6, 8	They listen to a lecture, watch multimedia, present a seminar paper, followed by a discussion, and read literature. They watch multimedia.	At the colloquium or the written and oral exam they know: define the packaging and explain the importance of packaging the product, list and describe the advantages and disadvantages of individual packaging materials, choose the appropriate packaging material for the specific product and explain	10 h

					their choice. List and analyze the primary functions of packaging material.	
	64.	Packaging features. Product Graphic Labeling.	1, 2, 3, 4, 5, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: define and classify the functions of packaging, evaluate the choice of packaging material with regard to its function, define, describe and analyze the graphic marking of products.	8 h
	65.	Specific features of product storage and transportation.	1, 2, 3, 4, 5, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: to define and describe the types of warehouses, storage and transport conditions, and evaluate the appropriate type of storage and transport depending on the type of product.	6 h
	66.	Perishable products. Declaring food.	1, 2, 3, 4, 5, 6, 7, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: to define and describe the types of perishable products, their specificities and conditions of storage and transport, to analyze the basic declaration of food.	6 h
	67.	Physical methods of food preservation.	1, 2, 3, 4, 5, 6, 7, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: to define and describe the types of physical methods of preservation, to analyze the applicability depending on the type of food products in terms of better preservation of nutritional value and longer shelf life, to analyze the advantages and disadvantages of individual physical methods. And evaluate combining different canning	10 h

					methods.	
	68.	Food preservation with natural and chemical preservatives. Combining canning types.	1, 2, 3, 4, 5, 6, 7, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: define and describe natural and chemical preservatives, analyze applicability depending on the type of food products in terms of better preservation of nutritional value and longer shelf life, analyze the advantages and disadvantages of individual methods and evaluate the combination of different preservation methods.	6 h
	69.	Polymeric materials.	1, 2, 3, 4, 5, 6, 7	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: to define, describe and classify polymeric materials, describe their advantages and disadvantages and storage conditions.	10 h
	70.	Hazardous Substances.	1, 2, 3, 4, 5, 6, 7, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: to define and classify the types of dangerous substances, to analyze the possible danger of the same.	6 h
	71.	Transport and disposal of hazardous substances.	1, 2, 3, 4, 5, 6, 7, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: to define and classify the labeling of hazardous substances during transport, to evaluate the disposal and labeling of hazardous waste.	6 h
	72.	Strategic Goods.2. Colloquium.	1, 2, 3, 5, 6, 7, 8	They listen to a lecture, present a seminar paper, followed by a discussion, and read literature	At the colloquium or the written and oral exam they know: to define and categorize strategic goods, to explain their importance.	4 h

	73.	Concluding Considerations / Repetition and Exam Preparation.		They listen to a lecture and prepare individually for the exam.		20 h
3. EVALUATION OF STUDENT WORK						
3.1. Students` obligations	<p>In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper. Students who have during the course achieved:</p> <ul style="list-style-type: none"> • From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year; • From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period; • More than 50% ECTS credits - students have the right to access the final exam of the subject. <p>Students can pass the final exam in two ways:</p> <p>a) during the course through continuous student attendance (active participation in the lessons, solving case studies, making and presenting the seminar paper and project, passing two colloquia);</p> <p>b) during the course (active participation in the lessons, solving case studies, creating and presenting the seminar paper and project) and passing the exam (written and oral exam).</p>					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance	0,25	Written exam	2 (without colloquiums)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	3 (without the written and oral exams)	Seminar paper	0,75	Other (inscribe)	
	Class activities		Oral exam	1 (without colloquiums)	Other (inscribe)	
3.3. Student workload	The student's workload on all bases amounts to 1 ECTS point for 30 hours of work per semester and is estimated as:					

	<i>Commitment</i>	<i>Hours (estimate)</i>
	5. Attending classes	45
	6. Creating and Presenting seminar paper	10
	7. Preparation for the Colloquium / exam through self-study	65

4. GRADING

	Valuation Element	Poor	Satisfying	Above average
4.1. Seminar paper grading	Organization	The paper is not organized in a logical order and its structure is lacking.	The paper is well structured with a clear distinction between the introduction, the main part of the text and the conclusion.	The paper is well-structured with a clear distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another
	Terminology, writing style	Words and phrases are low harmonized with official terminology. Writing style is not appropriate, sentences are too long, modest vocabulary, and frequent and repeated grammatical mistakes.	Words and phrases are aligned with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and has little grammatical errors.	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.
	Quoting and referencing	Sources are not specified at all. The references do not match the topic and show a superficial approach to the research topic.	Sources are listed, but incomplete and with errors. The references are appropriate for the subject and show a satisfactory research attitude.	Sources are accurate, complete and consistent. The references are appropriate, their list is "rich" and comprehensive and shows a robust research approach.
4.2. Colloquium / exam grading		Poor	Satisfying	Above average
		Give answer by memory, no deeper understanding. Does not know and does not apply the basic terms and concepts. Cannot apply or explain the contents of the course.	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.	Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and

				concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.	
4.3. Creating a final grade according to evaluation elements	Active participation in the lessons	70 of attendance	71-80% of attendance	81-90% of attendance	91-100%
		2 points	3 points	4 points	5 points
	Research paper	2	3	4	5
		8 points	10 points	12 points	15 points
	Colloquium / written exam	2	3	4	5
		50-64,9%	65-79,9%	80-89,9%	90-100%
		25 points	35 points	40 points	50 points
	Oral exam	2	3	5	5
15 points		20 points	25 points	30 points	
4.4. Creating a final grade according to absolute allocation	Percentage of adopted knowledge, skills and competences (teaching + final exam)		Numerous grade	ECTS grade	
	90 – 100%		5 (excellent)	A	
	80 – 89,9%		4 (very good)	B	
	65 – 79,9%		3 (good)	C	
	60 – 64,9%		2 (sufficient)	D	
	50 – 59,9%		2 (sufficient)	E	
5. ADDITIONAL INFORMATION ABOUT THE COURSE					
5.1. Compulsory literature (available in the library and through other media)	Title			Number of copies in the library	Availability via other media
	1. Gacina, N. (2012). Knowledge of goods. Internal script of the Polytechnic of Šibenik, Šibenik.				e-learnigng VUŠ-a
	2. Lazibat, T. (2004). Knowledge of goods and quality management. Synergy Publishing, Zagreb. (Chapters selected)			4	
5.2. Additional literature	1. Andrijanić, I., Balen, M., Lazibat, T. (2001). Knowledge of merchandise in commerce.			4	

(at the moment of changes and/or amended of study programme)	Mikrorad, Zagreb. (Chapters selected)		
	2. Štrumberger, N. (2000). Handling of materials in traffic. Faculty of Transportation Sciences, Zagreb. (Chapters selected)	4	
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @vus.hr) that will be answered in a short time (no later than five working days from the receipt of e-mail).		

1. GENERAL INFORMATION			
1.1. Course title	Traffic in tourism	1.8. Course code at ISVU	142664
1.2. Course lecturer	Ana-Mari Poljičak	1.9. Course code at MOZVAG	-
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+0+15+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st - some of the material available Online, 0%
1.5. Course status (obligatory, optional)	Optional	1.12. Number of course revisions	4.
1.6. Year of study	3 rd	1.13. Modernization	X Yes <input type="checkbox"/> No
1.7. Credit point (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	<p>The goal is to provide students with theoretical knowledge:</p> <ul style="list-style-type: none"> • Define basic transport and tourism terms; • Understand synergies between transport and tourism. • Apply the learned content of this course in business practice.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the HKO.
2.3. Learning outcomes on the study programme level	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in Croatian and English.
	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.
	LO3: Independently and responsibly search, interpret and integrate relevant literature needed to reach conclusions.
	LO6: Analyze and interpret relevant road transport facts needed to reach conclusions.

2.4. Expected learning outcomes on the course level	Learning outcomes according to Bloom's taxonomy: (maximum 2 verbs for LO)		Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 – synthesis.
	1. demonstrate knowledge and understanding of the content of the course by defining and describing the basic concepts in transport and tourism,		1, 1
	2. to analyze and compare the transport sectors in the tourism industry,		4, 2
	3. propose a form of tourist transport as part of a tourism product,		6
	4. use materials and tools to search scientific and professional literature in their native and English languages,		3
	5. Present the acquired knowledge, ideas and solutions independently and in a team.		6

	Constructive allignment					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
2.5. Course content according to detailed curriculum schedule	74.	Introduction into the course and detailed plan.	-	They listen to a lecture. During the individual work on the computer at the seminar teaching, they are introduced to the course content and documents on the e-learning page of the course.	-	2 h
		Theoretical basis of traffic	1, 6	They listen to a lecture and read literature.	At the midterm or the written and oral exam they define the traffic system and state the division of traffic. Define traffic product and cite and explain the elements of production of transport products.	1 h

	75.	Interdependence of transport and tourism.	1	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, they can enumerate and explain ways of influencing tourism on traffic and explaining the impact of traffic on tourism. Explain the limiting impact of transport on tourism and tourism on transport. Define transport service and tourism product. Explain the transport service as a tourism product and give an example of the absence of a transport service in a tourism product. List and explain the categories of users of tourist trips and motives for traveling. Define and explain tourism as a system.	6 h
	76.	Transport branches in the connection of emitting and receptive areas.	1, 2	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain the emissive and receptive tourist countries and give an example. Explain the characteristics of traffic branches in the interconnection of emissive and receptive areas.	6 h
	77.	Traffic as part of a tourist product.	1, 2, 3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired	At the colloquium or the written and oral exam they can define trips and multi-day bus trips. Explain panoramic and shuttle transportation. Give an example of local tourist lines. Define the rental of road vehicles in a tourist destination. List ways to use your bike while on vacation. Seminar	6 h

				knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	paper created and presented (using computer programs independently).	
	78.	Traffic as part of a tourist product.	1, 2, 3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain the panoramic transport by rail in a limited area of the tourist destination. Define cable cars and funiculars and give an example of their use in tourist destinations. Explain nautical tourism and list its parts. Give an example of river-lake-canal round-trip cruises. Seminar paper created and presented (using computer programs independently).	6 h
	79.	Field teaching - travel agency Pražen putovanja d.o.o.	3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain the excursions and multi-day bus trips, explain the rental of road vehicles in the tourist destination and give an example of panoramic and shuttle transportation. Seminar paper created and presented (using computer programs independently).	5 h
	80.	Guest lecture in English: Tourism and Railways (Basic knowledge), Glacier Express - the slowest express Train in the World, the Trans-	1, 3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and	At the colloquium or the written and oral exam they can describe the first rail trip in the World. Give an example of rail transport as part of a tourism product and describe it. Define high-speed rail and give	9 h

		Siberian Railway (Russian tourism offer).		the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	examples. Seminar paper created and presented (using computer programs independently).	
	81.	Air traffic as part of a tourist product, charter travel. Colloquium I.	1, 3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain the history of air traffic and define tourist services based on air traffic. Comment on the role of air transport in tourism in the Republic of Croatia. Find out the difference between regular and charter air traffic.	5 h
	82.	Field teaching - Airport Zadar/Split	1, 3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain regular and charter air traffic. Explain the features of low-cost companies. Give examples of low cost airlines. Explain pick-up and departure technology for airport passengers. Give an example of air traffic services to tourists with special requirements.	3 h
	83.	Field teaching - Dogus Marine in Šibenik (Mandalina)	1, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content	At the colloquium or the written and oral exam they can explain the purpose of marinas and rent a boat. Seminar paper	5 h

				of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	created and presented (using computer programs independently).	
	84.	Logistics in tourism	1, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can enumerate the elements of the logistics system and distinguish between the logistics models. Comment on the role of logistics processes in supplying a tourist destination. Seminar paper created and presented (using computer programs independently).	6 h
	85.	Economics of Exploitation of Traffic Vehicles and Traffic Infrastructure.	1, 2, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can state the determinants of the quality of the transport service in tourism. Define the fare and explain the specificities of costs and fares in individual traffic branches. Seminar paper created and presented (using computer programs independently).	5 h

	86.	Economics of Exploitation of Traffic Vehicles and Traffic Infrastructure.	1, 2, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can define and list the types of oscillations. Explain measures to mitigate the effects of oscillations. Seminar paper created and presented (using computer programs independently).	5 h
	87.	Parking in tourist destinations. Colloquium II.	1, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or written and oral exam knows define basic terms of parking and differentiate ways of parking in tourist destinations.	3 h
	88.	Concluding considerations. Repeating and preparing for the exam.		They listen to a lecture and prepare individually for the exam.	-	17h

3. EVALUATION OF STUDENT WORK

3.1. Students` obligations	<p>In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar paper. Students who have achieved during the course:</p> <ul style="list-style-type: none"> • From 0 - 24.9% of ECTS credits - they are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next
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	<p>academic year;</p> <ul style="list-style-type: none"> • From 25-49.9% - are assessed by FX (insufficient) and must pass and pass the written exam (test). Written exam (test) can be held in regular or extraordinary exam period; • More than 50% - students have the right to take the final exam. <p>Students can take the final exam in the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and preparation of a mental map and case study, preparation and presentation of seminar work and two colloquium); b) during class (active participation in class and preparation of a mental map and case study, preparation and presentation of seminar work) and passing exams (written and oral part of the exam).</p>				
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance		Written exam	1,5 (without colloquia)	Project
	Experimental work		Research		Practical work
	Essay		Report		Continuous examination
	Colloquium	1,5 (without written exam)	Seminar paper	0,5	Other
	Class activity	0,5	Oral exam	0,5	Other
3.3. Student workload	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:				
	Obligation			Hours (estimated)	
	8. Active class attendance			45	
	9. Designing a seminar paper and presentation			10	
10. Preparing colloquia or exams through individual work			35		
4. FORMATION OF GRADES					
4.1. Evaluation of a of seminar work	Element of evaluation	Bad	Satisfying	Above average	
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the	The paper is well structured with a clear distinction between the introduction, the main body of the text	

			text and the conclusion.	and the conclusion, which are logically interconnected.		
	Terminology, writing style	Words and expressions low in line with official terminology. The writing style is not appropriate, the sentences are too long, of a modest vocabulary and with frequent and repeated grammatical errors.	Words and expressions are in line with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and there are few grammatical errors.	Words and expressions are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.		
	Citing and referencing references	The sources are not listed at all. The references do not fit the topic and show a cursory approach to exploring the topic.	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.		
4.2. Grading of the colloquium / written and oral exam	Bad		Satisfying		Above average	
	It responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		Knowledge is at the level of analysis, synthesis and evaluation. It observes the legality, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.	
4.3. Forming the final grade according to the evaluation elements	Active attendance	70-75% of the presence	76-86% of the presence	87-100% of the presence	Case studies resolved	
		2 points	4 points	7 points	10 points	
	Seminar paper	2	3	4	5	
		5 points	7 points	8 points	10 points	
Examination / Written	2	3	4	5		

	examination	50-64,9%	65-79,9%	80-89,9%	90-100%
		25 points	30 points	35 points	40 points
	Oral part of the exam	2	3	4	5
		25 points	30 points	35 points	40 points
4.4. Formation of final grade based on absolute distribution	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Number rating	ECTS grade	
	90 – 100%		5 (excellent)	A	
	80 – 89,9%		4 (very good)	B	
	65 – 79,9%		3 (good)	C	
	60 – 64,9%		2 (sufficient)	D	
	50 – 59,9%		2 (sufficient)	E	
5. ADDITIONAL INFORMATION ON THE SUBJECT					
5.1. Required literature (available in the library and through other media)	Title			Number of copies in the library	Availability via other media
	4. Mrnjavac E.: Promet u turizmu, Fakultet za turistički i hotelski menadžment, Opatija, 2006. (selected chapters)			5	
	5. Maršanić R.: Parkiranje u turističkim destinacijama, IQPLUS d.o.o., Rijeka 2008.			5	
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	10. Baričević H.: Promet u turizmu, Visoka škola za turizam, Šibenik, 2003. 11. Lumsdon L. M., Page S. J.: Tourism and Transport, Issues and Agenda for the New Millennium, Routledge, 2003.			11 0	Available online
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the classroom and information obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employment status of students, employer survey and Alumni Association.				

5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).
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1. GENERAL INFORMATION			
1.1. Course title	Modern traffic systems	1.8. Course code at ISVU	129846
1.2. Course lecturer	Martina Ljubić Hinić	1.9. Course code at MOZVAG	
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(45L+15S)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Transport	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1st
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	3.
1.6. Year of study	1 st	1.13. Modernization	X Yes <input type="checkbox"/> No
1.7. Credit point (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	<p>The aim is to provide students with theoretical knowledge and case studies:</p> <ul style="list-style-type: none"> • define elements and branches of the transport system; • learn the elements of the transport system; • understand the technical and technological characteristics of the traffic branches; • acquire knowledge about the organizational features of the traffic branches and the complexity of the transport system; • get to know the interdisciplinary approach to the transport system and transport processes; • apply the learned content of this course to practice.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the HKO.
2.3. Learning outcomes on the study programme level	<p>LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in Croatian and English.</p> <p>LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.</p>

	LO3: Independently and responsibly search, interpret and integrate relevant literature needed to reach conclusions.
	LO4: Apply knowledge of natural and technical sciences to problems in the field of road transport.
	LO6: Analyze and interpret relevant road transport facts needed to reach conclusions.
	LO7: Apply computer tools for data analysis and comparison, and propose an optimal solution in the traffic process.
	LO10: Compare and select technical and technological solutions for traffic and / or goods flows.
	LO13: Follow trends in technology, technology and traffic safety.
2.4. Expected learning outcomes on the course level	Learning outcomes according to Bloom's taxonomy:
	1. to enumerate and explain the elements and branches of the transport system 1, 2 2. to demonstrate knowledge and understanding of course content by defining and describing an interdisciplinary approach to the transport system 1, 2 3. to describe, compare and relate the technical and technological characteristics of the branches of transport and modern transportation technologies 2, 4 4. to identify and evaluate the interdependence of the elements of the transport system 1, 6, 5 5. to use materials and tools to search scientific and professional literature in their native and English languages 3 6. to present the acquired knowledge, ideas, problems and solutions independently and in a team 3

2.5. Course content according to detailed curriculum schedule	Constructive allignement					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	89.	Introduction into the course and detailed plan.	-	They listen to a lecture. During the individual work on the computer, they are introduced to the course content and documents on the e-learning page of the course.	-	1 h

		Elements of the transport system. Historical development of traffic.	1, 2, 4	Listen to lectures and read literature.	In colloquium or the written and oral exam they define the system and elements of the transport system and explain the interdisciplinary nature of the transport system, and state the historical development of the elements and branches of the transport system.	3 h
	90.	Maritime transport.	1, 2, 3, 5	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or the written and oral exam they identify and explain the elements and technologies of maritime transport, and define and describe the role of technical and technological characteristics of maritime transport in the transport system.	4 h
	91.	Inland waterways.	1, 2, 3, 5	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of inland waterway transport, and define and describe the role of technical and technological characteristics of maritime transport in the transport system.	4 h
	92.	Seaports. Transportation technologies.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they identify and explain the types and operation of seaports, and define, list and describe transportation technologies and explain the interdependence of all branches of transport. Seminar work is done in groups with discussion.	4 h
	93.	Study trip (Rijeka port).	1, 2, 3, 4, 5, 6	They listen to a lecture.	In colloquium or written and oral exams they identify and explain seaports, and	8 h

					define and describe the role of seaports as collection points into which traffic flows from all traffic routes and means of transport of different branches of traffic.	
	94.	Road transport.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of road transport, and define and describe the role of technical and technological characteristics of road transport in the transport system. Seminar work is done in groups with discussion.	4 h
	95.	Road transport.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of road transport, and define and describe the role of technical and technological characteristics of road transport in the transport system. Seminar work is done in groups with discussion.	4 h
	96.	Rail transport. 1st Colloquium	1, 2, 3, 4, 5, 6	They listen to a lecture and prepare individually for the colloquium.	In colloquium or written and oral exams they specify and explain the elements and technologies of railway transport, and to define and describe the role of technical and technological characteristics of railway transport in the transport system. Seminar work in groups is prepared with discussion.	42 h
	97.	Rail transport.	1, 2, 3,	They listen to a lecture and read literature.	In colloquium or written and oral exams	4 h

			4, 5, 6	In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	they specify and explain the elements and technologies of railway transport, and to define and describe the role of technical and technological characteristics of railway transport in the transport system. Seminar work in groups is prepared with discussion.	
	98.	Air transport.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of air traffic, and define and describe the role of technical and technological characteristics of air traffic in the transport system. Seminar work is done in groups with discussion.	4 h
	99.	Postal transport.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of postal traffic, and define and describe the role of technical and technological characteristics of postal traffic in the transport system. Seminar work is done in groups with discussion.	4 h
	100.	Telecommunication transport.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of telecommunication traffic, and define and describe the role of technical and technological characteristics of telecommunications traffic in the transport system. Seminar work is done in groups with discussion.	4 h

	101.	Pipeline transport. Cable car transport.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of pipeline and cableway traffic, and define and describe the role of technical and technological characteristics of pipeline and cableway traffic in the transport system. Seminar work is done in groups with discussion.	4 h
	102.	City traffic. Taxi traffic. 2nd Colloquium.	1, 2, 3,4, 5, 6	They listen to a lecture and prepare individually for the colloquium.	In colloquium or written and oral exams they identify and explain the elements and technologies of urban transport, and define and describe the role of urban transport in the transport system.	42 h
	103.	Concluding considerations. Repeating and preparing for the exam.	6, 7	They listen to a lecture and prepare individually for the exam.	-	44 h

3. EVALUATION OF STUDENT WORK

3.1. Students' obligations	<p>In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar paper. Students who have achieved during the course:</p> <ul style="list-style-type: none"> • From 0 - 24.9% of ECTS credits - they are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next academic year; • From 25-49.9% - are assessed by FX (insufficient) and must pass and pass the written exam (test). Written exam (test) can be held in regular or extraordinary exam period; • More than 50% - students have the right to take the final exam. <p>Writing a seminar paper is a prerequisite for obtaining a signature. Students can take the final exam in the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and two exams); b) during class (active participation in class and passing exams (written and oral part of the exam)).</p>					
3.2. Monitoring student	Attendance	1	Written exam	1 (without colloquia)	Project	

work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	1
	Colloquium	1 (without written exam)	Seminar paper	1	Other	
	Class activity	1	Oral exam	1	Other	

3.3. Student workload	<p>Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:</p> <ol style="list-style-type: none"> 1. Attendance 45 h 2. Design of seminar work and presentation 15 h 3. Preparation for the mid-term / midterm exam 120 h
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4. FORMATION OF GRADES

4.1. Grading of seminar work	Element of evaluation	Bad	Satisfying	Above average
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.
	Terminology, writing style	Words and expressions low in line with official terminology. The writing style is not appropriate, the sentences are too long, of a modest vocabulary and with frequent and repeated grammatical errors.	Words and expressions are in line with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and there are few grammatical errors.	Words and expressions are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.
	Citing and referencing references	The sources are not listed at all. The references do not fit the topic and show a cursory approach to exploring the topic.	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed

			attitude.	research approach.		
4.2. Grading of the colloquium / written and oral exam	Bad		Satisfying		Above average	
	It responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		Knowledge is at the level of analysis, synthesis and evaluation. It observes the legality, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.	
4.3. Forming the final grade according to the evaluation elements	Active attendance	70-75% of the presence	76-86% of the presence	87-100% of the presence	Case studies resolved	
		0 points	0 points	0 points	0 points	
	Seminar paper	2	3	4	5	
		Made and handed over	Made and handed over	Made and handed over	Made and handed over	
	Examination / Written examination	2	3	4	5	
		50-64%	65-80%	81-90%	91-100%	
	Oral part of the exam	25-32 points	33-40 points	41-45 points	46-50 points	
		2	3	5	5	
		25-32 points	33-40 points	41-45 points	46-50 points	
4.4. Formation of final grade based on absolute distribution	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Number rating		ECTS grade	
	90 – 100%		5 (excellent)		A	
	80 – 89,9%		4 (very good)		B	
	65 – 79,9%		3 (good)		C	

	60 – 64,9%	2 (sufficient)	D
	50 – 59,9%	2 (sufficient)	E

5. ADDITIONAL INFORMATION ON THE SUBJECT

5.1. Required literature (available in the library and through other media)	Title	Number of copies in the library	Availability via other media
	6. Cerovac, V.: Tehnika i sigurnost prometa; FPZ, Zagreb, 2001. (odabrana poglavlja) Božičević, D., Kovačević, D.: Suvremene transportne tehnologije, FPZ, Zagreb, 2002.	3	No
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	12. Lectures 13. Zelenika, R.: Prometni sustavi, Ekonomski fakultet u Rijeci, Rijeka, 2001. 14. Zelenika, R.: Multimodalni prometni sustavi, Ekonomski fakultet u Rijeci, Rijeka, 2006. 15. Sussman, J. : Introduction to Transportation Systems, Artech House, United Kingdom, 2000.	3 0 0	No No Yes
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the classroom and information obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employment status of students, employer survey and Alumni Association.		
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).		

PK-SP-2. Description of a new course an amended and/or changed or modernized course.

1. GENERAL INFORMATION ABOUT THE SUBJECT			
1.1. Title	Traffic and ecology	1.8. ISVU course code	201135
1.2. Lecturer	Tanja Radić Lakoš	1.9. MOZVAG course code	
1.3. Assistants and/or associates	None	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+0+15+0)
1.4. Study programme (specialist, undergraduate, graduate)	Professional Undergraduate study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st – materials available On-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4.
1.6. Study year	1 st	1.13. Modernization	X yes <input type="checkbox"/> no
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	<p>The aim is that student, based on theoretical knowledge and case studies, be able to:</p> <ul style="list-style-type: none"> • Define basic ecological and environmental concepts; • Understand problems in their own environment (in traffic and / or in the work environment) to independently manage the environment in a way that minimally affects the state and components of the environment in terms of sustainable development; • Learn to identify the damage that traffic or traffic system participants can cause to natural ecosystems; • Apply the learned content of this course in business practice.
2.2. Terms of course entry and required competences	Four-year high school education completed; having a qualification at level 4.2
2.3. Learning outcomes on the study programme	LO1. To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English.

level	LO3. To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions.	
	LO4. To apply knowledge from the field of natural and technical sciences to problems in road traffic.	
	LO6. To analyze and present relevant facts from the field of traffic needed to reach conclusions.	
	LO11. To identify, predict and propose solutions in road traffic technology and technique.	
	LO13. To track trends in the development of technique, technology and safety in traffic.	
2.4. Expected learning outcomes on the course level	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)	
	LO Level: 8. <i>Recapture</i> , 9. <i>Understanding</i> , 10. <i>Application</i> , 11. <i>Analysis</i> , 12. <i>Evaluation</i> , 13. <i>Synthesis</i>	
	1. to demonstrate knowledge and understanding of the content of the course by defining and describing the basic concepts in ecology and environmental protection,	1, 1
	2. to analyze and compare the relationship between man and his environment in the historical and contemporary context of traffic and traffic techniques development,	4, 2
	3. It will also provide an example of road traffic impacts on natural ecosystems and parts of the environment (air, water and sea, soil, flora and fauna) and	2, 3
	4. Give an example of measures how to reduce negative impacts of traffic on the environment,	3
	5. Discuss and critically evaluate on the activity of traffic participants as well as traffic experts in accordance with the principles of sustainability and accountability,	4, 5
	6. Use materials and tools to search scientific and professional literature in Croatian and in English,	3
7. Present accepted knowledge, ideas, problems and solutions independently and in the team.	6	

2.5. Course content according to detailed curriculum schedule	Constructive alignment					
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed

		Introduction to the course and a detailed performance plan	-	Listen to the lecture. On seminary teaching, by independent work on the computer students get acquainted with course content and documents on the e-learning course page.	-	2 h
	104.	Fundamental Ecological principles.	1, 6, 7	Listen to the lecture and read the literature.	In a colloquy or written and oral exam students define fundamental ecological concepts. They describe the role of ecology as a science, describe the difference between ecology and environmental protection, define the role of Darwin. They know to sketch and explain the population growth in the ecosystem relative to the environmental capacity.	4 h
	105.	Ecological factors.	1, 6, 7	Listen to the lecture and read the literature.	In a colloquy or written and oral exam students can name, distinguish and give an example of an ecological factor.	4 h
	106.	Circulation of substances in the ecosystem. The role of energy in the Ecosystem.	1, 6, 7	Listen to the lecture and read the literature.	In a colloquy or written and oral exam students can define and describe the role of macro-elements in the environment, describe macro-elements cycles and explain the role of human impact in cycles of circling. In a colloquy or written and oral exam students can describe the role of solar energy for the functioning of the ecosystem, list members of the nutrition chain, and	4 h

					distinguish organisms with regard to the trophy.	
	107.	Pollution and degradation of the environment. Traffic caused Environmental Degradation.	1, 2, 3, 4, 5, 6, 7	Listen to the lecture and read the literature. At the seminar student individually, in pairs or Socrates threes made mental map and solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In a colloquy or written and oral exam students can define what environmental degradation is and how it comes to it, give an example of environmental degradation, analyse and conclude how environmental degradation occurs and compare how traffic causes degradation of the environment. Created mental map. Solved case study.	10 h
	108.	Pollution and air degradation. Anthropogenic climate change.	1, 5, 6, 7	Listen to the lecture and read the literature. At the seminar student individually explore the content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam students can define and describe the underlying concepts of air pollution, enumerate and distinguish natural and anthropogenic sources of air pollution, predict the effects of polluted air and the consequences of phenomena such as: greenhouse effect, global warming, climate change, acid rain, ozone depletion, analyse the impact of air pollution on the atmosphere, human health, plant and animal life and material heritage. Created and Presented seminar paper (by independent use of computer programs).	10 h

	109.	Road motor vehicles as sources of air pollution	1, 3, 5, 6, 7	Listen to the lecture and read the literature. At the seminar student individually explore the content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam they can define and describe types of ICE exhaust gases, give an example and interpret the impact of exhaust gas on motor vehicles on the air, human health and plant and animal life. Created and Presented seminar paper (by independent use of computer programs).	8 h
	110.	View of mitigation and / or rehabilitation measures. The role of catalyser and λ -probe. Alternative fuels in road traffic.	1, 2, 3, 4, 5, 6, 7	Listen to the lecture and read the literature. At the seminar student individually explore the content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam they can define and describe the material, role and mode of catalyser and λ probes, enumerate and describe alternative fuels in road traffic, choose the most environmentally friendly and interpret the choice, analyse the use of vehicles with ICE in the contemporary context of technology development and science. Created and Presented seminar paper (by independent use of computer programs).	10 h
	111.	Conventional energy sources. RES.	1, 4, 5, 6, 7	Listen to the lecture and read the literature. They use multimedia and network. Listen to the lecture and read the literature. At the seminar student individually explore the content of this	In a colloquy or written and oral exam they can define and describe the types of fossil fuels and RES and choose and comment on the most environmentally acceptable	4 h

				topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	solution. Created and Presented seminar paper (by independent use of computer programs).	
	112.	Road traffic and energy consumption. Ecological efficiency in Traffic.	1, 2, 3, 4, 5, 6, 7	Listen to the lecture and read the literature. Listen to the lecture and read the literature. At the seminar student individually explore the content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam students can define and describe ecological efficiency, to analyse and compare energy consumption in traffic in the historical and contemporary context, to propose and use measures to reduce energy consumption in road traffic and increase energy efficiency, critically evaluate the most appropriate solution. Created and Presented seminar paper (by independent use of computer programs).	6 h
	113.	Pollution and degradation of water in road traffic. View of mitigation and / or rehabilitation measures.	1, 2, 3, 4, 5, 6, 7	Listen to the lecture and read the literature. At the seminar, students solve the case study.	In a colloquy or written and oral exam students can define and describe the basic concepts of pollution and degradation of water, to enumerate and distinguish natural and anthropogenic sources of water pollution, to predict the dynamics of water pollution along	8 h

					roads and to propose mitigation and / or rehabilitation measures. Solved case study.	
	114.	Pollution and degradation of the sea. Ballast water (environmental problem, treatment measures).	1, 2, 3, 4, 5, 6, 7	Listen to the lecture and read the literature. At the seminar, students solve the case study.	In a colloquy or written and oral exam they can define and describe the underlying concepts of pollution and degradation of the sea, enumerate and differentiate the natural and anthropogenic sources of pollution of the sea, predict the dynamics of seawater pollution and propose mitigation and / or rehabilitation measures. Solved case study	8 h
	115.	Soil pollution and degradation in road traffic. View of mitigation and / or rehabilitation measures.	1, 2, 3, 4, 5, 6, 7	Listen to the lecture and read the literature. They use multimedia and network. Listen to the lecture and read the literature. At the seminar student individually explore the content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam students can define and describe the underlying concepts of soil contamination, enumerate and differentiate the soil's natural and anthropogenic contaminants, predict the consequences of phenomena such as erosion, desertification, deforestation, analyse the impact of road traffic on the fragmentation of habitats and propose mitigation / remediation measures of the environment and give an example of how to take care of it. Created and Presented seminar paper (by independent use of computer	1

					programs).	
	116.	Noise and vibration in road traffic.	1, 2, 3, 4, 5, 6, 7	Listen to the lecture and read the literature. Listen to the lecture and read the literature. At the seminar student individually explore the content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam students can define and describe the underlying concepts of noise pollution, enumerate road noise sources, predict the effects of noise on human health and propose measures to reduce noise in and out of the vehicle. Created and Presented seminar paper (by independent use of computer programs).	6 h
	117.	Ecologically acceptable forms of traffic.	1, 2, 3, 5, 6, 7	Listen to the lecture and read the literature.	In a colloquy or written and oral exam they can describe and critically evaluate the most environmentally acceptable form of traffic, analyse this choice in the historical and contemporary context of traffic technology, give an example of the impact of air and rail traffic on the environment.	6 h
	118.	Concluding Considerations / Repeating and Preparing for Exam.		Listen to the lecture and individual preparation for the exam.	-	20 h

3. EVALUATION OF STUDENT WORK

3.1. Students` obligations
 In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquy seminar paper. Students who have during the course achieved:

	<ul style="list-style-type: none"> • From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year; • From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period; • More than 50% ECTS credits - students have the right to access the final exam of the subject. <p>Students can pass the final exam in two ways: a) during the course through continuous student attendance (active participation in the lessons, creating mental map, solving case studies, making and presenting the seminar paper and passing two colloquia); b) during the course (active participation in the lessons, creating mental map, solving case studies, creating and presenting the seminar paper) and passing the exam (written and oral exam).</p>					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance		Written exam	2 (by submitting both colloquiums the student is relieved of an written examination)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	3 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper	0,5	Other (inscribe)	
	Class activities	0,5	Oral exam	1 (by submitting both colloquiums the student is relieved of an oral examination)	Other (inscribe)	

3.3. Student workload	The student's workload on all bases amounts to 1 ECTS point for 30 hours of work per semester and is estimated as:	
	<i>Commitment</i>	<i>Hours (estimate)</i>
	11. Attending classes	45
	12. Creating and Presenting seminar paper	10
	13. Preparation for the Colloquium / exam through self-study	65

4. GRADING

	Valuation Element	Poor	Satisfying	Above average
4.1. Seminar paper grading	Organization	The paper is not organized in a logical order and its structure is lacking.	The paper is well structured with a clear distinction between the introduction, the main part of the text and the conclusion.	The paper is well-structured with a clear distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another
	Terminology, writing style	Words and phrases are low harmonized with official terminology. Writing style is not appropriate, sentences are too long, modest vocabulary, and frequent and repeated grammatical mistakes.	Words and phrases are aligned with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and has little grammatical errors.	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.
	Quoting and referencing	Sources are not specified at all. The references do not match the topic and show a superficial approach to the research topic.	Sources are listed, but incomplete and with errors. The references are appropriate for the subject and show a satisfactory research attitude.	Sources are accurate, complete and consistent. The references are appropriate, their list is "rich" and comprehensive and shows a robust research approach.
4.2. Colloquium / exam grading		Poor	Satisfying	Above average
		Give answer by memory, no deeper understanding. Does not know and does not apply the basic terms and concepts. Cannot apply or explain the contents of the course.	Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.	Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and

					logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.
4.3. Creating a final grade according to evaluation elements	Active participation in the lessons	70-75% of attendance	76-86% of attendance	87-100% of attendance	Created mental map. Solved case study.
		2 points	4 points	7 points	3 points
	Seminar paper	2	3	4	5
		5 points	7 points	8 points	10 points
	Colloquium / written exam	2	3	4	5
		50-64,9%	65-79,9%	80-89,9%	90-100%
	Oral exam	25 points	30 points	35 points	40 points
		2	3	5	5
		25 points	30 points	35 points	40 points
4.4. Creating a final grade according to absolute allocation	Percentage of adopted knowledge, skills and competences (teaching + final exam)		Numerous grade		ECTS grade
	90 – 100%		5 (excellent)		A
	80 – 89,9%		4 (very good)		B
	65 – 79,9%		3 (good)		C
	60 – 64,9%		2 (sufficient)		D
50 – 59,9%		2 (sufficient)		E	
5. ADDITIONAL INFORMATION ABOUT THE COURSE					
5.1. Compulsory literature (available in the library and through other media)	Title			Number of copies in the library	Availability via other media
	1. European Parliament and Council of the European Union: "White Paper - A Single European Transport Space Platoon - A Road to a Comprehensive Transport System Resourcefully Managing Resources", COM (2011) 144final, 2011				Available On-line

	2. Golubić, J., Promet i okoliš, FPZ, Zagreb, 1999.	5	Available On-line
5.2. Additional literature (at the moment of changes and/or amended of study programme)	16. Radić Lakoš, T., Upravljanje okolišem, VUŠ, Šibenik, 2018. (selected chapters) 17. Glavač, V., Uvod u globalnu ekologiju, Hrvatska sveučilišna naklada, Zagreb, 2001. 18. Udovičić, B., Čovjek i okoliš, Kigen, Zagreb, 2009.	5 2	Available On-line
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @vus.hr) that will be answered in a short time (no later than five working days from the receipt of e-mail).		

7. GENERAL INFORMATION			
7.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU	140773
7.2. Course title	Traffic logistic	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30 + 0 + 30 + 0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Optional	1.12. Number of course revisions	4
1.6. Year of study	1 st , 2 nd	1.13. Modernization	Yes
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % □
8. COURSE DESCRIPTION			
2.1. Course objectives	<p>The goal is to get students on the basis of theoretical knowledge and case studies:</p> <ul style="list-style-type: none"> ▪ learn about the elements of the logistics system, ▪ identify and overcome logistical processes and activities that are related to storage, transportation, and traffic, ▪ mastering the modern logistics concepts and strategies. 		
2.2. Terms of course entry and required competences	Enrolled 2 nd academic year, 4 year secondary education completed; qualification level 4.2 according to the CROQF.		
2.3. Learning outcomes on the study programme level	<p>LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in Croatian and English.</p> <p>LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.</p> <p>LO3: Independently and responsibly search, interpret and integrate relevant literature for decision making.</p> <p>LO6: Analyze and present relevant facts from the traffic area required to reach conclusions.</p> <p>IU9: Evaluate and organize processes in the field of road transport and/or transport logistics.</p> <p>IU11: Identity, anticipate and propose solution technologies and techniques of road transport.</p> <p>LO12: Design a smaller transport process and critically evaluate it.</p>		
2.4. Expected learning	Learning outcomes by Bloom: (maximum 2 werbs for LO)		Level of LO: <i>1 - memory,</i>

outcomes on the course level (4-10 learning outcomes)					2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 – synthesis.	
	1. Define and differentiate basic terms and division in logistics, warehousing, and freight forwarding.				1, 2	
	2. Analyze and extract information and communication technologies in transport logistics.				4, 2	
	3. Select, evaluate and categorize services in the warehouse business.				3, 5	
	4. Compare and connect ways of transportation of products, organization of distribution and performance of city logistics.				4, 6	
	5. Propose ways of doing urban logistics, handling of products and reduction of inventory costs.				6	
	6. Use materials and tools to search the scientific and professional literature in their native and English languages.				3	
7. Present the acquired knowledge, ideas, problems, and solutions independently and in a team.				6		
2.5. Course content according to detailed curriculum schedule	Constructive allignment					
	No	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	1.	Introductory presentation (introducing students to the course content and obligations)	-	Listening to the lecture. In the course of seminars, they are introduced to the course content and documents on the e-learning page of the course by working independently on a computer.	-	2 h
	2.	The term of logistics (term, developmental factors, elements of the logistics system, logistics system division)	1, 6, 7	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a	At the colloquium or the written and oral exam, students know how to define and distinguish basic concepts in logistics, types of logistics, factors of logistics	4 h

				seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	development. Seminar paper created and presented (by computer programs).	
	3.	Human resources in logistics (management, freight forwarders, FIATA documents, customs officers).	1, 6, 7	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students know how to define and distinguish the basic concepts in freight forwarding. Enumerate all freight forwarding jobs, distinguish between customs documents, human resources working in logistics. Seminar paper created and presented (by computer programs).	6 h
	4.	Warehouses and storage (concept, types and division, the factors for determining the location, equipment and furnishing warehouses, methods of storage operations)	1, 3, 6, 7	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam students know how to define and differentiate the basic concepts of storage. Distinguish, describe and present warehouse equipment. Analyze and evaluate factors for determining location. Select, evaluate and categorize services in the warehouse business. List the rules and methods for storing goods. Seminar paper created and presented (by computer programs).	6 h

	5.	Warehousing and storage of products (video films)	1, 3, 6, 7	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students can distinguish, describe and present the warehouse equipment. Choose adequate racks and forklifts for the storage of products and internal transport. Seminar paper created and presented (by computer programs).	6 h
	6.	Freight terminals and Freight-transportation centers (concept and division, development goals of Freight-transportation center, functions, services, 3PL)	1, 3, 6, 7	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students can define the basic terms of the Freight terminals and the Freight-transportation centers. Distinguish between Freight-transport centers by size and location. Select and categorize services provided at terminals and centers. Seminar paper created and presented (by computer programs).	6 h
	7.	Information and communication system in the function of logistics (elements, methods of communication, modern computer programs, warehouse management system)	2, 6, 7	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar	At the colloquium or the written and oral exam, students can distinguish between information and communication technologies in logistics, warehouse management system, Bar code technology, and RFID identification. Identify the abbreviations of information and	6 h

				class, the brainstorming method and the discussion method on the topic are applied.	communication technologies. Establish the difference, strengths and the weakness of using it. Seminar paper created and presented (by computer programs).	
	8.	Information and communication system in the function of logistics (video films)	2, 6, 7	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or written and oral exam, students know how to define and describe the Bar code technology, RFID identification, voice technology, and technology Pick to light. Establish the difference, strengths and the weakness of using it. Seminar paper created and presented (by computer programs).	6 h
	9.	Inventory management and manipulation with products (inventory planning and control, supply chain, packaging of goods, palletization and containerization)	5, 6, 7	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students can propose ways of manipulating with products (packaging, palletizing) and reducing the cost of supplies (supply chain). Define and describe Supply Chain and Just in time procurement. Identify the difference between applying pallets and containers. Seminar paper created and presented (by computer programs).	6 h
	10.	Transportation in the logistics system (road, rail, air and	2, 4, 6, 7	They listen to a lecture and read literature. At the seminar class, they individually	At the colloquium or the written and oral exam, students know	6 h

		pipeline transport, inland waterways transport, transport costs, transport documents)		explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	how to distinguish transport modes in logistics, in all branches of traffic. Identify the advantages, disadvantages and costs of transportation. Seminar paper created and presented (by computer programs).	
	11.	Modern transport technologies in transport logistics (conditions for development, integral transport, technologies on the road, rail, water, and air transport)	2, 4, 6, 7	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students know how to isolate and analyze transport technologies in logistics in the road, rail, water, and air transport. Compare, identify similarities/differences in the transportation of products with modern transportation technologies. Seminar paper created and presented (by computer programs).	6 h
	12.	Distribution and ordering of goods (concept, purpose, and structure of the distribution system, distribution networks, costs in distribution, term of the order, processes in ordering)	4, 6, 7	They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the	At the colloquium or the written and oral exam, students can define the terms of order and distribution. Propose the ways of orders in case of missing products. Determine the difference between physical distribution and distribution channels. Compare and explain distribution network concepts.	6 h

				discussion method on the topic are applied.	Identify distribution costs. Seminar paper created and presented (by computer programs).	
	13.	City logistics (concept, task, and goal of city logistics, initiatives, the structure of city logistics system, optimization of logistics flows)	4, 5, 6, 7	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam, students can define the concept and the goal of city logistics. Distinguish and isolate participants in city logistics. Categorize flows of products in city logistics. Identify means of transport. Suggest city logistics concepts. Identify the advantages and disadvantages of optimizing the flow of products. Seminar paper created and presented (by computer programs).	6 h
	14.	Study trip to LIDL Logistics-distribution center (located in Perušić).	1, 3, 4, 5		On a study tour, students will be able to define and differentiate basic terms and divisions in logistics, warehousing, and freight forwarding. Select, evaluate and categorize services in the warehouse business. Compare and connect modes of product transport, organization of distribution of products. Suggest ways of manipulation with the products and reducing inventory costs.	8 h

	15.	Final considerations/Repeating and preparing for the exam.	-	They listen to a course lecture and prepare individuals for the exam.	-	40 h
9. EVALUATION OF STUDENT WORK						
3.1. Student obligations	In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar papers. Students who have achieved during the course: from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot earn ECTS credits, and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must pass and pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period; more than 50% - students have the right to take the final exam. Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the exam (written and oral part of the exam).					
3.2. Student work monitoring (enter the share of ECTS credits for each activity so that the total number of ECTS credits corresponds to the course credit value)	Attending classes	1	Written exam	1 (without colloquiums)	Project	
	Experimental work		Research		Practical work	
	Esaay		Report		Continuous check	
	Colloquiums	1 (without written part of exam)	Seminar paper	0,5	(other)	
	Teaching activities	1	The oral part of exam	0,5	(other)	
3.3. Student work-load	Student workload on all bases is 1 ECTS credit for 30 semester hours and is assessed as attendance (60 hours), preparation of seminar work and presentation (16 hours), preparation for the midterm/exam through self-study (44 hours).					
4. FORMATION OF STUDENT GRADE						
4.1. Evaluation of seminar paper	Elements of evaluation	Bad	Satisfying	Above average		
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.		
	Terminolog, writing style	Words and expressions are not in line with official terminology. The writing style	Words and expressions are in line with official terminology. The writing style is appropriate, the sentence structure is	Words and expressions are aligned with official terminology and show an understanding of their meaning. The		

		is not appropriate, the sentences are too long, of a modest vocabulary and with frequent and repeated grammatical errors.	clear, the vocabulary is appropriate and there are few grammatical errors.	writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.		
	Citing and referencing references	The sources are not listed at all. The references do not fit the topic and show a cursory approach to exploring the topic.	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.		
4.2. Gradeing of the colloquium/written and oral exam	Bad		Satisfying		Above average	
	It responds by memory, without a deeper understanding. It does not know or apply basic terms and concepts. It does not know how to apply or explain the contents of the course with examples.		It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		Knowledge is at the level of analysis, synthesis, and evaluation. It observes the legality, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.	
4.3. Forming the final grade according to the evaluation elements	Active attendance on class	70-75% attendance	76-86% attendance	87-100% attendance	Mental map created, Case studies resolved	
		2 points	4 points	7 points	3 points	
	Seminar paper	2	3	4	5	
		5 points	7 points	8 points	10 points	
	Colloquiums/ Written part of exam	2	3	4	5	
		50 - 64,9%	65 - 79,9%	80 - 89,9%	90 - 100%	
25 points		30 points	35 points	40 points		

	Oral part of exam	2	3	5	5
		25 points	30 points	35 points	40 points
4.4. Formation of the final grade based on the absolute distribution	Percentage of acquired knowledge, skills and competencies (teaching + final exam)	Numerical grade		ECTS grade	
	90 – 100%	5 (excellent)		A	
	80 – 89,9%	4 (very good)		B	
	65 – 79,9%	3 (good)		C	
	60 – 64,9%	2 (sufficient)		D	
	50 – 59,9%	2 (sufficient)		E	
5. ADDITIONAL INFORMATION ABOUT COURSE					
5.1. Compulsory literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media
	Ivakovic C., Stankovic R., Šafran M.: Freight Forwarding and Logistics Processes, Faculty of Transportation Sciences, University of Zagreb, Zagreb, 2010 (selected chapters)			-	City of Sibenik library
	Mlinarić Josip T.: Freight-transport Centers, Faculty of Transportation Sciences, University of Zagreb, 2013 (selected chapters)			-	PDF (Internet website)
	Zelenika R.: Logistics Systems, University of Rijeka, Faculty of Economics, Rijeka, 2005 (selected chapters)			2	
	Bloomberg D.: Logistics, MATE, Zagreb School of Economics and Management, Zagreb, 2006 (selected chapters)			-	City of Sibenik library
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Teaching materials from lectures and seminars on the e-Learning system of the Polytechnic of Sibenik for the mentioned course. Zelenika R.: Transport Systems, University of Rijeka, Faculty of Economics, Rijeka, 2001. Zelenika R.: Transport and freight forwarding business, University of Rijeka, Faculty of Economics, Rijeka, 2001. Logistics www.logistika.com.hr				e-learning system City of Sibenik library City of Sibenik library Internet website
5.3. Quality assurance methods that ensure the	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and				

<p>acquisition of knowledge, skills and competences</p>	<p>homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.</p>
<p>5.4. Informing about the course and contacting the course lecturer</p>	<p>It is the responsibility of each student to be regularly informed about the course, the coursework, and classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).</p>

1. GENERAL INFORMATION			
1.1. Course title	Transshipment resources I	1.8. Course code at ISVU	187602
1.2. Course lecturer	Ana-Mari Poljičak	1.9. Course code at MOZVAG	
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+30+30+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4.
1.6. Year of study	2 nd	1.13. Modernization	X Yes <input type="checkbox"/> No
1.7. Credit point (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	<p>The goal is to provide students with theoretical knowledge:</p> <ul style="list-style-type: none"> • Distinguish between types of transshipment resources; • Understand the principle of continuous operation of transshipment machinery and set an example for application in business practice; • Calculate the efficiency of uninterrupted handling equipment; • Learn how to choose uninterrupted handling equipment based on the type of goods.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the HKO.
2.3. Learning outcomes on the study programme level	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in Croatian and English.
	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.
	LO3: Independently and responsibly search, interpret and integrate relevant literature needed to reach conclusions.
	LO4: Apply knowledge of natural and technical sciences to problems in the field of road transport.

	LO6: Analyze and interpret relevant road transport facts needed to reach conclusions.	
	LO10: Compare and select technical and technological solutions for traffic and / or goods flows.	
2.4. Expected learning outcomes on the course level	Learning outcomes according to Bloom's taxonomy:	
		Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 – synthesis.
	1. state the division of goods according to the technical suitability for transport and transshipment and list the physical and technical characteristics of the goods,	1
	2. to sketch and comment on continuous operation transshipments,	3, 4
	3. calculate the productivity of individual continuous-action transshipment means,	4
4. recommend loading and unloading means depending on the type of goods and productivity.	5	

2.5. Course content according to detailed curriculum schedule	Constructive alignment					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	119.	Introduction into the course and detailed plan.	-	They listen to a lecture. During the individual work on the computer, they are introduced to the course content and documents on the e-learning page of the course.	-	1 h
	Basics of transverse mechanization.	1	Listen to lectures and read literature. In seminar classes, they are introduced to the methodology of writing seminar papers. They choose the topic of seminar papers. The brainstorming method and the method	At the colloquium or the written and oral exam they indicate the types of transshipment according to the degree of mechanization and automation. They state the division of goods	7 h	

				of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they repeat the units and formulas needed to calculate the productivity of the handling equipment.	according to the technical suitability for transport and transshipment and state the physical and technical characteristics of the goods. They define and sketch the bulk angle. They list the types of continuous handling machine productivity.	
	120.	Belt conveyors. Band conveyor belts.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral examination know enumerate characteristics and sketch the belt conveyor and explain its components. Give an example application. List and explain the types of tape belt conveyors. Specify and sketch the shape of the carrier surfaces of the conveyor belts. They know how to calculate the productivity of belt conveyors.	10 h
	121.	Drums and rollers of belt conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral examination know enumerate and explain the role of drums. Sketch the conveyor belt drive with one, two and three drive drums. List and sketch the types of rollers by design and shape. They know how to calculate the productivity of belt conveyors.	10 h

	122.	Devices for loading and unloading.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral examination know state, outline and explain the role of loading-unloading device. Seminar paper created (presented by computer programs). They know how to calculate the required belt width for a belt conveyor. They know how to calculate the productivity of belt conveyors.	9 h
	123.	Screw conveyors.	2, 3, 4	They listen to a lecture. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral exam knows outline and explain the role of screw conveyors, and state its advantages and disadvantages. Give an example application. They know how to calculate the productivity of belt conveyors	8 h
	124.	Screw conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are	At the colloquium or written and oral examination know enumerate and outline the forms of screw transporters and specify for which type of materials are used. Sketch and explain the principle of operation of the worm conveyor for piece goods. Seminar paper created (presented by computer	7 h

				applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	programs). Do they calculate the productivity of screw conveyors.	
	125.	Elevators. Colloquium I.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or the written and oral exam they can define the elevators and specify and explain the types of elevators. Sketch and explain the principle of operation of the elevator. List and sketch the types of buckets and elements for the transfer of piece goods. They know how to calculate the productivity of an elevator.	8 h
	126.	Pneumatic conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral exam knows specify types of pneumatic conveyors, outline and explain their working principle. Seminar paper created (presented by computer programs). They know how to calculate the productivity of pneumatic conveyors.	8 h
	127.	Sectional conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by	At the colloquium or the written and oral examination they can state the characteristics of the sectional	8 h

				searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	conveyors and sketch and explain their working principle. Seminar paper created (presented by computer programs). They know how to calculate the productivity of sectional conveyors.	
	128.	Vibrating conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or the written and oral exam they can state the characteristics of oscillatory conveyors, explain their working principle and sketch them. Seminar paper created (presented by computer programs). They know how to calculate the productivity of vibrating conveyors.	9 h
	129.	Vibrating conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the	The colloquium or written and oral exam knows specify characteristics of vibratory conveyors, to explain their working principle and sketch them. Seminar paper created (presented by computer programs). They know how to calculate the productivity of vibrating conveyors.	9 h

				productivity of the conveyor by analytical methods.		
	130.	Gravity conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or the written and oral exam they can define gravity conveyors, explain the principle of operation and state their advantages and disadvantages. Explain the principle of operation of a straight gravity slide and sketch it. Seminar paper created (presented by computer programs). They know how to calculate the productivity of gravity conveyors.	8 h
	131.	Gravity conveyors.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or the written and oral exam they can explain the principle of work of the gravity slider, indicate the performances and sketch them. Indicate the types of gravity rollers and explain their working principle. Give an example application. Seminar paper created (presented by computer programs). They know how to calculate the productivity of gravity conveyors.	8 h
	132.	Conveyors scrapers. Colloquium II.	2, 3, 4	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this thematic area by searching the database, and on the basis of it and the read literature, create a seminar	The colloquium or written and oral examination know explain the working principle and sketch conveyor scraper. Give an example application. Explain what redlers are. They know how to	8 h

			paper that presents the acquired knowledge. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching. In the exercise classes, they calculate the productivity of the conveyor by analytical methods.	calculate the productivity of a scraper conveyor.	
	133.	Concluding considerations. Repeating and preparing for the exam.	They listen to a lecture and prepare individually for the exam.	-	32 h

3. EVALUATION OF STUDENT WORK

3.1. Students` obligations	<p>In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar paper. Students who have achieved during the course:</p> <ul style="list-style-type: none"> • From 0 - 24.9% of ECTS credits - they are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next academic year; • From 25-49.9% - are assessed by FX (insufficient) and must pass and pass the written exam (test). Written exam (test) can be held in regular or extraordinary exam period; • More than 50% - students have the right to take the final exam. <p>Writing a seminar paper is a prerequisite for obtaining a signature. Students can take the final exam in the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and two colloquium); b) during class (active participation in class and passing exams (written and oral part of the exam)).</p>				
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit	Attendance		Written exam	3 (without colloquia)	Project
	Experimental work		Research		Practical work
	Essay		Report		Continuous examination
	Colloquium	3 (without written exam)	Seminar paper	0,5	Other
					1

score of the course)	Class activity	0,5	Oral exam	1(without colloquia)	Other	
3.3. Student workload	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:					
	Obligation			Hours (estimated)		
	14. Active class attendance			90		
15. Preparing colloquia or exams through individual work			60			
4. FORMATION OF GRADES						
4.1. Grading of seminar work	Element of evaluation	Bad		Satisfying		Above average
	Organization	The paper is not organized in a logical order and lacks structure.		The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.		The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.
	Terminology, writing style	Words and expressions low in line with official terminology. The writing style is not appropriate, the sentences are too long, of a modest vocabulary and with frequent and repeated grammatical errors.		Words and expressions are in line with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and there are few grammatical errors.		Words and expressions are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.
	Citing and referencing references	The sources are not listed at all. The references do not fit the topic and show a cursory approach to exploring the topic.		The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.		The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.
4.2. Grading of the colloquium / written and oral exam	Bad		Satisfying		Above average	

	It responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.	It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.	Knowledge is at the level of analysis, synthesis and evaluation. It observes the legality, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.			
4.3. Forming the final grade according to the evaluation elements	Active attendance	70-75% of the presence	76-86% of the presence	87-100% of the presence	Case studies resolved	
		2 points	4 points	7 points	10 points	
	Seminar paper	2	3	4	5	
		5 points	7 points	8 points	10 points	
	Examination / Written examination	2	3	4	5	
		50-64,9%	65-79,9%	80-89,9%	90-100%	
		25 points	30 points	35 points	40 points	
	Oral part of the exam	2	3	4	5	
25 points		30 points	35 points	40 points		
4.4. Formation of final grade based on absolute distribution	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Number rating		ECTS grade	
	90 – 100%		5 (excellent)		A	
	80 – 89,9%		4 (very good)		B	
	65 – 79,9%		3 (good)		C	
	60 – 64,9%		2 (sufficient)		D	
50 – 59,9%		2 (sufficient)		E		
5. ADDITIONAL INFORMATION ON THE SUBJECT						
5.1. Required literature (available in the library)	Title			Number of copies in the library	Availability via other media	

and through other media)	7. Mavrin I. : Transporteri, Fpz, Zagreb, 1999.	-	
	8. Bognolo, D., Kršulja, M.: Prekrcajna sredstva, Zbirka riješenih zadataka, Veleučilište u Rijeci, Rijeka 2017. (selected chapters)	3	
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	19. Ljubetić J. : Prekrcajna sredstva s neprekidnim djelovanjem – Zbirka slika i tablica, Rijeka, 2002. 20. Šćap D.: Prenosila i dizala, FSB, Zagreb, 2004.	- -	Available online
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the classroom and information obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employment status of students, employer survey and Alumni Association.		
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).		

1. GENERAL INFORMATION			
1.1. Course title	Transshipment resources II	1.8. Course code at ISVU	140776
1.2. Course lecturer	Ana-Mari Poljičak	1.9. Course code at MOZVAG	
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4.
1.6. Year of study	2 nd	1.13. Modernization	X Yes <input type="checkbox"/> No
1.7. Credit point (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	<p>The goal is to provide students with theoretical knowledge:</p> <ul style="list-style-type: none"> • Describe and distinguish between basic features and performance of transshipment mechanization with periodically action; • Understand the application and purpose of transshipment mechanization with periodically action; • Apply the learned content of this course in business practice.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the HKO.
2.3. Learning outcomes on the study programme level	<p>LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in Croatian and English.</p> <p>LO4: Apply knowledge of natural and technical sciences to problems in the field of road transport.</p> <p>LO10: Compare and select technical and technological solutions for traffic and / or goods flows.</p>

2.4. Expected learning outcomes on the course level	Learning outcomes according to Bloom's taxonomy: (maximum 2 verbs for LO)		Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 – synthesis.
	1. sketch and select the required elements of the crane,		4, 3
	2. distinguish and propose types of cranes with regard to the scope,		2, 6
	3. calculate the productivity of transshipment mechanization with periodically action,		3
	4. define and calculate the number of pallets and containers required.		1, 3

	Constructive alignment					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
2.5. Course content according to detailed curriculum schedule	134.	Introduction into the course and detailed plan.	-	They listen to a lecture. During the individual work on the computer, they are introduced to the course content and documents on the e-learning page of the course.	-	1 h
		Crane operating class.	2, 3	They listen to a lecture and read literature. In the exercise classes, they are introduced to the calculation of the productivity of transshipment mechanization with periodically action and to calculate the productivity by the analytical method.	At the colloquium or the written and oral they can state and explain the crane classes and calculate theoretical and exploitative productivity.	2 h
	135.	Crane elements.	1, 2, 3	They listen to a lecture and read literature. In the exercise classes, they solve numerical tasks and determine the classes of cranes by	At the colloquium or written and oral examination knows enumerate, differentiate and sketch elements of	3 h

				analytical method.	cranes, and identify a class of cranes.	
	136.	Ropes and steel ropes.	1, 3	They listen to a lecture and read literature. In the teaching of exercises, they solve numerical tasks by analytical method, which determine the parameters for classifying cranes.	At the colloquium or written and oral examination knows list and describe the types of ropes and choose the rope they need. List and explain ways of fixing steel ropes. Calculate the parameters for classifying cranes.	3 h
	137.	Hooks.	1, 3	They listen to a lecture and read literature. In the teaching of exercises, they solve numerical tasks for the hydraulic crane using the analytical method.	At the colloquium or the written and oral exam they can state, describe and sketch the types of hook, calculate the dangerous cross-section of the hook and calculate the required pressure in the cylinder of the hydraulic crane.	3 h
	138.	Chain. Grippers.	1, 3	They listen to a lecture and read literature. In the teaching of exercises, they solve numerical tasks for the hydraulic crane using the analytical method.	At the colloquium or written and oral examination know state, explain, outline the types of chains and give a practical example. They know how to list, describe and sketch types of catchers and give practical examples. Calculate the required force at the end of the drive lever and the piston diameter.	3 h
	139.	Pulleys.	1, 3	They listen to a lecture and read literature. In the exercise classes, they solve numerical tasks for manipulative vehicles by analytical method.	At the colloquium or the written and oral exam they can explain the task of the pulley, specify the types of pulley, sketch the performances of the pulley in practice, and calculate the load capacity of the forklift, the pressure in the cylinder and the lifting time.	4 h

	140.	Repetition and preparation for the colloquium. Colloquium I.	1, 2, 3	They listen to a lecture and read literature. They prepare individually for the colloquium.	-	22 h
	141.	Brakes.	1, 3	They listen to a lecture and read literature. In the exercise classes, they solve numerical tasks for manipulative vehicles by analytical method.	At the colloquium or the written and oral exam they can explain the task of the brakes, indicate the types and give an example from practice. Sketch and explain two- and one-pedal brakes. Calculate cylinder pressure and lifting time of forklift truck.	4 h
	142.	Brakes.	1, 3	They listen to a lecture and read literature. In the teaching of exercises, they solve numerical tasks with the use of pallets by analytical method.	At the colloquium or written and oral exam knows outline and explain conical, belt and lamellar brakes. Calculate the required number of flat pallets.	3 h
	143.	Division of the crane. Design of small cranes.	1, 2, 3, 4	They listen to a lecture and read literature. In the teaching of exercises, they solve numerical tasks with the use of pallets by analytical method.	At the colloquium or written and oral examination know indicate small and large cranes. Sketch and explain small cranes and give practical examples. Calculate how much goods can stack on a flat pallet.	4 h
	144.	Large cranes.	1, 2, 3, 4	They listen to a lecture and read literature. In the teaching of exercises, they solve numerical tasks with the use of pallets by analytical method.	They can group large cranes at a colloquium or a written and oral exam. Sketch and explain large cranes. Explain the difference between borders and cranes. Give an example from practice. Calculate the required number of box pallets and how many goods are in the box pallets.	5 h
	145.	Universal manipulative	4	They listen to a lecture and read literature.	The colloquium or written and oral	3 h

		vehicles. Forklifts, loaders and small towing vehicles.		In the teaching of exercises, they solve numerical tasks with the use of containers by analytical method.	exam knows specify and define universal manipulative vehicles. Give the forklift division and give an example from practice. Explain loaders, enumerate and describe small towing vehicles and give practical examples. Calculate the number of containers required.	
	146.	Pallets and containers.	4	They listen to a lecture and read literature. In the teaching of exercises, they solve numerical tasks with the use of containers by analytical method.	At the colloquium or the written and oral exam they can define and list the types of pallets and containers and give practical examples. Calculate container control number.	3 h
	147.	Repetition and preparation for the colloquium. Colloquium II.	1, 2, 3, 4	They listen to a lecture and read literature. They prepare individually for the colloquium.	-	22 h
	148.	Concluding considerations. Repeating and preparing for the exam.		They listen to a lecture and prepare individually for the exam.	-	35 h

3. EVALUATION OF STUDENT WORK

3.1. Students` obligations	<p>In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar paper. Students who have achieved during the course:</p> <ul style="list-style-type: none"> • From 0 - 24.9% of ECTS credits - they are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next academic year; • From 25-49.9% - are assessed by FX (insufficient) and must pass and pass the written exam (test). Written exam (test) can be held in regular or extraordinary exam period; • More than 50% - students have the right to take the final exam. <p>Students can take the final exam in the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and two colloquium); b) during class (active participation in class and passing exams (written and oral part of the</p>
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	exam).					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance		Written exam	3 (without colloquia)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	3 (without written exam)	Seminar paper		Other	
	Class activity	0,5	Oral exam	0,5 (without colloquia)	Other	
3.3. Student workload	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:					
	Obligation			Hours (estimated)		
	16. Active class attendance			45		
17. Preparing colloquia or exams through individual work			75			
4. FORMATION OF GRADES						
4.1. Grading of seminar work	-					
4.2. Grading of the colloquium / written and oral exam	Bad		Satisfying		Above average	
	It responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		Knowledge is at the level of analysis, synthesis and evaluation. It observes the legality, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.	
4.3. Forming the final	Active attendance	70-75% of the	76-86% of the presence		87-100% of the presence	Case studies resolved

grade according to the evaluation elements	presence	2 points	4 points	7 points	10 points
		2	3	4	5
	Examination / Written examination	50-64,9%	65-79,9%	80-89,9%	90-100%
		25 points	30 points	35 points	40 points
	Oral part of the exam	2	3	4	5
		25 points	30 points	35 points	40 points
4.4. Formation of final grade based on absolute distribution	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Number rating	ECTS grade	
	90 – 100%		5 (excellent)	A	
	80 – 89,9%		4 (very good)	B	
	65 – 79,9%		3 (good)	C	
	60 – 64,9%		2 (sufficient)	D	
	50 – 59,9%		2 (sufficient)	E	
5. ADDITIONAL INFORMATION ON THE SUBJECT					
5.1. Required literature (available in the library and through other media)	Title			Number of copies in the library	Availability via other media
	9. Šćap D.: Prenosila i dizala, FSB, Zagreb, 2004. (selected chapters)			-	Available online
	10. Boris Ribarić: Primjeri riješenih zadataka iz predmeta pretovarna mehanizacija, Fakultet prometnih znanosti, Zagreb, 1994. (selected chapters)			-	
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	21. Serdar J.: Prenosila i dizala, Leksikografski zavod "M. Krleža", Zagreb, 1995.			5	Available online

<p>5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences</p>	<p>Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the classroom and information obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employment status of students, employer survey and Alumni Association.</p>
<p>5.4. Informing about the course and contacting the teacher</p>	<p>It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).</p>

1. GENERAL INFORMATION ABOUT THE SUBJECT			
1.1. Name of the course	Economics of traffic	1.8. ISVU course code	P-213
1.2. Lecturer	Dijana Mečev	1.9. MOZVAG course code	
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+0+15+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1st, 2nd, 3rd level), percentage of on line course performance (max. 20%)	1 st level – materials available on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1
1.6. Study year	2 nd	1.13. Modernization	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% <input checked="" type="checkbox"/> More than 20 % <input type="checkbox"/>

2. COURSE DESCRIPTION	
2.1. Course objectives	The main objective of the course is to provide students with the skills and abilities to understand main economic relationships and processes in the transport system.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the CROQF.
2.3. Learning outcomes on the study programme level	LO2: To organize and implement team work, and critically judge the opinions and attitudes of team members. LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions. LO5: To apply basic legal and economic principles in organization with socially responsible management in technical-technological subjects.
2.4. Expected learning outcomes on the course level	<p>Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)</p> <p>LO Level: 14. <i>Recapture,</i> 15. <i>Understanding,</i> 16. <i>Application,</i> 17. <i>Analysis,</i> 18. <i>Evaluation,</i></p>

					<i>Synthesis</i>	
	– To explain the basic features of transport economics and the transport market from a macro point of view				2	
	– To explain the basic features of transport economics and the transport market from a micro point of view				2	
	– To relate the incurrence of transport costs, prices of transport services and performance indicators of transport companies				3	
	– To develop a seminar paper in which the business operations of the transport industry are elaborated				3	
2.5. Course content according to detailed curriculum schedule	Constructive alignment					
	no.	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed
		Introduction into the course and detailed plan.	-	Listen to the lecture. By independent work on the computer students get acquainted with course content and documents on the e-learning course page.	-	1 h
	149.	Characteristics of transport economics and transport market.	1, 2	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams students can: define and describe the basic concepts of transport economics; explain the characteristics of the transport market; differentiate transport need from transport service; give examples of complementarity and competitiveness of the transport branches.	2 h
	150.	Economic sense and practical importance of transport division	1,2	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and	In colloquium or written and oral exams students can enumerate the main factors and criteria for the division of transport. They can explain how transport affects division of labor and specialization. They can use critical thinking to explain the importance of accessibility of transport	4 h

				ideas, discuss issues.	services.	
	151.	The role and impact of transport on economic development	1,2	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams students can explain the role of transport in the circulation in macroeconomics. They can explain how traffic affects production and how it functionally links factors of production.	4 h
	152.	Creating revenues from transport services and the impact of prices on the demand for transport services	1, 5	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams students can explain the value structure of the transportation service. They know how to analyze the price / demand ratio for transportation. They know how to sketch and explain the curve of total income.	4 h
	153.	Transport cost analysis.	2,3, 4	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams they can explain main transport costs. They differentiate costs with respect to capacity utilization. They know how to calculate the selling price of a transport service.	4 h
	154.	Transport infrastructure costs.	2,3	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of	In colloquium or written and oral exams they are able to define the characteristics of transport infrastructure. They know how to list and explain major revenue instruments for financing road	4 h

				previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	infrastructure. They know how to list and explain the main sources of revenue for road construction.	
	155.	Tariffs and tariff systems.	2,3	Listen to the lecture and read the literature. Use multimedia and network. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams they can define the term tariffs in transport. They can define and explain factors that affect the amount and ormination of tariffs.	6 h
	156.	Business Performance Criteria (1).	2,3,4	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams they know how to calculate and interpret net profit margins, ROA, ROE.	6 h
	157.	Business Performance Criteria (2).	2,3,4	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams they know how to calculate and interpret productivity and economy performance indicators.	6 h
158.	Transport Services Market	1,2	Listen to the lecture and read the literature. Use multimedia and	In colloquium or written and oral exams	4 h	

				network. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	they know how to define supply / demand of transport services. They are able to explain specifics of the transport services market.	
	159.	Consumer and manufacturer behavior.	1, 2	Listen to the lecture and read the literature. Use multimedia and network. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams they know how to explain <i>manufacturers' behavior</i> , based on the principle of profit maximization. They know how to explain customers behavior based on the principle of <i>benefit maximization</i> .	4 h
	160.	Market structures (1)	1,2	Listen to the lecture and read the literature. Use multimedia and network. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams they can define perfect competition. They can define and explain market failures. They know how to define a monopoly and explain the reasons why it occurs. They are able to distinguish between monopoly and perfect competition.	4 h
	161.	Market structures (2)	1,2	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and	In colloquium or written and oral exams they can define oligopoly and explain how it occurs. They can define monopolistic competition. They are able to distinguish between perfect and monopolistic competition.	4 h

				presenting adopted knowledge and ideas, discuss issues.		
	162.	Economic policy and the market.	2,5,6	Listen to the lecture and read the literature. Discuss issues. At the seminar student individually or in pairs solve case studies thus presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams they can state and explain the most common measures of transport regulation.	3 h
	163.	Concluding Considerations / Repeating and Preparing for Exam.		Concluding Considerations / Repeating and Preparing for Exam.		30 h

3. EVALUATION OF STUDENT WORK

3.1. Students` obligations	<p>In accordance with the Book of Rules and the Rulebook on Student Assessment and Evaluation: for all regular students attend at least 70% attendance. Part-time students have the obligation to attend at least 50% of lectures. All students must create, present and positively colloquium seminar paper. Students who have during the course achieved:</p> <ul style="list-style-type: none"> • From 0 – 24,9% ECTS credits- is rated F (unsuccessful) and cannot get ECTS credits and must re-enrol the subject in the next academic year; • From 25 – 49,9% ECTS credits - is rated FX (inadequate) and has to come out and pass the test (exam). A written exam can be held in a regular or extraordinary exam period; • More than 50% ECTS credits - students have the right to access the final exam of the subject. <p>Students can pass the final exam in two ways: a) during the course through continuous student attendance (active participation in the lessons, solving case studies, making and presenting the seminar paper and passing two colloquia); b) during the course (active participation in the lessons, solving case studies, creating and presenting the seminar paper) and passing the exam (written and oral exam).</p>					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total	Attendance		Written exam	2 (by submitting both colloquiums the student is relieved of an written examination)	Project	

number of ECTS points corresponds to the credit score of the course)	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	2 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper	0,5		
	Class activities	0,5	Oral exam	1 (by submitting both colloquiums the student is relieved of an oral examination)		

3.3. Student workload	The student's workload on all bases amounts to 1 ECTS point for 30 hours of work per semester and is estimated as:					
	<i>Commitment</i>			<i>Hours (estimate)</i>		
	18. Attending classes			45		
	19. Creating and Presenting seminar paper			10		
20. Preparation for the Colloquium / exam through self-study			35			

4. GRADING

4.1. Seminar paper grading	Valuation Element	Poor	Satisfying	Above average
	Organization	The paper is not organized in a logical order and its structure is lacking.	The paper is well structured with a clear distinction between the introduction, the main part of the text and the conclusion.	The paper is well-structured with a clear distinction between the introduction, the main part of the text and the conclusions that are perfectly logically linked to one another
	Terminology, writing style	Words and phrases are low harmonized with official terminology. Writing style is not appropriate, sentences are too long, modest vocabulary, and frequent	Words and phrases are aligned with official terminology. The writing style is appropriate, the sentence structure is clear, the vocabulary is appropriate and has little	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the

		and repeated grammatical mistakes.	grammatical errors.	vocabulary is rich and there are no grammatical errors.		
	Quoting and referencing	Sources are not specified at all. The references do not match the topic and show a superficial approach to the research topic.	Sources are listed, but incomplete and with errors. The references are appropriate for the subject and show a satisfactory research attitude.	Sources are accurate, complete and consistent. The references are appropriate, their list is "rich" and comprehensive and shows a robust research approach.		
4.2. Colloquium / exam grading	Poor		Satisfying		Above average	
	Give answer by memory, no deeper understanding. Does not know and does not apply the basic terms and concepts. Cannot apply or explain the contents of the course.		Reproduces basic terms, without difficulty transfers new knowledge, understands subject matter, explains the terms and the notions that substantiate by examples.		Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.	
4.3. Creating a final grade according to evaluation elements	Active participation in the lessons	70-75% of attendance	76-86% of attendance	87-100% of attendance	Solved case study.	
		2 points	4 points	7 points	3 points	
	Seminar paper	2	3	4	5	
		5 points	7 points	8 points	10 points	
	Colloquium / written exam	2	3	4	5	
		50-64,9%	65-79,9%	80-89,9%	90-100%	
		25 points	30 points	35 points	40 points	
	Oral exam	2	3	5	5	
25 points		30 points	35 points	40 points		
4.4. Creating a final grade according to absolute	Percentage of adopted knowledge, skills and competences (teaching + final exam)		Numerous grade		ECTS grade	

allocation	90 – 100%	5 (excellent)	A
	80 – 89,9%	4 (very good)	B
	65 – 79,9%	3 (good)	C
	60 – 64,9%	2 (sufficient)	D
	50 – 59,9%	2 (sufficient)	E
5. ADDITIONAL INFORMATION ABOUT THE COURSE			
5.1. Compulsory literature (available in the library and through other media)	Title	Number of copies in the library	Availability via other media
	11. Bukljaš Skočibušić M., Radačić Ž., Jurčević M. (2011). „Ekonomika prometa.“ Fakultet prometnih znanosti Sveučilišta u Zagrebu, Zagreb. (selected chapters) 12. Perić T., Radačić Ž., Šimulčik D. (2000). „Ekonomika prometnog sustava.“ Prometni fakultet Sveučilišta u Zagrebu, Zagreb. (selected chapters)	4 2	
5.2. Additional literature (at the moment of changes and/or amended of study programme)	1. Baričević, H. (2003). „Promet i turizam.“ VŠTM, Šibenik.	24	
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. Information on the course and contact with the teacher	It is obligatory for every student to regularly inform about the course, teaching and teaching activities. All information about teaching or any delay in teaching will be published on the e-learning pages of the course and on the web pages of the Polytechnic. Students can contact the teachers during the consultation term (at least one hour per week), while brief questions and explanations can be addressed during classes. It is possible to ask questions by e-mail (from the official e-mail address from the domain @vus.hr) that will be answered in a short time (no later than five working days from the receipt of e-mail).		

4. GENERAL INFORMATION			
1.1. Course lecturer	Ivana Beljo	1.8. Course code in ISVU	140769
1.2. Course title	Operational research in traffic	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	Želimir Mikulić	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	2
1.6. Year of study	2 nd	1.14. Modernization	Yes
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X <input type="checkbox"/> More than 20 % <input type="checkbox"/>
2. COURSE DESCRIPTION			
2.1. Course objectives	Getting acquainted with the various types of problems that arise in business decision making. Adopting knowledge and skills of the analytical way of thinking, and the logical way of concluding and interpreting the results in further education. The aim of the course is to familiarize and teach students how to use the methods in order to solve certain problems in business decision making and to use methods for optimizing such problems.		
2.2. Terms of course entry and required competences	4 year secondary education completed; qualification level 4.2 according to the CROQF.		
2.3. Learning outcomes on the study programme level	LO 1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English, LO 4: To apply knowledge from the field of natural and technical sciences to problems in road traffic, LO 7: To apply computer tools for analysis and comparison of data, and suggest an optimal solution in traffic process, LO 8: To solve problems in traffic by using analytical and / or graphical methods.		

2.4. Expected learning outcomes on the course level	Learning outcomes according to the Bloom`s taxonomy: (up to two verbs per LO)				Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis	
	26. to formulate the problem from practice as a suitable mathematical model				4	
	27. to solve optimization problem with graphical method				4	
	28. to apply computer tools for solving linear programming problem and to recommend optimal solution,				3, 5	
	29. to choose the appropriate algorithm and to solve network problems,				3, 4	
	30. to apply critical path method in the project management.				3, 4	
2.5. Course content according to detailed curriculum schedule	Constructive allignement					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	164.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	2 h
	165.	Linear Programming Problems	1,3	Listen to lectures and read literature. Work independently on a computer solve tasks.The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to model the problem of linear programming and to solve the problem of linear programming using the Solver and recommend the optimal solution.	4 h
166.	Linear Programming Problems. Graphical solution	1, 2	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to model a linear programming problem and sketch a graph and solve an optimization problem.	3 h	

	167.	Simplex Method. Sensitivity Analysis, Postoptimality Analysis, Shadow prices. Modeling Integers	1, 2, 3	Listen to lectures and read literature. Work independently on a computer solve tasks. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to model the linear programming problem and solve the problem with the simplex method.	3 h
	168.	The Transportation Problem.	1, 2, 3	Listen to lectures and read literature. Work independently on a computer solve tasks. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to define and describe the transport problem, distinguish between open and closed transport problem., and set the model.	3 h
	169.	Northwest corner rule, Minimum prices method, Vogel's approximation method, Russel's approximation method	1, 2	Write the colloquium.	In colloquium or written and oral exams students know how to solve the transportation problem using the northwest corner rule, minimum prices method, and Vogel's and Russel's approximation methods.	3 h
	170.	Method for the Transportation Problem, The Assignment Problem.	1, 2, 3	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	Na kolokviju ili pismenom i usmenom ispitu znaju riješiti transportni problem i problem asignacije. In colloquium or written and oral exams students know how to solve the transport problem and the assignment problem.	3 h
	171.	Revision for colloquium. Colloquium. Network.	1, 2, 3, 4	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	-	20 h
	172.	Network and Graph, Network optimization Models. The Shortest-Path Problem, The	4	Listen to lectures and read literature. The exercises demonstrate how to solve	In colloquium or written and oral exams students know how to define and describe networks, graphs, and network resolution	4 h

		Minimum Spanning Tree Problem		tasks. Solve exercises.	methods, and use the appropriate algorithm to solve the minimum spanning tree and shortest path problem.	
	173.	The Maximum Flow Problem, The Minimum Cost Flow Problem	4	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to solve the problem of maximum flow and minimum cost flow using an appropriate algorithm.	3 h
	174.	Project management with PERT/CPM.	4, 5	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to apply the critical path method in project management.	4 h
	175.	Dynamic Programming.	5	Listen to lectures and read literature. Work independently on a computer solve tasks. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to describe the application of dynamic programming to solve optimization problems.	2 h
	176.	Stochastic Dynamic Programming.	5	Listen to lectures and read literature. Work independently on a computer solve tasks. The exercises demonstrate how to solve tasks. Solve exercises.	In colloquium or written and oral exams students know how to describe the application of stochastic dynamic programming to solve optimization problems.	2 h
	177.	Approach to Problem Analysis, The Model Selection Criteria and Method of Solving Problems. Revision for colloquium. Colloquium.	4, 5	Write the colloquium.	-	20 h
	178.	Revision	-	Listen to lectures and read literature.	-	20 h

3. EVALUATION OF STUDENTS' WORK						
3.1. Students' obligations	<p>In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. Part-time students are required to attend classes at least 50%. All students are required to carry calculator and formulae list. Students who have during the course achieved:</p> <ul style="list-style-type: none"> • from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enroll in the next academic year; • from 25 - 49,9% - are assessed by FX (insufficient) and must pass the written exam (test). Written exam (test) can be held in a regular or extraordinary exam period; • more than 50% - students have the right to take the final exam. <p>Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through two colloquia); b) by passing the exam (written and oral part of the exam).</p>					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance	0,5	Written exam	2 (without colloquia)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	0,5
	Colloquium	2 (without written exam)	Seminar paper		Other	
	Class activity	0,5	Oral exam	0,5	Other	
3.3. Student workload	<p>Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as:</p> <ol style="list-style-type: none"> 7. Attending classes and exercises 45 hours 8. Preparing colloquia or exams through individual work 65 hours 					
4. GRADING SYSTEM						
4.1. Grading seminar papers						

4.2. Grading colloquia/ written and oral exam	Unsatisfactory		Satisfactory		Above average	
	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.		Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.		Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.	
4.3. Final grade according to evaluation elements	Active course attendance	70-74,9% of attendance	75-79,9% of attendance	80-89,9% of attendance	90-100% of attendance	
		2 points	5 points	10 points	20 points	
	Colloquia/ Written exam	2	3	4	5	
		50-64,9%	65-79,9%	80-89,9%	90-100%	
	Oral exam	25 points	30 points	35 points	40 points	
		2	3	5	5	
4.3. Final grade according to absolute division	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Numerical grade		ECTS grade	
	90 – 100%		5 (excellent)		A	
	80 – 89,9%		4 (very good)		B	
	65 – 79,9%		3 (good)		C	
	60 – 64,9%		2 (satisfactory)		D	
	50 – 59,9%		2 (satisfactory)		E	
5. ADDITIONAL COURSE INFORMATION						
5.1. Compulsory literature (available in the library and via other media)	Title				Number of copies in the library	Availability via other media
	Pašagić, H., Ivanković, B., Kapetanović, N., Matematičke metode u prometu, Zagreb, 2004.				3	

	(selected chapters) Lukač Z., Neralić L. :Operacijska istraživanja, Element 2013. (selected chapters)		
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Neralić, L., Uvod u matematičko programiranje 1, Zagreb, 2012. (selected chapters) Hillier F., Lieberman G. : Introduction to operations Research, McGraw Hill 8th ed. 2005, 8th Ed. (selected chapters)		
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).		

5. GENERAL INFORMATION			
1.1. Course lecturer	Ivana Kardum Goleš	1.8. Course code in ISVU	187599
1.2. Course title	English language II	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	Assistant	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1
1.6. Year of study	1 st	1.13. Modernization	Yes
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X <input type="checkbox"/> More than 20 % <input type="checkbox"/>
2. COURSE DESCRIPTION			
2.1. Course objectives	The aim of the course is to expand the vocabulary related to road and postal traffic as well as predicted grammatical structures that include tenses, the adjective comparison, adverbs, modal verbs, transformation of direct into reported speech in the present. The aim is also to expand the vocabulary related to traffic, while exercises determine and practice grammar and new vocabulary. Another goal of the course is to write different kinds of business letters. By attending a foreign language classes, students are introduced with new communication systems, enabling their easier and more direct involvement in world events and getting acquainted with the elements of English culture and civilization of the English speaking world. Learning a foreign language is in line with the aspiration to preserve the richness of the diversity of multi-faceted Europe as well as with fostering the development of the culture of dialogue and civilization.		
2.2. Terms of course entry and required competences	Completed course English language I		
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions		

	Learning outcomes according to the Bloom`s taxonomy: (up to two verbs per LO)				Level of LO: 1- remembering, 2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis	
	31. to understand and apply basic terms from the professional terminology of English road traffic in English				2, 3	
	32. to apply grammatical structures in texts and assignments				3	
	33. to interpret and use tenses in real-life context				3, 4	
	34. to develop an essay within the topics of the course				5, 6	
	35. to present own ideas for development of traffic problems				3	
	36. to communicate in a foreign language within the subjects of the course, to express one own opinions				6	
	37. to compare and evaluate different traffic solutions				5	
	38. to analyse medium complex texts and solve tasks				4	
	39. to use part of the general language competency at levels B1				6	
2.5. Course content according to detailed curriculum schedule	Constructive allignement					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	179.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	2 h
180.	CARS` ANATOMY - Adjectives and their formation	1, 2, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, understand, apply and link terms from the professional terminology of English road traffic and use them in written and oral	4 h	

					communication verb tenses are interpreted in a real linguistic context, use part of other language competences at B1 level.	
	181.	MANAGEMENT IN TRAFFIC - Adverbs and their formation	1, 2, 3, 4, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	182.	In the train – expressing present	1,2, 3, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve	4 h

					tasks, use part of other language competences at B1 level.	
	183.	MODERN TRANSPORTATION (HYDROFOILS) – Modal verbs	1, 2,3, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	184.	RAIL TRAFFIC IN EUROPE – Expressing habit	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h

	185.	Traffic in the USA – Tenses	1,2, 3, 5, 6, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	186.	Traffic for tomorrow – Tenses, Kolokvij	1, 2, 3, 5, 6, 9	Listen to lectures and take part in discussion. Write the colloquium.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h
	187.	Hovercraft – Indirect speech	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on	6 h

					texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	188.	Magnetic levitation trains – Personal and reflexive pronouns	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises. Discuss.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	189.	Steam engine cars – Future tenses	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context,	10 h

					can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	190.	Post office and their role in the progress of mankind – Future tenses	1,2, 3, 4, 5, 6, 7, 8, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h
	191.	Climate changes and telecommunication	1,2, 3,4, 5, 6, 7, 8, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own	4 h

				their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	192.	Sattellites	1,2, 3,4, 5, 6, 7, 8, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	193.	Revision – II Kolokvij	1, 2, 3, 4,5, 6, 7, 8, 9	Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions	10 h

					to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
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3. EVALUATION OF STUDENTS' WORK

3.1. Students' obligations	In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70% is required. Part-time students are required to attend classes at least 50%.The students' acquired knowledge is tested during the course classes. Special consideration is given to the student's evaluation during the course of the teaching process, with particular attention being paid to the student's active participation in teaching as well as his/her presentation of the written work that the student produces for homework. Of particular importance for the final evaluation are the two written tests that students take during the semester. If the student successfully passes both exams, he / she is exempted from the written part of the final exam and is obliged to take the oral exam only. The final exam consists of a written and an oral part. Ways to check learning outcomes are: essays, objective type assignments, discussion, roleplay, presentation creation, etc. The obligation of each student is to regularly inform oneself about the course. All notices about maintenance or eventual postponement of teaching will be published on the web site of the Polytechnic of Šibenik and the e-learning page of the course, where all the information on the course as well as the teaching materials and the list of literature are also available.					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance	0,5	Written exam	1 (without colloquia)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	1 (without written exam)	Seminar paper		Other	
	Class activity	0,5	Oral exam	1	Other	
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 9. Attending classes and exercises 45 hours 10. Preparing colloquia or exams through individual work 45 hours					

4. GRADING SYSTEM

4.1. Grading seminar papers

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4.2. Grading colloquia/ written and oral exam

Unsatisfactory	Satisfactory	Above average
Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.

4.3. Final grade according to evaluation elements

Active course attendance	70-75% of attendance	76-86% of attendance	87-100% of attendance	
	3 points	7 points	20 points	
Seminar paper				
	2	3	4	
Colloquia/ Written exam	50-64,9%	65-79,9%	80-89,9%	
	25 points	30 points	35 points	
Oral exam	2	3	4	
	25 points	30 points	35 points	

4.3. Final grade according to absolute division

Percentage of acquired knowledge, skills and competences (teaching + final exam)	Numerical grade	ECTS grade
90 – 100%	5 (excellent)	A
80 – 89,9%	4 (very good)	B
65 – 79,9%	3 (good)	C
60 – 64,9%	2 (satisfactory)	D
50 – 59,9%	2 (satisfactory)	E

5. ADDITIONAL COURSE INFORMATION			
	Title	Number of copies in the library	Availability via other media
5.1. Compulsory literature (available in the library and via other media)	Katja Bošković Gazdović: "English textbook of Transport I", Sveučilište u Zagrebu, Fakultet prometnih znanosti, Zagreb, 2002. (selected chapters)	10	X
5.2. . Additional literature (at the moment of changes and/or amended of study programme)	Tamara Polić: „The English Language I and II, English Textbook of Road and Rail Transport and Postal Services with Grammar and Exercises for 1st Year Students“, Sveučilište u Rijeci, Prometni odjel, 2007. Adrian Pilbeam and Nina O’Driscoll: „Logistics Management“, Market Leader, Pearson Longman, 2010 A.J. Thomson, A. V. Martinet: "A practical English Grammar", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar Exercises", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar exercises II", Oxford University	10	X (elearning, handouts)
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).		

6. GENERAL INFORMATION			
1.1. Course lecturer	Ivana Kardum Goleš	1.8. Course code in ISVU	140784
1.2. Course title	English language IV	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates		1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(15+30+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1
1.6. Year of study	2 nd	1.13. Modernization	Yes
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X <input type="checkbox"/> More than 20 % <input type="checkbox"/>
2. COURSE DESCRIPTION			
2.1. Course objectives	The aim of the course is to expand the vocabulary related to road and postal traffic as well as predicted grammatical structures that include tenses, the relational and causative sentences, sequence of tenses, word formation, usage of abbreviations in business English. The aim is also to expand the vocabulary related to traffic, while exercises determine and practice grammar and new vocabulary. Another goal of the course is to write different kinds of business letters. By attending a foreign language classes, students are introduced with new communication systems, enabling their easier and more direct involvement in world events and getting acquainted with the elements of English culture and civilization of the English speaking world. Learning a foreign language is in line with the aspiration to preserve the richness of the diversity of multi-faceted Europe as well as with fostering the development of the culture of dialogue and civilization.		
2.2. Terms of course entry and required competences	Completed course English language III		
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions		
	Learning outcomes according to the Bloom`s taxonomy: (up to two verbs per LO)		Level of LO: <i>1- remembering,</i>

					2- understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis	
	40. to understand, apply and link terms from the professional terminology of English road traffic and use them in written and oral communication				2, 3	
	41. to create CV (Europass template), job application, offer, complaint				3, 4, 6	
	42. to interpret and use tenses in real-life context				3, 4	
	43. to develop a longer essay within the topics of the course				5, 6	
	44. to present own ideas for development of traffic problems				3	
	45. to communicate in a foreign language within the subjects of the course, to express one own opinions				6	
	46. to compare and evaluate different traffic solutions				5	
	47. to analyse complex texts and solve tasks				4	
48. to use part of the general language competency at levels B1/B2				6		
2.5. Course content according to detailed curriculum schedule	Constructive allignement					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	194.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	2 h
195.	Early Trading Conditions – Tenses CV – Europass template	1, 2, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, understand, apply and link terms from the professional terminology of English road traffic and use them in written and oral communication verb tenses are interpreted in a real linguistic context, use part of other language competences at B1 level.	4 h	

	196.	Travel And Traffic Information - The Sequence Of Tenses	1, 3, 4, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	197.	Public Transport - Direct And Indirect Speech - Statements Past	1, 3, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	198.	Transport And Tourism - Direct And Indirect Speech – Questions Past	1, 3, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the	4 h

					development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	199.	Tehnological Advances In The Twenty-First Century - Direct And Indirect Speech - Commands, Requests, Advice Past	1, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	200.	The History Of The Motor Car	1, 3, 5, 6, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h

	201.	The World Of Transport - I Kolokvij	1, 3, 5, 6, 9	Listen to lectures and take part in discussion. Write the colloquium.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h
	202.	Professionalism In The Public Sector - Defining Relative Clauses	1, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	203.	America On Wheels - Non-Defining Relative Clauses	1, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises. Discuss.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the	6 h

					development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
	204.	The History Of Railways - Connective Relative Clauses	1, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h
	205.	The Telephone Of Today And Tomorrow - Business Letters – Abbreviations In Business English	1,2, 3, 4, 5, 6, 7, 8, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	10 h

	206.	The Modern Wonder Of Electronics - Business Letters – Job Intervju	1,2, 3,4, 5, 6, 7, 8, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h
	207.	Problems Of Modern Transportation	1, 3,4, 5, 6, 7, 8, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	6 h
	208.	Revision – II Kolokvij	1, 2, 3, 4,5, 6, 7, 8, 9	Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the	10 h

					development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
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3. EVALUATION OF STUDENTS' WORK

3.1. Students' obligations	In accordance with the Regulations on Studying and the Regulations on Student Assessment and Evaluation: for all full-time students attendance of at least 70% is required. Part-time students are required to attend classes at least 50%. The students' acquired knowledge is tested during the course classes. Special consideration is given to the student's evaluation during the course of the teaching process, with particular attention being paid to the student's active participation in teaching as well as his/her presentation of the written work that the student produces for homework. Of particular importance for the final evaluation are the two written tests that students take during the semester. If the student successfully passes both exams, he / she is exempted from the written part of the final exam and is obliged to take the oral exam only. The final exam consists of a written and an oral part. Ways to check learning outcomes are: essays, objective type assignments, discussion, roleplay, presentation creation, etc. The obligation of each student is to regularly inform oneself about the course. All notices about maintenance or eventual postponement of teaching will be published on the web site of the Polytechnic of Šibenik and the e-learning page of the course, where all the information on the course as well as the teaching materials and the list of literature are also available.					
3.2. Monitoring student work (enter the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Attendance	0,5	Written exam	1 (without colloquia)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous examination	
	Colloquium	1 (without written exam)	Seminar paper		Other	
	Class activity	0,5	Oral exam	1	Other	
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 11. Attending classes and exercises 45 hours 12. Preparing colloquia or exams through individual work 45 hours					

4. GRADING SYSTEM

4.1. Grading seminar papers	-				
4.2. Grading colloquia/ written and oral exam	Unsatisfactory	Satisfactory		Above average	
	Responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.		Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.	
4.3. Final grade according to evaluation elements	Active course attendance	70-75% of attendance	76-86% of attendance	87-100% of attendance	
		3 points	7 points	20 points	
	Seminar paper				
	Colloquia/ Written exam	2	3	4	
		50-64,9%	65-79,9%	80-89,9%	
		25 points	30 points	35 points	
	Oral exam	2	3	4	
25 points		30 points	35 points		
4.3. Final grade according to absolute division	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Numerical grade	ECTS grade	
	90 – 100%		5 (excellent)	A	
	80 – 89,9%		4 (very good)	B	
	65 – 79,9%		3 (good)	C	
	60 – 64,9%		2 (satisfactory)	D	
50 – 59,9%		2 (satisfactory)	E		
5. ADDITIONAL COURSE INFORMATION					
5.1. Compulsory literature (available in the library)	Title			Number of copies in the library	Availability via other media

and via other media)	Katja Bošković Gazdović: "English textbook of Transport I", Sveučilište u Zagrebu, Fakultet prometnih znanosti, Zagreb, 2002. (selected chapters)	10	X
5.2. . Additional literature (at the moment of changes and/or amended of study programme)	Tamara Polić: „The English Language I and II, English Textbook of Road and Rail Transport and Postal Services with Grammar and Exercises for 1st Year Students“, Sveučilište u Rijeci, Prometni odjel, 2007. Adrian Pilbeam and Nina O’Driscoll: „Logistics Management“, Market Leader, Pearson Longman, 2010 A.J. Thomson, A. V. Martinet: "A practical English Grammar", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar Exercises", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar exercises II", Oxford University	10	X (elearning, handouts)
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.		
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).		

10. GENERAL INFORMATION			
1.1. Course lecturer	Luka Olivari	1.8. Course code in ISVU	187606
1.2. Course title	Theory of vehicle movement	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30+15+0+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4
1.6. Year of study	2 nd	1.13. Modernization	Yes
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements	Less than 20% More than 20 %
11. COURSE DESCRIPTION			
2.1. Course objectives	The aim of the course is to provide students with theoretical knowledge and practical examples to acquire the knowledge necessary to successfully solve the problem of road vehicle exploitation.		
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the CROQF.		
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic LO8: To solve problems in traffic by using analytical and / or graphical methods LO13: To track trends in the development of technique, technology and safety in traffic		
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Learning outcomes by Bloom: (maximum 2 verbs for LO)		Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis,

						5 - evaluation, 6 – synthesis.
						1, 2
						4
						6
						5
						4
2.5. Course content according to detailed curriculum schedule	Constructive alignment					
	No	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	1.	Introductory presentation (introducing students to the content and obligations of the course). Area of study of vehicle motion theory. Exploitation of vehicle technical characteristics.	1	Listen to a lecture. By working independently on a computer, they become acquainted with the course content, obligations, literature and documents on the e-learning course page. Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic terms, physical quantities and units of measurement.	3 h
	2.	Performance characteristics related to vehicle movement. Construction of motor vehicles.	1, 2	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; distinguish between drive engines, concepts and elements of transmission of road vehicles; solve numerical tasks from the specified area;	3 h

	3.	Dynamism. Traction dynamic. Braking dynamic.	1, 2, 3	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or written and oral exam define and explain the basic concepts; distinguish between powertrains, and modes and elements of transmission of road vehicles; formulate the final equation of motion of the vehicle based on the traction forces and the resistance of the vehicle; solve numerical tasks from the specified area;	3 h
	4.	Sliding. Rolling resistance. Air resistance. Inertia resistance.	1, 2, 3	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or written and oral exam define and explain the basic concepts; distinguish between powertrains, and modes and elements of transmission of road vehicles; formulate the final equation of motion of the vehicle based on the traction forces and the resistance of the vehicle; solve numerical tasks from the specified area;	3 h
	5.	Dynamic factor. Car power balance.	1, 3, 4	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or written and oral exam define and explain the basic concepts; formulate the final equation of motion of the vehicle based on the traction forces and the resistance of the vehicle; evaluate the fuel economy of a road vehicle; solve numerical tasks from the specified area;	3 h
	6.	Dynamic indicator for unequal movement. Dynamic climb control.	1, 3, 4	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; formulate the final	3 h

		Inertia motion with the engine off.			equation of motion of the vehicle based on the traction forces and the resistance of the vehicle; evaluate the fuel economy of a road vehicle; solve numerical tasks from the specified area;	
	7.	Overtaking. Economy. Fuel consumption equation. Method of normalizing fuel consumption	1, 3, 4	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; formulate the final equation of motion of the vehicle based on the traction forces and the resistance of the vehicle; evaluate the fuel economy of a road vehicle; solve numerical tasks from the specified area;	3 h
	8.	Stability. Longitudinal stability. Transverse stability. Rotate the vehicle on a horizontal and transverse inclined path	1, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; analyze the stability of the road vehicle under different operating conditions; solve numerical tasks from the specified area;	3 h
	9.	Single axle sliding. Force distribution	1, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; analyze the stability of the road vehicle under different operating conditions; solve numerical tasks from the specified area;	3 h
	10.	Distribution of tangential forces across axles	1, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; analyze the stability of	3 h

					the road vehicle under different operating conditions; solve numerical tasks from the specified area;	
	11.	Constant deceleration curve. Curves of constant brake grip coefficient	1, 3, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; formulate the final equation of motion of the vehicle based on the traction forces and the resistance of the vehicle; analyze the stability of the road vehicle under different operating conditions; solve numerical tasks from the specified area;	3 h
	12.	Possibility of distributing braking forces.	1, 3, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; formulate the final equation of motion of the vehicle based on the traction forces and the resistance of the vehicle; analyze the stability of the road vehicle under different operating conditions; solve numerical tasks from the specified area;	3 h
	13.	Braking force control device. Correctors. Anti-lock braking (ABS) devices.	1, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the written and oral exam they define and explain the basic concepts; analyze the stability of the road vehicle under different operating conditions; solve numerical tasks from the specified area;	3 h
	14.	Construction of anti-lock	1, 5	Listen to a lecture and read literature. The	At the colloquium or the written and	3 h

		braking systems for commercial vehicles. Characteristic installations of AB systems in passenger vehicles		exercises demonstrate how to solve tasks. Independent task solving.	oral exam they define and explain the basic concepts; analyze the stability of the road vehicle under different operating conditions; solve numerical tasks from the specified area;	
	15.	Final consideration, repetition and preparation for the exam.	-	Listen to a lecture and read literature. Prepare individually for the exam.		3 h

12. EVALUATION OF STUDENT WORK

3.1. Student obligations	In accordance with the Rulebook on Study and the Rulebook on Assessment and Evaluation of Student Performance: Full-time students are required to attend classes at least 70%, which is also a requirement for obtaining the lecturer's signature. Students can take the final exam in the course in two ways: a) during the course, by taking colloquiums and oral part of the exam; b) passing the written and oral part of the exam.					
3.2. Student work monitoring (enter the share of ECTS credits for each activity so that the total number of ECTS credits corresponds to the course credit value)	Attending classes	1,5	Written exam	1 (without colloquiums)	Project	
	Experimental work		Research		Practical work	
	Essay		Report		Continuous check	0,5
	Colloquiums	1 (without written exam)	Seminar paper		Field works or Study trips	
	Teaching activities		The oral part of exam	1	(other)	
3.3. Student work-load	Student workload on all bases is 1 ECTS credit for 30 hours of work per semester and is estimated as going to fieldwork or study trips (30 hours), preparation of seminar work and presentation (30 hours).					
	Obligation			Hours (estimated)		
	21. Attending classes			45		
	22. Continuous check preparations			15		
	23. Colloquiums and written exam individual preparation			30		
24. Oral exam individual preparation			30			

4. FORMATION OF STUDENT GRADE

	Elements of evaluation	Bad	Satisfying	Above average
4.1. Evaluation of written exam	Physical quantities and their units of measurement	Nonstandard physical units have not been converted to basic or have been converted wrong.	Nonstandard units have been converted to basic units with minor errors in calculation.	Nonstandard units have been converted to base units without error.
	Structure, traceability, legibility and orderliness of the procedure, diagrams and sketches	The task is not properly structured, it is not traceable, and it is not readable. Diagrams and sketches are non-existent, inaccurate, messy, unclear and ambiguous.	The task is satisfactorily structured, traceable and readable. The diagrams and sketches are meaningful, neat with minor errors.	The task is clearly structured, complete, very neat and legible. The diagrams are completely accurate, clear and very neat.
	Application of appropriate equation (formulas) and the final result.	Uses expressions that do not describe the problem specified, or incorrectly expresses the physical unit from the expression. Numeric values are not included in the expression. The end result is incorrect.	Uses expressions that describe the problem in question, accurately derives physical quantities from the expression, incorporates numerical values into the expression with smaller numbers, the final result has smaller deviations from the exact result.	Uses expressions that describe the problem in question, accurately derives physical quantities from expressions, lists units of measure without errors, the final result is completely accurate.
4.2. Evaluation of oral exam	Knowledge and expression.	It responds by memory, without a deeper understanding. Does not know or apply basic terms and concepts. Does not know how to apply or explain the contents of the course with examples.	It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supports them with examples. Knows the expert terminology.	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles of physical laws, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts and supports them with examples. Finds solutions that were not originally given. It notes correlations with

				related material. Fluent in professional terminology.	
4.3. Forming the final grade according to the evaluation elements	Attending classes	> 80%	> 85%	> 90% prisustva	100%
		4 points	6 points	8 points	10 points
	Continuous check	0-5	6-10	11-15	16-20
	Colloquiums/ Written exam	2	3	4	5
		50-64,9%	65-79,9%	80-89,9%	90-100%
		50-64,9 bodova	65-79,9 bodova	80-89,9 bodova	90-100 bodova
	The oral part of exem	2	3	4	5
50-64,9 bodova		65-79,9 bodova	80-89,9 bodova	90-100 bodova	
4.4. Formation of the final grade based on the absolute distribution	Percentage of acquired knowledge, skills and competencies (teaching + final exam)		Numerical grade		ECTS grade
	90 – 100%		5 (excellent)		A
	80 – 89,9%		4 (very good)		B
	65 – 79,9%		3 (good)		C
	60 – 64,9%		2 (sufficient)		D
	50 – 59,9%		2 (sufficient)		E
5. ADDITIONAL INFORMATION ABOUT COURSE					
5.1. Compulsory literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media
	1. Perše, S., Višnjić, V. : Strojarsvo u prometu, Fakultet prometnih znanosti, Zagreb, 2005. (odabrana poglavlja)			10	
	2. Cerovac V., Tehnika i sigurnost prometa, Fakultet prometnih znanosti, Zagreb, 2001. (odabrana poglavlja)			5	
	3. Vrhovski D. Nikšić M., Osnove strojarstva, zbirka riješenih zadataka, Fakultet prometnih znanosti, Zagreb, 2000. (odabrana poglavlja)			5	

5.2. Additional literature (at the moment of changes and/or amended of study programme)	<p>22. Teaching materials from the lectures and exercises on the e-learning system of the Polytechnic for the course Technical Mechanics.</p> <p>23. Rotim, F.: Elementi sigurnosti cestovnog prometa, Svezak 2. , Znanstveni savjet za promet HAZU, Zagreb, 1991.</p>	-	on-line (e-learning)
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	<p>The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students' progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.</p>		
5.4. Informing about the course and contacting the course lecturer	<p>It is the responsibility of each student to be regularly informed about the course, the coursework, and classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).</p>		

