POLYTECHNIC OF ŠIBENIK Undergraduate professional study of Traffic

Trg Andrije Hebranga 11, 22000 Šibenik Republic of Croatia



Šibenik, September 2020.

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THE CURRICULUM OF THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC

DIRECTIONS: ROAD TRAFFIC, POSTAL TRAFFIC

Academic year 2020./2021.

Dean of Polytechnic of Šibenik

Ph.D. Ljubo Runjić, senior lecturer

Head of Undergraduate professional study of Traffic

Darijo Šego, univ. spec. traff., senior lecturer

Šibenik, September 2020.

Undergraduate professional study of Traffic Polytechnic of Šibenik is valued with 180 ECTS credits, which are obtained through enrolled subjects. After enrollment in the academic year, students enroll obligatory subjects and optional subjects whose sum is awarded a maximum of 30 ECTS credits by semester, up to 60 ECTS credits per year, in accordance with the articles of the "Study Regulations" at the Polytechnic of Šibenik.

Enrollment in the academic year

The student is obliged to enroll in the following academic year within the set deadline for enrollment. If one does not enroll in the academic year, the person loses the student's status and rights. Enrollment deadlines are published on the official board and on the internet website of the Polytechnic. A student enrolls at least 27 ECTS credits in one semester and a maximum of 35 ECTS credits. If the student did not regulate the obligations (no signature) for the subject enrolled in the academic year, by enrolling in the new academic year, he/she shall record the repetition of the academic year in which he/she re-enrolls the subject and again fulfills all obligations in that subject. The student is only allowed to enroll in the same subject twice during their studies.

Enrollment in the senior academic year

A student in one academic year enrolles at least 60 ECTS credits. A student acquires the right to enroll in a higher academic year if by the deadline for enrollment he/she has duly fulfilled all obligations from the study program which he/she has assumed by enrolling in the previous year of study and has passed exams in subjects which, according to the credit system, established by the study program, enable him/her to enroll in the higher year of study. Students who have taken the exam before the teaching committee (Committee) in the current academic year and have not yet met the requirements for a positive assessment (have passed the exam) are obliged to re-enroll, listen and regulate their course obligations. Students enroll in a higher academic year if they have earned a minimum of 50 ECTS credits from the previous study year by enrolling in all previous non-completed courses and at least 60 ECTS credits from the previous academic year.

Repetition of the academic year with the possibility of partial enrollment of subjects with the higher academic year

Students have the right to enroll in the repetition of the academic year with partial enrollment of subjects from the higher academic year, subject to the following conditions:

- partial enrollment of the subject from the second (2nd) academic year, if in the first (1st) academic year he/she has earned at least 30 ECTS credits,
- partial enrollment of the subject from the third (3rd) academic year, if in the second (2nd) academic year he/she obtained at least 30 ECTS credits.

Partial enrollment is carried out in such a way that the student enrolls all non-completed subjects from the previous academic year and certain subjects from the higher academic year. The total number of ECTS credits in the recurrent year with partial enrollment is a minimum of 50 ECTS points and a maximum of 60 ECTS points.

The repetition of the academic year

A student who has not obtained the right to enroll in a higher academic year is obliged to enroll in the next academic year to repeat the academic year. A student who repeats the year, on the index is placed under "Repeats". A student may enroll in the repetition of each academic year only once. If even after the repetition of the academic year, the student fails to fulfill all the obligations from the study program from the corresponding academic year, he/she loses the right to continue his/her studies.

Before submitting the Final paper for assessment and defense, the student must pass all courses and earn a minimum of 163 ECTS credits.

1. REQUIREMENTS AND RESULTS OF THE STUDY PROGRAM

The programme of Undergraduate professional study of Traffic Polytechnic of Šibenik is oriented towards professional requests of engineers in traffic. The study offers technical, technological and organizational education necessary for conducting traffic processes, management of equipment and materials, practical application of modern technologies in the organization of transport with the aim of reaching optimal technical, technological and economical effects with protection of environment. The bacis aim of education is to define and analyze theoretical, technological and practical solutions of contemporary transport technologies and systems, logistics of optimal solutions in traffic processes that consequently all make a base for successful realization of traffic processes.

The general competences that the student acquires by completing the studies is the ability to solve problems, analyze, synthesize and evaluate, develop self-learning and literature research, teamwork, planning and organizing, improve numeracy and digital skills, oral and written business communication and demonstrate morality, responsibility, conscientiousness in work and behavior in accordance with solid ethical principles.

During the studies, students acquire specific knowledge, skills and competences related to theoretical and practical knowledge and skills required for the analysis and evaluation of technical-technological road traffic solutions, the application of computer tools for analyzing and comparing the data to be submitted optimal solution in the transport process, evaluation and organization of processes in the road traffic area and transport logistics, the application of fundamental legal and economic principles in organization with socially responsible operations in technological subjects, and monitoring trends in technology development, technology and traffic safety.

The Undergraduate professional study of Traffic consists of six semesters.

2. EXPECTED LEARNING OUTCOMES AT THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC

Learning outcomes (LO) at the Undergraduate professional study of Traffic Polytechnic of Šibenik in the academic year 2020./2021. are:

- 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,
- 2. To organize and implement team work, and critically judge the opinions and attitudes of team members,
- 3. To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions,
- 4. To apply knowledge from the field of natural and technical sciences to problems in road traffic,
- 5. To apply basic legal and economic principles in organization with socially responsible management in technical-technological subjects,
- **6.** To analyze and present relevant facts from the field of traffic needed to reach conclusions,
- 7. To apply computer tools for analysis and comparison of data, and suggest an optimal solution in traffic process,
- 8. To solve problems in traffic by using analytical and/or graphical methods,
- 9. To assess and organize processes in the area of road traffic and/or traffic logistics,
- 10. To compare and choose technical and technological solutions in traffic and/or goods flows,
- 11. To identify, predict and propose solutions in road traffic technology and technique,
- 12. To set up a minor traffic process and critically evaluate it,
- 13. To track trends in the development of technique, technology and safety in traffic.

3. LIST OF LECTURERS WHO TEACH (LECTURES, SEMINARS, EXERCISES) AT THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC

NAME AND SURNAME OF THE LECTURER	COURSE NAME	CONTACT E-MAIL	CONSULTATION
Employees of the Polytechnic of Šibenik w	ho teach		
Jerko ACALIN, sc. ing. IT., lecturer.	Basics of computer science	<u>jerko@vus.hr</u>	Cabinet 7
Darijo ŠEGO, univ. spec. traff., senior lecturer.	Information systems in postal traffic Logistic and supply chains Postal and money circulation Postal technology and organization Professional practice Road traffic infrastructures Traffic corridors and merchandise flows Traffic Logistics Transport geography	<u>darijo@vus.hr</u>	Cabinet 21
Ana-Mari POLJIČAK, sc. ing. traff., senior lecturer.	Freight-Distributional centres and terminals Infrastructure of postal-telecomunications traffic Internal transport and storage Modern traffic systems Planning of postal network Resources and exploitation of road traffic vehicles Safety and protection of transport processes Technical means of postal-telecomunications traffic Traffic in tourism Transshipment resources	jankovic@vus.hr	Cabinet 21

M.sc. Martina LJUBIĆ HINIĆ, senior lecturer.	Freight-Distributional centres and terminals Modern traffic systems Resources and exploitation of road traffic vehicles Technology and organization of public city transport Technology and organization of road traffic Traffic in tourism Traffic techniques	ljubicvus@gmail.com	Cabinet 21
Nikolina GAĆINA, mag. ing., senior lecturer.	Knowledge of goods	nikolina@vus.hr	Cabinet 2
M.sc. Ivana KARDUM GOLEŠ, senior lecturer.	English language I English language II English language III English language IV	ivanakg@vus.hr	Cabinet 22
Ivana BELJO, sc. ing. mat., senior lecturer.	Mathematics Operational research in traffic	ibeljo@vus.hr	Cabinet 18
Želimir MIKULIĆ, sc. ing. IT, senior lecturer.	Operational research in traffic	zmikulic@vus.hr	Cabinet 19
Ana PERIŠIĆ, sc. ing. mat., univ. spec. oec., senior lecturer.	Statistics in Traffic	sisak@vus.hr	Cabinet 4
M.sc. Tanja RADIĆ LAKOŠ, senior lecturer.	Traffic and ecology	tanja@vus.hr	Cabinet 11
Ph.D. Dijana MEČEV, senior lecturer.	Economics of Traffic	dijana@vus.hr	Cabinet 3
Luka OLIVARI, mag. ing. mech., lecturer.	Graphic communications Basics of mechanical engineering Physics Technical mechanics Theory of vehicle movement	<u>lolivari@vus.hr</u>	Cabinet 21

Associates of the Polytechnic of Šibenik who teach						
M.sc. Krešimir NIMAC, lecturer.	Traffic law	kresonimac@gmail.com	According to the schedule of lectures			
Ph.D. Ernest BAZIJANAC, regular professor.	Resources and exploitation of resources of road traffic Theory of vehicle movement	ebazijanac@fpz.hr	According to the schedule of lectures			
M.sc. Danijel MILETA, senior lecturer.	Basics of electrical engineering and electronics Information systems in road traffic	danijel.mileta@gmail.com	Cabinet 2			
M.sc. Josip PAIĆ, senior lecturer.	Physics	josip.paic@skole.hr	Cabinet 21			
M.sc. Srećko ĐURANOVIĆ, senior lecturer.	Basics of mechanical engineering Resources and exploitation of resources of road traffic	sduranovic@fpz.hr	Cabinet 22			
Luca OLIVARI, mag. math., assistant.	Mathematics Operational research in traffic	lolivari25@outlook.com	According to the schedule of lectures Cabinet 18			

4. PLACE OF TEACHING AT THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC

Teaching process at the Undergraduate professional study of Traffic is performed at the Polytechnic of Šibenik, in Šibenik, at the address "Trg Andrije Hebranga 11". In the mentioned location, apart from the service offices, there are 12 lecture halls with a total area of 757 m².

The lecture halls in which the teaching process takes place, provide optimal conditions in view of the enrolled students.

Number of enrolled students in academic year 2020./2021.

STUDY YEAR	REGULAR	STUDENTS	EXTRAORDINARY STUDEN			
STODI TEAK	first enrollment	repeats	first enrollment	repeats		
I study year	19	2	13	0		
II study year	14	2	6	1		
III study year	19	1	1	1		

The specified space contains spatial capacities that, in keeping with the standards of higher education, enable students to have good quality monitoring and participation in educational activities.

Classes at the Polytechnic of Šibenik take place from Monday to Friday (in exceptional cases on Saturdays in the morning) according to the fixed schedule of the lectures published on the official internet website of the Polytechnic. In accordance with the requirements of the *Regulation on the content of license and conditions* for issuing license to perform activities of higher education, carrying out study programs and re-accreditation of higher education institutions (Public papers No. 24/10) Article 5 (2), the Polytechnic meets the ratio of the number of students enrolled and the space available for teaching.

5. LIST OF COURSES, LECTURES AND ASSOCIATES, HOURS AND WORKLOAD OF STUDENTS, AT THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC

C	OURSES	LEC	TURER	COURSE SCHEDLUE				1	
				L	S	Number	E	Number	ECTC
TT 1 0	.,		Seminars/	Hours	Hours	of groups	Hours	of groups	ECTS credits
Head of course	Name	Lecturer	Exercises	per	per		per		creams
				week	week		week		
I. semester				•		•		•	
Beljo Ivana	Mathematics	Beljo I.	Olivari Lc.	3	-	-	3	1	8
Paić Josip	Physics	Paić J.	Olivari Lk.	2	-	-	2	1	5
Olivari Luka	Graphic communications	Olivari L.	Olivari Lk.	2	-	-	2	1	5
Acalin Jerko	Basics of computer science	Acalin J.	Acalin J.	1	-	-	3	1	5
Gaćina Nikolina	Knowledge of goods	Gaćina N.	Gaćina N.	2	1	1	-	-	4
Kardum Goleš Ivana	English language I	Kardum Goleš I.	Kardum Goleš I.	2	-	-	1	1	3
II. semester	2.5		T 1 1 1 7 TT 1 7 T T	1 2	1 4	1 4		1	
Ljubić Hinić Martina	Modern traffic systems	Ljubić Hinić M./ Poljičak A-M	Ljubić Hinić M.	3	1		-	-	6
Mileta Danijel	Basics of electrical engineering and electronics	Mileta D.	Mileta D.	2	-	-	2	1	5
Šego Dariji	Traffic Logistics	Šego D.	Šego D.	2	2	1	-	-	4
Kardum Goleš Ivana	English language II	Kardum Goleš I.	Kardum Goleš I.	2	-	-	1	1	3
Olivari Luka	Technical mechanics	Olivari L.	Olivari L.	3	-	-	3	1	8
Radić Lakoš Tanja	Traffic and ecology	Radić Lakoš T.	Radić Lakoš T.	2	1	1	_		4

	Undergraduate profe	ssional study of Tra	ffic (direction: Ro	ad traff	ic) – II.	Study year	r		
C	COURSES	LECTU	JRER		COU	RSE SCH	EDLUE	1	
Head of course	Name	Lecturer	Seminars/ Exercises	L Hours per week	Hours per week	Number of groups	E Hours per week	Number of groups	ECTS Credits
III. semester									
Olivari Luka	Basics of mechanical engineering	Đuranović S./ Olivari L.	Olivari L.	3	-	-	3	1	6
Perišić Ana	Statistics in traffic	Perišić A.	Perišić A.	2	-	-	2	1	4
Poljičak Ana-Mari	Internal transport and storage	Poljičak A-M.	Poljičak A-M.	2	-	-	2	1	5
Šego Darijo	Logistic and supply chains	Šego D.	Šego D.	3	1	1	-	-	5
Kardum Goleš Ivana	English language III	Kardum Goleš I.	Kardum Goleš I.	1	-	-	2	1	3
Šego Darijo	Traffic corridors and merchandise flows	Šego D.	Šego D.	2	2	1	-	-	4
Nimac Krešimir	Traffic law	Nimac K.	Nimac K.	2	1	1	-	-	3
IV. semester									
Poljičak Ana-Mari	Transshipment resources	Poljičak A-M.	Poljičak A-M.	3	1	1	1	1	6
Olivari Luka	Theory of vehicle movement	Olivari Lk./ Bazijanac E.	Olivari Lk.	2	-	-	1	1	4
Poljičak Ana-Mari	Freight-Distributional centres and terminals	Poljičak A-M.	Poljičak A-M.	2	2	1	-	-	5
Ljubić Hinić Martina	Technology and organization of public city transport	Ljubić Hinić M.	Ljubić Hinić M.	2	1	1	-	-	5
Kardum Goleš Ivana	English language IV	Kardum Goleš I.	Kardum Goleš I.	1	-	-	2	1	3
Mečev Dijana	Economics of Traffic	Mečev D.	Mečev D.	2	1	1	-	-	3
Beljo Ivana	Operational research in traffic	Beljo I./ Mikulić Ž.	Olivari Lc.	2	-	-	1	1	4
L – lectures, S – semin	nars, E – exerciese.								

	Undergraduate professional study of Traffic (direction: Road traffic) – III. Study year								
(COURSES	COU	JRSES	COURSES					
				L	S	Number	E	Number	ECTS
Head of course	Name	Lecturer	Seminars/	Hours	Hours	of groups	Hours	of groups	Credits
ilead of course	Tame	Dectarer	Exercises	per	per		per		Creates
				week	week		week		
V. semester									
Šego Darijo	Road traffic infrastructures	Šego D.	Šego D.	3	2	1	1	1	6
Đuranović Srećko	Resources and exploitation of	Đuranović S./	Poljičak A-M.	3	-	-	1	1	5
	resources of road traffic	Bazijanac E.							
Ljubić Hinić Martina	Technology and organization	Ljubić Hinić M.	Ljubić Hinić M.	3	-	-	2	1	7
	of road traffic								
Ljubić Hinić Martina	Traffic techniques	Ljubić Hinić M.	Ljubić Hinić M.	3	1	1	-	-	6
Mileta Danijel	Information systems in road	Mileta D.	Mileta D.	2	1	1	-	-	3
	traffic								
Šego Darijo	Transport geography*	Šego D.	Šego D.	2	1	1	-	-	3
Poljičak Ana-Mari	Traffic in tourism*	Poljičak A-M./	Poljičak A-M.	2	1	1	-	-	3
		Ljubić Hinić M.							

L – lectures, S – seminars, E – exercises.

VI. semester

Poljičak Ana-Mari	Safety and protection of transport processes	Poljičak A-M./ Ljubić Hinić M.	Poljičak A-M.	3	1	1	-	-	5
Šego Darijo	Professional practice	-	-	-	-	-	-	-	15
	Batchelor thesis	-	-	-	-	-	-	-	10

^{*}OPTIONAL COURSE - the student selects one optional courses offered.

6. ACADEMIC CALENDAR FOR THE ACADEMIC YEAR 2020./2021.

The academic calendar of the Polytechnic of Šibenik for the academic year 2020./2021. was adopted at the 7th session of the Expert Council of the Polytechnic of Sibenik (electronic session), which was held in April 2020.

WINTER SEMESTER:

- lectures in the winter semester runs from October 5 2020. to January 30 2021.,
- winter holidays run from December 23 2020. to January 7 2021., and in that period the Polytechnic will not work with students,
- additional or/and consultative lectures for extraordinary students will be held in the terms prescribed by the "Decision on the adoption of implementation plans for the study programs in the academic year 2020./2021.",
- the winter regular exam period runs from February 01 to February 27 2021...

SUMMER SEMESTER:

- summer semester lectures run from March 01 to June 12 2021.,
- additional or/and consultative lectures for extraordinary students will be held in the terms prescribed by the "Decision on the adoption of implementation plans for the study programs in the academic year 2020./2021.",
- the summer regular exam period runs from June 14 to July 10 2021.,
- summer holidays run from July 26 to August 23 2021..

AUTUMN EXAM TIME PERIOD:

• the autumn regular exam period runs from August 23 to September 18 2021...

SEMESTER TESTING:

- winter semester testing and summer semester enrollment will run from February 15 to February 19 2021.,
- summer semester testing and 2021./2022. academic year enrollment will run July 12 to July 16 and from September 20 to September 30 2021..

7. NATIONAL PUBLIC HOLIDAYS AND NON-WORKING DAYS IN THE REPUBLIC OF CROATIA

DATE OF HOLIDAY	NAME OF PUBLIC HOLIDAYS
November 1 st	All Saints' Day
November 18 th	Memorial day for the victims of the Homeland War, Vukovar and Škabrnja
December 25 th	Christmas Day
December 26 th	St. Stephen's Day
January 1 st	New Year's Day
January 6 th	Holly three kings
April 05 th	Easter
April 06 th	Easter Monday
May 1 st	International Workers' Day
May 30 th	Croatian National day
June 03 rd	Corpus day
June 22 nd	Anti-Fascist Struggle Day
August 5 th	Homeland Thanksgiving Day
August 15 th	Feast of the Assumption

8. CALENDAR OF THE EXAMS, FOR ACADEMIC YEAR 2020./2021.

Dear students, the tables below show the dates of regular written exams in the winter, summer, and autumn exam periods, while the exact exam time (hourly rate) will be published on the official internet website of the Polytechnic of Šibenik (Undergraduate Professional Study of Traffic - Exam deadlines). The dates of exam periods for the other months of the year are issued by the Expert Council of the Polytechnic of Šibenik upon the proposal of the Dean, and they are published separately on the official website of Polytechnic. Due to unforeseen reasons, it is possible to move the specified dates for the written exams.

HEAD OF COURSE NAME OF COURSE				EXAM DATES					
		February		June / July		August / September			
I. STUDY YEAR (I. sem	nester).								
Beljo Ivana	Mathematics	09.02.	23.02.	21.06.	06.07.	31.08.	14.09.		
Paić Josip	Physics	03.02.	17.02.	16.06.	30.06.	25.08.	08.09.		
Olivari Luka	Graphic communications	08.02.	22.02.	17.06.	01.07.	30.08.	13.09.		
Acalin Jerko	Basics of computer science	04.02.	18.02.	18.06.	02.07.	27.08.	10.09.		
Gaćina Nikolina	Knowledge of goods	03.02.	17.02.	16.06.	30.06.	25.08.	08.09.		
Kardum Goleš Ivana	English language I	09.02.	23.02.	21.06.	06.07.	31.08.	14.09.		
I. STUDY YEAR (II. ser		04.02	10.02	22.06	07.07	24.00	07.00		
Ljubić Hinić Martina	Modern traffic systems	04.02.	18.02.	23.06.	07.07.	24.08.	07.09.		
Mileta Danijel	Basics of electrical engineering and electronics	01.02.	15.02.	14.06.	28.06.	23.08.	06.09.		
Šego Darijo	Traffic logistic	04.02.	18.02.	24.06.	08.07.	26.08.	09.09.		
Kardum Goleš Ivana	English language II	09.02.	23.02.	21.06.	06.07.	31.08.	14.09.		
Olivari Luka	Tehnical mechanics	08.02.	22.02.	17.06.	01.07.	30.08.	13.09.		
Radić Lakoš Tanja Traffic and ecology		02.02.	16.02.	23.06.	07.07.	26.08.	09.09.		
II. STUDY YEAR (III. s	semester).								
Olivari Luka	Basics of mechanical engineering	08.02.	22.02.	21.06.	05.07.	30.08.	13.09.		
Perišić Ana	Statistics in traffic	09.02.	23.02.	23.06.	07.07.	31.08.	14.09.		

Poljičak Ana-Mari	Internal transport and storage	01.02.	15.02.	14.06.	28.06.	23.08.	06.09.
Šego Darijo	Logistics and supply chains	04.02.	18.02.	24.06.	08.07.	26.08.	09.09.
Kardum Goleš Ivana	English language III	09.02.	23.02.	21.06.	06.07.	31.08.	14.09.
Šego Darijo	Traffic corridors and merchandise flows	08.02.	22.02.	17.06.	01.07.	27.08.	10.09.
Nimac Krešimir	Traffic law	04.02.	18.02.	17.06.	01.07.	26.08.	09.09.
W CONTINUE AD (W)							
II. STUDY YEAR (IV.	<u> </u>	01.02	15.00	1406	20.06	22.00	06.00
Poljičak Ana-Mari	Transshipment resources	01.02.	15.02.	14.06.	28.06.	23.08.	06.09.
Olivari Luka	Theory of vehicle movement	03.02.	17.02.	16.06.	30.06.	25.08.	08.09.
Poljičak Ana-Mari	Freight-Distributional centres and terminals	02.02.	16.02.	15.06.	29.06.	24.08.	07.09.
Ljubić Hinić Martina	Technology and organization of public city transport	03.02.	17.02.	23.06.	07.07.	25.08.	08.09.
Kardum Goleš Ivana	English language IV	09.02.	23.02.	21.06.	06.07.	31.08.	14.09.
Mečev Dijana	Economics of Traffic	02.02.	16.02.	15.06.	29.06.	24.08.	07.09.
Beljo Ivana	Operational research in traffic	09.02.	23.02.	21.06.	06.07.	31.08.	14.09.
III. STUDY YEAR (V.	semester).						
Šego Darijo	Road traffic infrastructures	08.02.	22.02.	17.06.	01.07.	27.08.	10.09.
Đuranović Srećko	Resources and exploitation of resources of road traffic	02.02.	16.02.	15.06.	29.06.	24.08.	07.09.
Ljubić Hinić Martina	Technology and organization of road traffic	03.02.	17.02.	23.06.	07.07.	25.08.	08.09.
Ljubić Hinić Martina	Traffic techniques	03.02.	17.02.	23.06.	07.07.	25.08.	08.09.
Mileta Danijel	Information systems in road traffic	01.02.	15.02.	14.06.	28.06.	23.08.	06.09.
Šego Darijo	Transport geography	08.02.	22.02.	17.06.	01.07.	27.08.	10.09.
Poljičak Ana-Mari	Traffic in tourism	02.02.	16.02.	15.06.	29.06.	24.08.	07.09.
	·	•	•	-	•	-	
III. STUDY YEAR (VI	. semester).						
Poljičak Ana-Mari	Safety and protection of transport processes	01.02.	15.02.	14.06.	28.06.	23.08.	06.09.

9.	THE CURRICULUM AND THE CONTENT OF ALL COURSES AT UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC WITH THE EXPECTED LEARNING OUTCOMES AND LITERATURE



PK-SP-2. Description of the new course or the course that has been supplemented and / or amended or updated.

1. GENERAL COURSE INFORMATION							
1.1. Course title	MATHEMATICS	1.8. Course code in ISVU	129837				
1.2. Course lecturer	Ivana Beljo	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	Luca Olivari	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(45+45+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	3.				
1.6. Year of study	1 st	1.13. Modernization	Yes				
1.7. Credit score (ECTS)	8	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % □				

2. COURSE DESCRIPTION							
	The goal is to provide students with theoretical knowledge:						
2.1. Course objectives	To adopt knowledge and skills of the analytical way of thinking, and the logical way of concluding in further education.						
	 To familiarize with basic concepts of mathematics and prepare them for their practical application. 						
2.2. Terms of course entry and required competences	secondary education completed; qualification level 4.2 according to the CROQF.						
	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.						
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.						
study programme rever	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 accroding 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
1. To perform fundamental operations on sets.	4
2. To carry out fundamental operations on matrices and vectors.	4
3. To propose a method and solve systems of linear equations.	5,4
4. To conduct basic analysis of functions of one variable.	4
5. To derive the functions of one variable.	4
6. To solve integrals by applying the appropriate integration techniques.	4
7. To apply linear algebra and functional analysis methods in transport problems solving.	4,5

	Constructive allignement							
2.5. Course content according to detailed curriculum schedule	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time		
	1.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	3 h		
	2.	Sets. Sets of numbers.	1, 4, 7	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 enumerate and distinguish basic concepts related to assemblies and perform basic operations on sets.	6 h		
	3.	Matrices and determinants. The inverse matrix. Systems of linear equations.	2, 3, 7	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 to define matrices, perform basic computational operations with matrices, calculate the determinant and inverse of a matrix, recommend a method for solving a system of	9 h		



				linear equations and solve a system and apply it to problems.	
4.	Vectors. Scalar, vector and mixed vector product.	2, 7	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 define vectors, perform basic computational operations with vectors.	9 h
5.	Revision for colloquium. Colloquium. Functions	1, 2, 3, 4,	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	-	40 h
6.	Functions – basic terms, Elementary functions, Composition of the functions. Inverse function.	1, 4, 7	Write the colloquium.	In colloquium or written and oral exams students know how to define and distinguish elementary functions, solve the composition of functions and determine the inversion of functions.	40 h
7.	Limits of sequences. Limit of the function. Continuous functions.	4, 5, 7	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 to calculate limits.	9 h
8.	Derivatives.	1, 4, 5, 7	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 derivatives.	6 h
9.	Basic analysis of functions of one variable.	1, 4, 5, 7	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 to examine the basic properties of a function, to analyze the solutions obtained and to draw a graph of the function based on them, and to comment on the obtained solutions.	6 h
10.	Revision for colloquium. Colloquium. Integrals.	1, 4, 5, 6,	Listen to lectures and read literature. The exercises demonstrate how to solve tasks. Solve exercises.	-	40 h



	11.	Indefinite Int Integrals.	egrals. Definite	6, 7	Listen to lectures a literature. The exer demonstrate how t tasks. Solve exerci	rcises o solve	-	um or written and oral exame to to solve an indefinite and		6 h
	12.	Substitution I Integration B		6, 7	Listen to lectures a literature. The exer demonstrate how t tasks. Solve exerci	rcises o solve	know how t	um or written and oral examos solve an indefinite integrable substitution and partial inte	ral using the	6 h
	13.	Applications	of Integration.	4, 6, 7	Listen to lectures a literature. The exer demonstrate how t tasks. Solve exerci	rcises o solve	know how t	um or written and oral examon oral examon analyze and sketch a grand solve a definite integral	ph of	6 h
	14.	Applications Revision for Colloquium.	of Integration.	6, 7	Write the colloqui	um.	-			40 h
	15.	Revision			Listen to lectures a literature.	and read	-			40 h
3. EVALUATION OF STUDEN	TS` W	ORK								
3.1. Students` obligations	least Stude	70%. Part-time ents who have of from 0 - 24 from 25 - 4 extraordina more than 5	students are required luring the course achi ,9% ECTS credits- ar 49,9% - are assessed ry exam period; 50% - students have to e final exam from the	I to atterieved: re rated I by Fy the righ	end classes at least 50%. IF (unsuccessful) and ca K (insufficient) and mus t to take the final exam.	All students a nnot obtain E t pass the wr	cTS credits, itten exam (t	valuation: for all full-time and carry calculator and form and must re-enroll in the neest). Written exam (test) ugh continuous monitoring of the exam).	ulae list. ext academic y	year; n a regular o
3.2. Monitoring student work		ndance	1	1	Written exam	4 (without o	colloquia)	Project		
(enter the share of ECTS credits	Expe	rimental		Ι,	Dagaamah			Descriped would		

Research

Practical work

for each activity so that the total

work



number of ECTS points corresponds to the credit score of	Essay	1	Report			Continuous xamination	1	l
the course))	Colloquium	4 (without written exam)	Seminar paper		(Other		
	Class activity	1 (Oral exam	1	(Other		
3.3 Student workload	1. Attending	dent workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 90 hours 2. Preparing colloquia or exams through individual work 150 hours						
4. FORMIRANJE OCJENE								
4.1. Grading seminar papers	-							
	1	Unsatisfactory	Sa	tisfactory			Above a	average
4.2. Grading colloquia/ written and oral exam	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.		difficulty imparts n the material, expla	Reproduces the basic concepts difficulty imparts new knowledge, the material, explains the terms a supported with examples.		and evaluation. Observed accurately and thorough the material, and logical		y explains the content of y connects and explains upported with examples. e not originally given.
	Active course	70-74,9% of attendance	75-79,9% of atte	ndance	80-89,9% of attendance		90-1	100% of attendance
	attendance	2 points	5 points		10 poi	ints		20 points
4.2 Final and a condition to	Calla arria /	2	3		4			5
4.3. Final grade according to evaluation elements	Colloquia/ Written exam	50-64,9%	65-79,9%		80-89,	9%		90-100%
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	25 points	30 points		35 poi	ints		40 points
	Oral exam	2	3		5			5
	Oral exam	25 points	30 points	0 points 35 poi		ints		40 points
4.4. Final grade according to absolute division		f acquired knowledge, skills and acquired knowledge, skills and acces (teaching + final exam)	nd Numeric	al grade		EC	CTS grade	



90 – 100%	5 (excellent)	A
80 – 89,9%	4 (very good)	В
65 – 79,9%	3 (good)	С
60 – 64,9%	2 (satisfactory)	D
50 – 59,9%	2 (satisfactory)	Е

5. ADDITIONAL COURSE INFORMATION

5.1. Compulsory literature (available in the library and via	Title	Number of copies in the library	Availability via other media					
other media)	Mrušić, S., Matematika I udžbenik s riješenim primjerima, Zagreb, 2007. (selected chapters)	7						
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Teaching material and exercises Babić Z., Tomić Plazibat N., Poslovna matematika, Ekonomski fakultet Split, 2003 (selected chapters) Babić Z., Tomić N., Aljinović Z., Matematika za ekonomiste, Ekonomski fakultet Split, 2004 (selected chapters) Harshbarger R.J., Reynolds J.J., Mathematical Applications for the Management, Life and Social Sciences, Houghton Mifflin Company, Boston, 2004 (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 ensurattendance and student activity during classes and provided information on students` progress through further guidance to students will be provided in order to increase the efficiency of their work. Students	Sciences, Houghton Mifflin Company, Boston, 2004. (selected chapters) 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 possible adjournment will be published in a timely manner on the e-learning site of the course and on the teachers during the consultation period (at least one hour per week), while for short questions and expands also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be working days after receiving the e-mail).	ne website of the Polytech planations they can be con	nic. Students can contact ntacted during class. It is					



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

1. GENERAL INFORMATION	ON		
1.1. Course lecturer	Josip Paić	1.8. Course code in ISVU	187585
1.2 Course title	PHYSICS	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	Luka Olivari	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	1st	1.13. Modernization	Yes
1.7. Credit score (ECTS)	5	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 aim of the course is to master the physical laws transport profession rests.	s necessary for mastering and understanding the courses on which	the technical knowledge of the
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualificati	on level 4.2 according to the CROQF.	
2.3. Learning outcomes on the	LO4: To apply knowledge from the field of natural ar	nd technical sciences to problems in road traffic.	
study programme level	LO8: To solve problems in traffic by using analytical	and / or graphical methods.	
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Learning outcomes by Bloom: (maximum 2 werbs for	or LO)	Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 - synthesis.



	1.	Describe the basic concepts in	physics			2	
	2.	Recognize physical quantities	and units of m	neasure.		2	
	3.	Graphically and analytically re	educe the syste	em of vectors, and divide the vectors into the	eir components.	3	
	4.	4. Compare the basic laws of motion of a particle or solid body and identify the type of motion in a given example.					
	5.	Distinguish Newton's laws, ec motion, and choose appropriat	•	ditions, laws of conservation of mechanica e a given problem.	l energy and amount of	4, 5	
	6.		-	a graphical representation of the path, onversion of various forms of energy into wo		4	
	7.	Identify the causes of motion of	of a particle or	solid, and evaluate the effects of the force of	on the particle or solid.	4, 5	
	8.	4, 5					
	9.	Synthesize the adopted laws to	solve comple	ex problems		6	
2.5. Course content according to detailed curriculum schedule	Constr	uctive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	Evalua	ntion	Time
	1.	Introductory presentation (introducing students to the content and obligations of the course). Introduction to mechanical engineering, determining the shape and dimensions of machine parts, selection of materials	1, 2, 3, 4	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 page of the course. The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Describe: path, shift special Distinguish between the values of worry and according to body movements. At the colloquium or the exam they define and econcepts, define, explain physical quantities and	e mean and current celeration, to analyze e written and oral explain the basic n and calculate the	4 h
	2.	Free fall. Vertical shot. Curved track motion	1, 4, 5	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples.	Describe the free fall. In describe complex move	•	4 h



	(horizontal and oblique shot, circular motion).		The exercises demonstrate how to solve tasks. Independent task solving.	circular motion as uniformly accelerated motion. At the colloquium or the written and oral exam they know: to define, explain, identify and compare types of motion; solve numerical tasks from the specified area.	
3.	Forces and laws of motion (force and mass, Newton's laws of mechanics, body weight and density). The amount of motion and the law of conservation of the amount of motion.	1, 3, 4, 5, 6	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Describe the interaction of body and types of forces. Draw a force diagram. Add up force vectors. Apply Newton's Laws. Relate force impulse and amount of motion. Apply the law of conservation of the amount of motion. At the colloquium or the written and oral exam they know: to define, explain and distinguish Newton's laws and the laws of conservation of the amount of motion; choose physical laws to solve a given problem, solve numerical problems from the specified area.	4 h
4.	Friction. Centripetal force. Elastic force. Motion of a rigid body (rigid body, force moment, rotation of a rigid body about a fixed axis, moment of inertia)	1, 3, 4, 5, 6	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Relate friction to centripetal force and elastic force. Explain the concept of centripetal force and centripetal acceleration. Distinguish the motion of a material point and a rigid body and make an analogy. At the colloquium or the written and oral exam they can define and explain friction, analyze the influence of friction; identify the causes and type of motion, evaluate the consequences of the action of forces and moments; solve numerical tasks from the specified area.	4 h



5.	Rotation work and power. Rotational kinetic energy. Moment of amount of motion. An analogy between the laws of translation and rotation.	1, 4, 5, 7	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Relate work and power to work and power when rotating. Solve and comment on examples. At the colloquium or the written and oral exam they can define and explain work, strength, energy and other phenomena during rotation; solve numerical tasks from the specified area.	4 h
6.	Statics (force action on a rigid body, equilibrium of a rigid body affected by more forces). The action of parallel forces on a rigid body. The emphasis.	1, 3, 5, 9	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples The exercises demonstrate how to solve tasks. Independent task solving.	Relate the action of force to a material point and to a rigid body. Apply and analyze equilibrium equations for a solid body, written and oral examination, evaluate the consequences of the action of a system of forces and / or static moment using graphical and analytical methods; solve numerical tasks from the given area.	4 h
7.	A pair of forces. Solid-state equilibrium conditions (examples). Types of balance. Motion relativity and inertial forces (the principle of relativity, inertial forces in a straight and circularly accelerated system).	1, 3, 5	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for the colloquium.	Determine the equilibrium conditions of a rigid body using examples. Apply and analyze equilibrium equations for a solid body, written and oral examination, evaluate the consequences of the action of a system of forces and / or static moment using graphical and analytical methods; solve numerical tasks from the given area.	4 h
8.	Work and force (work of constant force, work of variable force).	1, 6, 7, 9	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Link energy change and work done. Link the concept of work and strength. At the colloquium or the written and oral exam they can define and explain work and strength, identify the type of motion of a particle or solid, solve numerical problems in the field of kinematics.	4 h



9.	The work of the resultant force. Energy (kinetic energy, potential energy, energy conservation law.	1, 6, 7	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Describe examples of conversion of different forms of energy. Apply the law of conservation of energy. Express utility. At the colloquium or the written and oral exam they can define and explain the basic terms in the specified area, identify the type of motion of a particle or solid body; evaluate the action of force; analyze energy conversions; solve numerical tasks in the field of kinematics.	4 h
10.	Collisions. Mechanical tools and machines (mechanical effect of the machine, slope, wedge, wheels and pulleys, machine efficiency).	1, 5, 6	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Apply the law of conservation of motion and the law of conservation of energy. At the colloquium or the written and oral exam they can define, explain and distinguish the terms and physical laws from the specified area; solve numerical tasks.	4 h
11.	Gravity (Newton's law of general gravity). The work of gravitational force and gravitational potential energy. Gravitational phenomena around the Earth.	1, 5	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Describe the historical development of the idea of the motion of the celestial body and the variability of scientific ideas. At the colloquium or the written and oral exam they can define, explain and distinguish the terms and physical laws from the specified area; solve numerical tasks.	4 h
12.	Gravity in the solar system. Gravity in space. Fluid mechanics (aggregate states and properties of substances, fluids at rest)	1, 5, 8	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The exercises demonstrate how to solve tasks. Independent task solving.	Describe the motions and interactions of the body in the solar system. Explain the expression for the first and second cosmic velocities and relate them to the weightless state. Analyze examples involving the application of Newton's law of gravity. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid	4 h



The buoyancy. Archimedes' Law. Fluids in motion (fluid flow and velocity, continuity equation) 1.8,9 The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. The written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. Apply expressions to examples. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics; solve numerical problems in the field of fluid mechanics; solve numerical problems in the field of fluid mechanics; solve numerical problems in the field of fluid mechanics. 1.8,9 Predavanje se izvodi uz pripremljene prezentacije, snimljene pokuse i samostalno rješavanje jednostavnijih primjera. Na vježbama se demonstrira rješavanje zadataka. Individualno pripremanje za kolokvij. Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1.8,9 Resistance of the agent. Fluid Flow and Chaos Physics. Fina										
Law. Fluids in motion (fluid flow and velocity, continuity equation) 1, 8, 9 Bernoulli equation (applications of Bernoulli equation) Bernoulli equation) Predavanje se izvodi uz pripremljene quation (applications of Bernoulli equation). Force in real liquids (shape of free surface of fluid, dissipative forces in liquids) Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. Resistance of the agent. Fluid and consideration. Resistance of the agent. Fluid flow and Chaos Physics. Final consideration. Resistance of the agent. Fluid and consideration. Resistance of the agent. Fluid flow and Chaos Physics. Final consideration. Resistance of the agent. Fluid flow and Chaos Physics. Final consideration. Resistance of the agent. Fluid and provide the prepared presentations, recorded experiments and independently solving simple examples. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics. At the colloquium or the written and oral exam they can define, explain a								1	problems in the	
(applications of Bernoulli equation). Force in real liquids (shape of free surface of fluid, dissipative forces in liquids) 14. Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 15. Final consideration. 18. Passistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 19. Evaluation of Student obligations 19. The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. They prepare individually for the exam. 19. Evaluation of Student obligations 19. Evaluation of Student obligations 19. 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. 20. Student work monitoring 21. Student work monitoring Apply Bernoulli's equation to examples. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. Apply Bernoulli's equation to examples. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. At the colloquium or the written and oral exam they can define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. At the colloquium or the written and oral exam they		13.	Law. Fluids in m flow and velocity	otion (fluid	1, 8, 9	presentations, recorder independently solving The exercises demons	d experiments and simple examples.	expressions to examples. At or the written and oral exam t explain and distinguish bas fluid mechanics; solve numeri	the colloquium they can define, sic concepts in	4 h
Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Resistance of the agent. Fluid Flow and Evaluation of Student Performance in the basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. 4 the basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. 4 the basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. 5 the prepare individually for the exam. 1, 8 Resistance of the agent. Fluid Flow and Chaos Physics. Final consideration. 1, 8 Remark the ycan define, explain and distinguish basic concepts in fluid mechanics; solve numerical problems in the field of fluid mechanics. 1		14.	(applications of l equation). Force liquids (shape of of fluid, dissipati	Bernoulli in real free surface	1, 8, 9	prezentacije, snimljen samostalno rješavanje primjera. Na vježbama se demo zadataka. Samostalno zadataka. Individualno	e pokuse i jednostavnijih nstrira rješavanje rješavanje	Apply Bernoulli's equation to the colloquium or the written they can define, explain and of basic concepts in fluid mechanumerical problems in the fie	examples. At and oral exam distinguish nics; solve	4 h
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 Attending classes 2 Written exam 2 (without Project		15.	Flow and Cha	os Physics.	1, 8	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples.		exam they can define, explain basic concepts in fluid me numerical problems in the	and distinguish echanics; solve	4 h
3.1. Student obligations 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 Attending classes 2 Written exam Project Project	3. EVALUATION OF STUD	ENT WO	OR							
5.2. Student work monitoring	3.1. Student obligations	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 w								
(enter the share of ECTS credits colloquiums)	5.2. Student work monitoring		ng classes	2		Written exam	2 (without colloquiums)	Project		
for each activity so that the total Experimental work	`	Experin	nental work			Research		Practical work		
number of ECTS credits Essay Report Continuous check		Essay				Report		Continuous check		
corresponds to the course credit value) Colloquiums 2 (without written exam) Seminar paper Field works or Study trips	-	Colloqu	iiums	,	written	Seminar paper				



	Teaching activities		The oral part of	1	(other)							
			exam									
	Student workload on all	udent 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 h										
	preparation of seminar wo	paration of seminar work and presentation (30 hours).										
3.3. Student work-load	Obligation Hours (estimated)											
	1. Attending classes 60 2. Colloquiums and written exam individual preparation 60 3. Oral exam individual preparation 30											

4. FORMATION OF STUDENT GRADE

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



		them with exampl terminology.	es. Knows tl	ne expert	support solution given. I	s the terms and concepts and s them with examples. Finds as that were not originally t notes correlations with related l. Fluent in professional clogy.		
	Colloquiums/	2		3		4		5
4.3. Forming the final grade	Written exam	50-64,9%		65-79,9%		80-89,9%		90-100%
according to the evaluation	-	50-64,9 bodova		65-79,9 bodova		89,9 bodova		90-100 bodova
elements	The oral part of exem	2		3		4		5
		50-64,9 bodova		65-79,9 bodova	80-	80-89,9 bodova		90-100 bodova
	Percentage of acquired competencies (tea	Numerical grade			ECTS grade		ECTS grade	
4.4. Formation of the final grade	90 –	100%	5 (excellent)					A
based on the absolute	80 –	89,9%	4 (very good)					В
distribution	65 –	3 (good)					С	
	60 –	2 (sufficient)			D		D	
	50 –	2 (sufficient)			Е			
5. ADDITIONAL INFORMATI	ION ABOUT COURSE							
5.1. Compulsory literature (available in the library and via		Title				Number of oin the libration	_	Availability via other media
other media)	1. Paić Josip, FIZIKA udžbenik, Veleučilište u Šibeniku, Šibenik, 2017.					-		on-line (e-learning)
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Polytechnic for 2. Kulišić, P.: Mel							on-line (e-learning) city library city library city library



	 Mikuličić, Varićak, Vernić,: Fizika, zbirka zadataka 1-4, Školska knjiga, Zagreb, 2012 Halliday, Resnick, Walker: Fundamentals of phisics, Sixth Edition 	- city library
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 attendance and student activity during classes and provided information on students` progress throfurther guidance to students will be provided in order to increase the efficiency of their work. Students well as the methods of work and the required literature. Indicators of quality assurance system Croatian employment service on the annual state of student employment, surveys from employers	ough short colloquiums and homework, information for ents will be informed about their rights and obligations in: Student survey, monitoring of annual data from the
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, an adjournment will be published in a timely manner on the e-learning site of the course and on the weduring the consultation period (at least one hour per week), while for short questions and explanatio to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answere after receiving the e-mail).	ebsite of the Polytechnic. Students can contact teachers ns they can be contacted during class. It is also possible



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

1. GENERAL INFORMATION									
1.1. Course lecturer	Luka Olivari 1.8. Course code in ISVU 129836								
1.2. Course title	GRAPHIC COMMUNICATIONS								
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	Undergraduate professional study of Traffic of on line course performance (max. 20%) 1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage on-line							
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4						
1.6. Year of study	1 st	Yes							
1.7. Credit score (ECTS)	5 1.14. Percentage estimate of course changes and/or supplements Less than 20% More than 20 %								
2. COURSE DESCRIPTION	2. COURSE DESCRIPTION								
2.1. Course objectives	The aim of the course is to provide students with theoretical knowledge, acquired skills and practical examples to: • 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	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.								
study programme level	LO7: To apply computer tools for analysis and comparison of data, and suggest an optimal solution in traffic process.								
	LO8: To solve problems in traffic by using analytical and / or graphical methods.								
	Learning outcomes by Bloom: (maximum 2 werbs f	Learning outcomes by Bloom: (maximum 2 werbs for LO) Learning outcomes by Bloom: (maximum 2 werbs for LO) 1 - memory, 2 - understanding,							



2.4. Expected learning outcomes on the course level (4-10 learning outcomes)						3 - application,4 - analysis,5 - evaluation,6 - synthesis.	
	1.	Describe the basic concepts in	graphical con	nmunication		1, 2	
	2.	Select the view that best depic	ts the object a	nd draw orthogonal projections based on the	given isometric view	5, 4	
	3.	Design an isometric representa	tion of the bo	dy based on the given orthogonal projections	S	4	
	4.	Distinguish the rules of technic	cal presentation	on and apply them to the technical drawing.		4, 3	
	5.	Draw a technical drawing in th	e AutoCAD o	computer program.		4	
2.5. Course content according to detailed curriculum schedule	Constr	uctive allignement				l	
	No	Thematic unit	LO of the course	Content/teaching methods	Evalu	ation	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 exam they define and econcepts.		4 h
	2.	Technical letter, line types and widths, paper formats, scale and components of the technical drawing. Fundamentals of geometric	1, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical display. Independent exercise. Listen to a lecture and read literature.	At the colloquium or the exam: define and expladistinguish between the technical layout and aptechnical drawing; At the colloquium or the	in the basic concepts; e rules of the ply them to the	4 h
	3.	structures.	1, 2, 4	The exercises demonstrate the rules of technical presentation. Independent exercise.	exam: define and expla draw orthogonal project given isometric view; of	in the basic concepts; tions based on a	4 h



				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



	Ai sy	ntroduction to Computer- ided Design. CAD / CAM //stems. 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
1	ted sin ted Au	pecial markings on chnical drawings and mplifications. Details on chnical drawings. utoCAD, interface and asic 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
1	dr	utoCAD, commands for rawing, using and creating 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
1	ap a t	nutoCAD, commands for oplying measures, creating template, printing rawings.	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
1		utoCAD, creation and nanipulation 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
1		utoCAD, self-made orkshop drawing.	1, 4, 5	Listen to a lecture and read literature. The exercises demonstrate the rules of	At the colloquium or the written and oral exam: define and explain the basic concepts; distinguish between the rules of the	4 h



	technical presentation. Independent exercise.		. Independent	technical layout and apply them to the technical drawing; draw a technical drawin an AutoCAD computer program.		chnical drawing					
	15.	Final correpetition and preptite exam.	nsideration, paration for	1			and read literature.	-			4 h
3. EVALUATION OF STUD	ENT WO)RK									
3.1. Student obligations	attend cl	lasses at least 70%	, which is als	so a requireme	nt for obtaining	g the lect	t and Evaluation of Sourer's signature. Stucising the written and co	lents can take	the final exam ir	_	
3.2. Student work monitoring	Attendir	ng classes	2		Written exam	1	2 (without colloquiums)	Project	t		
(enter the share of ECTS credits	Experim	nental work			Research			Practic	al work		
for each activity so that the total	Essay		Report			Contin	uous check				
number of ECTS credits corresponds to the course credit	Colloquiums 2 (without written exam)		vritten	Seminar pape	er		Field v trips	vorks or Study			
value)	Teachin	g activities			The oral part exam	of	1	(other)	(
	Student	workload on all b	ases is 1 EC	TS credit for	30 hours of w	vork per	semester and is estir	nated as goir	ng to fieldwork o	r study trips (30	hours),
	preparat	ion of seminar wor	k and presen	tation (30 hou	ırs).						
		Obligation					Hours (estimated)				
3.3. Student work-load	1.	Attending classe		1 1 1 1		:	60				
	3.	Colloquiums and			,	awing)	30				
		(AutoCAD)	a written exa	in marviduai _l	лерагастоп		30				
	4.		idual prepara	ntion			30				
4. FORMATION OF STUDENT	4. FORMATION OF STUDENT GRADE										
4.1. Evaluation of written exam	Elemen	ments of evaluation Bad			Satisfying Above average						



	Technical drawing	sloppy. Made on inadequate paper size. Does not know the rules, does not apply or misapplies the elements of the technical representation. Does not knows interface or basic commands. It is not capable of drawing in a computer program.		Drawing neatly cr number of imprec distinction betwee	ise errors, a clear	Drawing ve errors.		
	Distinguish and apply the rules of technical drawing			view, correctly ap	e rules of the technical plies the basic, and es, the other elements ew.		rules of the technical view, ly applies the elements of al view.	
	AutoCAD 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		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 deeper understanding. Does not or apply basic terms and concept Does not know how to apply or explain the contents of the cours with examples.	haderstanding. Does not know basic terms and concepts. know how to apply or the contents of the course mples. without difficulty imparts new knowledge, understands the material, explains the terms and concepts supports them with examples. Knows the expert terminology.		synthesis a principles of and thoroug the materia explains th supports th solutions the given. It no	e is at the level of analysis, and evaluation. Observes the of physical laws, accurately ghly explains the content of all, and logically connects and the terms and concepts and the em with examples. Finds the matter of the correlations with related luent in professional y.		
	Colloquiums/	2		3	4		5	
4.3. Forming the final grade	Written exam	10-12 points		13-15 points	16-17 points	S	18-20 points	
according to the evaluation	Colloquiums/	2		3	4		5	
elements	AutoCAD	10-12 points		13-15 points	16-17 points	3	18-20 points	
	The oral part of exem	2		3	4		5	
		10-12 points		13-15 points	16-17 points	3	18-20 points	



	Percentage of acquired knowledge, skills and competencies (teaching + final exam)	Numerical grade	ECTS grade
4.4. Formation of the final grade	90 – 100%	5 (excellent)	A
based on the absolute	80 – 89,9%	4 (very good)	В
distribution	65 – 79,9%	3 (good)	С
	60 – 64,9%	2 (sufficient)	D
	50 – 59,9%	2 (sufficient)	Е

5. ADDITIONAL INFORMATION ABOUT COURSE

5.1. Compulsory literature	Tido	Number of copies in	Availability via other
(available in the library and via	Title	the library	media
other media)	1. Koludrović, Ć.: Tehničko crtanje u slici s kompjuterskim aplikacijama, Rijeka, 2009.		City library
	2. George Omura: Osnove programa AutoCAD 2008, MIŠ d.o.o. Zagreb, 2007.	-	City library
	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.		on-line (e-learning)
5.2. Additional literature (at the	3. Klem N., Koški Ž., Otković I.: Tehničko crtanje i CAD, Građevinski fakultet Sveučilišta		-
moment of changes and/or	u Osijeku, Osijek 2006.	-	-
amended of study programme)	4. Galeta T., Glazina V., Kljajin M.: AutoCAD Osnove za tehničko crtanje, Strojarski		-
amended of study programme)	fakultet u Slavonskom brodu Sveučilišta u Osijeku, Slavonski brod 2005.		On-line
	5. Herold Z.: Računalna i inženjerska grafika, Fakultet strojarstva i brodogradnje		On-line
	Sveučilišta u Zagrebu, Zagreb 2003.		
	6. Budimir D.: Vježbe iz AutoCAD-a, Fakultet prometnih znanosti Sveučilišta u Zagrebu,		
	Zagreb 2010.		
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be	e ensured through interactive	ve work. By keeping track of
that ensure the acquisition of	attendance and student activity during classes and provided information on students' progress through	ough short colloquiums and	homework, information for
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Stud	ents will be informed abou	t their rights and obligations
competences	as well as the methods of work and the required literature. Indicators of quality assurance system	n: Student survey, monitor	ring of annual data from the
COMPONICOS			

Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.

competences



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).



PK-SP-2. Description of the new course or the course that has been supplemented and / or amended or updated.

1. GENERAL COURSE INFORMATION								
1.1. Course title	BASICS OF COMPUTER SCIENCE	1.8. Course code in ISVU	129840					
1.2. Course lecturer	Jerko Acalin	1.9. Course code in MOZVAG						
1.3. Suradnici	-	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(15+45+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%)	1st, course materials are on-line, 0%					
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	3.					
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% $X\square$ More than 20 % \square					

2. COURSE DESCRIPTION	
2.1. Course objectives	The objective is for students to: •get acquainted with the role and organization of information systems, as well as the application of information technologies in work and business, • adopt and expand basic technical knowledge on information technologies, • acquire knowledge to understand current information and communication technologies. The aim of the course is to acquaint students with the maintenance and introduction of new technologies, independent use and renewal of the existing IT structure.
2.2. Terms of course entry and required competences	4 year secondary education completed; qualification level 4.2 according to the CROQF.
	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.
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.
staay programme lever	LO6: To analyze and present relevant facts from the field of traffic needed to reach conclusions.
	LO7: To apply computer tools for analysis and comparison of data, and suggest an optimal solution in traffic process.



	LO8: To solve problems in traffic by using analytical and / or graphical methods.	
		Level of LO:
		1- remembering,
		2- understanding,
	Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)	3- application,
		4-analysis,
2.4. Expected learning outcomes		5-evaluation,
on the course level		6-synthesis
	1. Define and explain the notions IS and IT,	1, 2
	2. Use Microsoft office package,	3
	3. Analyse the basic structure of computers and network systems,	4
	4. Analyse and evaluate IS security,	4, 5
	5. Present acquired knowledge, ideas, problems and solutions, both individually and in teams	6

		Const	tructive allignement				
		no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
	2.5. Course content according to detailed curriculum schedule	1.	Introduction to the course and a detailed syllabus. Exercises: introduction to e-learning and web-mail	-	Students listen to lectures and read literature. In seminar classes, they get acquainted with the content of the course and documents on the elearning page of the course by working independently on a computer.	-	2 h
		2.	Informatics and computing Exercises: MS Windows basics	1	Students listen to lectures and read literature. Get acquainted with the basics of MS Windows on computers.	They know how to use the MS Windows operating system at a colloquium or a written and oral exam	6 h
			Historical development of computing	1	Students listen to lectures and read literature. Get acquainted with the	They know how to use the MS Windows Explorer at a colloquium or a written and oral exam	6 h



	Exercises: MS Windows file management		basics of MS Windows Explorer on computers.		
4.	Information society Exercises: MS Word obasics	2	Listen to lectures and read literature. Work on computers.	They know how to use the MS Windows Word at a colloquium or a written and oral exam	6 h
5.	Computer networks and Internet Exercises: MS Word text editing	2	Listen to lectures and read literature. Work on computers.	They know how to use the MS Word for text editing at a colloquium or a written and oral exam	6 h
6.	Planning and designing of IS Exercises: MS Word – making template	3	Listen to lectures and read literature. Work on computers.	They know how to use the MS Word for templates at a colloquium or a written and oral exam	6 h
7.	Information systems and technologies Exercises: MS Word – seminar paper example	3	Listen to lectures and read literature. Work on computers.	They know how to use the MS Word to create seminar paper at a colloquium or a written and oral exam	6 h
8.	Revision for the colloquium Colloquium 1.	1,2,3,4	Listen to lectures and read literature. Work and take the test on computers.	They work on the colloquium on a computer and send the result via web-mail	36 h
9.	Von Neumanov computer model Exercises: MS Excel – table formatting	4	Listen to lectures and read literature. Work on computers.	At the colloquium or written and oral exam, they know how to format tables using MS Excel.	6 h
10. Exercise	Safety of IS Exercises: MS Excel – application of basic formula	4, 5	Listen to lectures and read literature. Work on computers.	They know how to apply the basic functions and formulas in MS Excel at a colloquium or written and oral exam.	6 h
11.	Exercises: MS Excel – graphs	4, 5	Listen to lectures and read literature. Work on computers.	At the colloquium or written and oral exam, they know how to create various types of charts in MS Excel.	6 h
12.	MS Excel –making templates	6	Listen to lectures and read literature. Work on computers.	At the colloquium or written and oral exam, they know how to create a template in MS Excel.	6 h



	13.	Power Point presentation templates	– making with ready-made	6	Listen to lectures a Work on computer		At the colloquium or written a they know how to make a pre ready-made forms.		6 h
	14.	Power Point presentation matrix	– making by editing slide	6	Listen to lectures a Work on computer		At the colloquium or written a they know how to make a pre creating their own slide matri	sentation by	6 h
	15.	Final conclus and preparati colloquium a Colloquium	nd/or exam	4, 5, 6	Listen to lectures a individually for the test on computers.		They work on the colloquium and send the result via web-m	_	40 h
3. EVALUATION OF STUDEN	TS` W	ORK							
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%. Part-time students are required to attend classes at least 50%. All students are required to carry USB memory stick and their AAI@EduHr password. Students who have during the course achieved: • 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. 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).							<u>@EduHr</u> ar; ar or	
	Atten	dance	1	Writ	ten exam	3 (without colloque	ia) Project		
3.2. Monitoring student work (enter the share of ECTS credits	Exper work	rimental		Rese	earch		Practical work		
for each activity so that the total number of ECTS points	Essay	,		Repo	ort		Continuous examination	1	
corresponds to the credit score of the course))	Collo	quium	3 (without written exam)	Sem	inar paper		Other		
	Class	activity		Oral	exam	1	Other		
3.3 Student workload	Stude 1.	tudent workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as:							



	2. Preparing	colloquia or exams through indi	ividual work 90 hours				
4. FORMIRANJE OCJENE							
4.1. Grading seminar papers	-						
	1	Unsatisfactory	Satisfactory			Above average	
4.2. Grading colloquia/ written and oral exam	understanding. D	mory, without a deeper loes not know or apply basic lots. Does not know how to the contents of the course with	Reproduces the basic concept difficulty imparts new knowled the material, explains the term supported with examples.	lge, understands	and evaluation accurately and of the material explains the te examples. Fin	at the level of analysis, synthesis a. Observes the principles, I thoroughly explains the content I, and logically connects and erms and concepts supported with ds solutions that were not en. Notes correlations with related	
	Active course	70-74,9% of attendance	75-79,9% of attendance	80-89,9% of	attendance	90-100% of attendance	
	attendance	2 points	5 points	10 pc	oints	20 points	
		2	3	4		5	
4.3. Final grade according to evaluation elements	Colloquia/ Written exam	50-64,9%	65-79,9%	80-89),9%	90-100%	
evaluation elements		25 points	30 points	35 pc	oints	40 points	
	0.1	2	3	5		5	
	Oral exam	25 points	30 points	35 pc	oints	40 points	
		acquired knowledge, skills and es (teaching + final exam)	Numerical grade	Numerical grade		ECTS grade	
4.4. Final grade according to		90 – 100%	5 (excellent)			A	
absolute division		80 – 89,9%	4 (very good)			В	
		65 – 79,9%	3 (good)			C D	
		60 – 64,9% 50 – 59,9%	2 (satisfactory) 2 (satisfactory)			E	



5. ADDITIONAL COURSE INFORMATION

5.1. Communicate literatura	Title	Number of copies in the library	Availability via other media
5.1. Compulsory literature (available in the library and via	Informacijski sustavi i tehnologije; Veleučilište u Šibeniku, Jerko Acalin, 2017 – udžbenik s prilogom PP-prezentacija.	5	Avaiable on the e-
other media)	Osnove informatike (Windows, Word, Excel, PoverPoint), Veleučilište u Šibeniku, Jerko Acalin, 2017 - skripta	5	learning page of the course
5.2. Additional literature (at the	1. EXCEL 2013 EXCELL 2010, Milan Korać	5	
moment of changes and/or	2. Excel 2010 Data analysis and Business Modeling, Wayne l. Winston	2	_
amended of study programme)	3. Word 2010 Microsoft Press, A Division of Microsoft Corporation	2	_
amended of study programme)	4. Power Pivot for Excell 2010 Marko Russo i Alberto Ferari	2	
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 ensur attendance and student activity during classes and provided information on students` progress through sl further guidance to students will be provided in order to increase the efficiency of their work. Students w as well as the methods of work and the required literature. Indicators of quality assurance system: Stu Croatian employment service on the annual state of student employment, surveys from employers and A	hort colloquiums and hom vill be informed about the dent survey, monitoring of	nework, information for ir rights and obligations
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 to possible adjournment will be published in a timely manner on the e-learning site of the course and on the teachers during the consultation period (at least one hour per week), while for short questions and expl also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be working days after receiving the e-mail).	e website of the Polytechn anations they can be cont	ic. Students can contact acted during class. It is



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,	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.	st – materials available On-line,			
graduate)		20%)	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 □ no			
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					
	The goal is to provide students with theoretical knowledge and case studies:				
	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				
2.1. Course objectives	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.				
	LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional puublic in Croation and English.				
2.3. Learning outcomes on the	LO2: To organize and implement team work and critically judge the opinions and atitudes od team members.				
study programme level	LO3: To individually and responsibly search, interpret and integrate the revevant literature needed to make decisions.				
	LO6: To analyze and present relevant facts from the field of traffic needed to reach conclusions.				



	LO10: To compare and choose technical and technollogical solutions in treffic and / or traffic logistics.						
	LO13: To track trends in the development of technique, technology and safety in traffic.						
	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)	 LO Level: Recapture, Understanding, Application, Analysis, Evaluation, Synthesis 					
2.4. Expected learning outcomes	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					
on the course level	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					

	Constr	constructive alignment						
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed		
2.5. Course content according to detailed curriculum schedule	1.	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		



2.	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
3.	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
4.	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
5.	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 their choice. List and analyze the primary functions of packaging material.	10 h
6.	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
7.	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



	8.	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
	9.	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 methods.	10 h
	10.	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
	11.	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
	12.	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



1							
	13.	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	
	14.	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 collocitium or the wriften and oral exam l	4 h	
	15.	Concluding Considerations / Repetition and Exam Preparation.		They listen to a lecture and prepare individually for the exam.		20 h	
3. EVALUATION OF STUDENT WORK							
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:							

3.1. Students' obligations

- 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.

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 project, passing two colloquia);
- 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).

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)	Othe	er (inscribe)	
3.3. Student workload 4. GRADING			•	hours of	* /	estimate		ve average
	Organization	The paper is not organized in a logical order and its structure is lacking.		The paper is well structured with a cledistinction between the introduction the main part of the text and conclusion.		uction,	distinction between the introduction, the	
4.1. Seminar paper grading	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.		g style cture is	terminology and sh their meaning. The excellent, the ser	are aligned with official now an understanding of The writing style is numbers are clear and oulary is rich and there I 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.		with approp	Sources are listed, but incomplete and with errors. The references are appropriate for the subject and show a satisfactory research attitude.		consistent. The refe	curate, complete and erences are appropriate, and comprehensive and earch approach.
4.2. Colloquium / exam grading	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.		ns, without difficulty e, understands subject ns and the notions that	evaluation. It observes legitimacy, accurately and		f analysis, synthesis and itimacy, accurately and need to the subject, and the terms and concepts



				originally given correlative subject	. There is a correlation with ets.	
	Active participation in	70 of attendance	71-80% of attendance	81-90% of attendance	91-100%	
	the lessons	2 points	3 points	4 points	5 points	
	Descend menon	2	3	4	5	
4.3. Creating a final grade	Research paper	8 points	10 points	12 points	15 points	
according to evaluation		2	3	4	5	
elements	Colloquium / written exam	50-64,9%	65-79,9%	80-89,9%	90-100%	
		25 points	35 points	40 points	50 points	
		2	3	5	5	
	Oral exam	15 points	20 points	25 points	30 points	
	Percentage of adopted knowledge, skills and competences (teaching + final exam)		Numerous grade		ECTS grade	
4.4. Creating a final grade	9	0 - 100%	5 (excellent)		A	
according to absolute	80) – 89,9%	4 (very good)		В	
allocation	65	5 – 79,9%	3 (good)		С	
	60) – 64,9%	2 (sufficient)		D	
	50) – 59,9%	2 (sufficient)		Е	

5. ADDITIONAL INFORMATION ABOUT THE COURSE

5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(available in the library and	1. Gacina, N. (2012). Knowledge of goods. Internal script of the Polytechnic of Šibenik, Šibenik.		e-learnigng VUŠ-a
through other media)	2. Lazibat, T. (2004). Knowledge of goods and quality management. Synergy Publishing, Zagreb.	1	
	(Chapters selected)	7	
5.2. Additional literature (at	1. Andrijanić, I., Balen, M., Lazibat, T. (2001). Knowledge of merchandise in commerce. Mikrorad,		
the moment of changes	Zagreb. (Chapters selected)	7	
and/or amended of study	2. Štrumberger, N. (2000). Handling of materials in traffic. Faculty of Transportation Sciences,	1	
programme)	Zagreb. (Chapters selected)	7	



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).



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

1. 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 More than 20 % □						
2. COURSE DESCRIPTION									
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; quali	fication level 4.2 according to the CROQF.							
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms fi in Croatian and English.	om technology and organization of road traffic in written and ora	l communication with the professional public						



	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.							
	Lear	Level of LO: 1 - remembering 2 - understand 3 - application 4 - analysis, 5 - evaluation, 6 - synthesis	ling,					
		o understand, apply and link basic written and oral communication	terms from th	e professional terminology of English	h road traffic and use them in	2, 3		
		o apply grammatical structures in te		nments		3		
		o interpret and use tenses in real-lif				3, 4		
		o develop a shorter essay within th	e topics of the	e course		3		
		o reproduce an email in English	aa rriithin tha	subjects of the course to everyone one	oven opinions	3		
	6. to communicate in a foreign language within the subjects of the course, to express one own opinions7. to compare and evaluate different traffic solutions				6 5			
		o analyse medium complex texts ar				4		
		to use part of the general language competency at levels B1/B2			6			
	Cons	tructive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time	
2.5. Course content according to detailed curriculum schedule	1.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	_	2 h	
	2.	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 applied grammatical structures are evaluated, understand, app from the professional terminoral traffic and use them in	on texts and tasks ly and link terms ology of English	4 h	



					communication verb tenses are interpreted in a real linguistic context, use part of other language competences at B1 level.		
	3.	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	
	4.	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 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	
	5.	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	4 h	



					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. 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	
6.	6.	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.	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
	7.	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
	8.	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	10 h



					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	
	9.	Fitness To Drive – Relative Pronouns And Possessivess	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises.	competences at B1 level. 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
	10.	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 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



	•		•		
11.	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
12.	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 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
13.	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	4 h



					other countries, analyze medium complex texts and solve tasks, use part of other language			
					competences at B1 level.			
					In colloquium or written and oral exams the			
				Listen to lectures and read	applied grammatical structures on texts and tasks			
				literature. During lectures	are evaluated, verb tenses are interpreted in a real			
		"Jam Yesterday-Jam		individually research the content	linguistic context, can communicate in foreign			
		Tomorrow"; Passenger		of this thematic field by searching	languages within the course topic, express their			
	14.	Transportation – Tenses	1,2, 3, 6, 9	data bases, presentt acquired	own opinions, present their own ideas related to	6 h		
	17.	Revision, Only Stricker Traffic	1,2, 3, 0,)	knowledge, express their own	the development of transport solutions to develop	On		
		Rules Can Prevent Accidents –		ideas and ways of problem	a longer essay within course topics, comparing			
		Articles		solving. Brainstorming,	and evaluating different solutions in the traffic of			
				discussion. Solve exercises.	other countries, analyze medium complex texts			
					and solve tasks, use part of other language			
					competences at B1 level.			
					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			
			1, 2, 3,		languages within the course topic, express their			
	15.	Revision – II Kolokvij	4,5, 6, 7,	Solve exercises.	own opinions, present their own ideas related to	10 h		
			8, 9		the development of transport solutions to develop			
		Í		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.			
A FILL THE PLANT OF STREET								

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



	outcomes are: essays, oneself about the cour	objective type assists. All notices about	gnments, discuss maintenance or	eventual postponement of teaching	tion, etc. The obligation of each ng will be published on the web steet teaching materials and the list of	n student is to regularly inform ite of the Polytechnic of Šibenik
	Attendance 0	,5	Written exa	n 1 (without colloqui	ia) Project	
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work	
for each activity so that the total number of ECTS points	Essay		Report		Continuous examination	
corresponds to the credit score of the course)	Colloguium	(without written xam)	Seminar pap	er	Other	
	Class activity 0	,5	Oral exam	1	Other	
3.3. Student workload 4. GRADING SYSTEM	1. Attending cl	all bases for 1 ECTS asses and exercises 4 lloquia or exams thre	5 hours	rs in a semester and is estimated work 45 hours	as:	
4.1. Grading seminar papers	-					
	Unsatisf	actory		Satisfactory	Above a	verage
4.2. Grading colloquia/ written and oral exam	Responds by memor understanding. Does basic terms and co know how to app contents of the cours	not know or apply oncepts. Does not ly or explain the	difficulty in understands the	e basic concepts and without mparts new knowledge, e material, explains the terms apported with examples.	Knowledge is at the level evaluation. Observes the princip explains the content of the mand explains the terms and concerning solutions that were a correlations with related material	oles, accurately and thoroughly aterial, and logically connects cepts supported with examples. not originally given. Notes
4.3. Final grade according to	Active course	70-75% of	attendance	76-86% of attendance	87-100% of attendance	Maksimum bodova
evaluation elements	attendance	3 po	ints	7 points	20 points	20 bodova
	Seminar paper					

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



	Calle and a / Waite an	2	3	4	5
	Colloquia/ Written exam	50-64,9%	65-79,9%	80-89,9%	90-100%
	CAUIII	25 points	30 points	35 points	40 bodova
	Oral avam	2	3	4	5
	Oral exam	25 points	30 points	35 points	40 bodova
	_	uired knowledge, skills and (teaching + final exam)	Numerical grade		ECTS grade
4.2 Final and a second as 4.	9	90 – 100%	5 (excellent)		A
4.3. Final grade according to absolute division	3	80 – 89,9%	4 (very good)		В
absolute division	(65 – 79,9%			С
	(60 – 64,9%	2 (satisfactory)		D
	5	50 – 59,9%	2 (satisfactory)		Е

5. ADDITIONAL COURSE INFORMATION

5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(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 Langzage 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. 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	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 or an amended and/or changed or modernized course

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	Ana-Mari Poljičak	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 Traffic	1.11. Level of e- learning application (1st, 2nd, 3rd 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 □ No					
1.7. Credit point (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %					

2. COURSE DESCRIPTION						
	The aim is to provide students with theoretical knowledge and case studies:					
	• define elements and branches of the transport system;					
	• learn the elements of the transport system;					
2.1. Course objectives	• 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	Four-year secondary education completed; qualification level 4.2 according to the HKO.					
required competences	1 our-year secondary education completed, quantication rever 4.2 according to the risco.					
	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in					
2.3. Learning outcomes on the	Croatian and English.					
study programme level	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team members.					
	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.
	Learning outcomes according to Bloom's taxonomy:
2.4. Expected learning outcomes	1. to enumerate and explain the elements and branches of the transport system 1, 2
on the course level	2. to demonstrate knowledge and understanding of course content by defining and describing an interdisciplinary approach to the transport system 1, 2
on the course level	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

	Constructive alignment									
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time				
25 Course content according to		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				
2.5. Course content according to detailed curriculum schedule	1.	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				
	2.	Maritime traffic.	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	In colloquium or the written and oral exam they identify and explain the elements and technologies of maritime	4 h				



				topic area by searching the database, and	transport, and define and describe the		
				on the basis of it and the read literature,	role of technical and technological		
				come up with their own ideas, and ways to	characteristics of maritime transport in		
				solve problems.	the transport system.		
				They listen to a lecture and read literature.	In colloquium or written and oral exams		
				In the course of the seminar, they	they specify and explain the elements		
				individually explore the content of this	and technologies of inland waterway		
	3.	Inland waterways.	1, 2, 3, 5	topic area by searching the database, and	transport, and define and describe the	4 h	
				on the basis of it and the read literature,	role of technical and technological		
				come up with their own ideas, and ways to	characteristics of maritime transport in		
				solve problems.	the transport system.		
				They listen to a lecture and read literature.	In colloquium or written and oral exams		
				In the course of the seminar, they	they identify and explain the types and		
		Seaports. Transportation technologies.	1 2 2 4	individually explore the content of this	operation of seaports, and define, list and		
	4.		1, 2, 3, 4,	topic area by searching the database, and	describe transportation technologies and	4 h	
			5, 6	on the basis of it and the read literature,	explain the interdependence of all		
				come up with their own ideas, and ways to	branches of transport. Seminar work is		
				solve problems.	done in groups with discussion.		
					In colloquium or written and oral exams		
					they identify and explain seaports, and		
	_	Stee descript (Dilates mant)	1, 2, 3, 4,	The section to a least one	define and describe the role of seaports as	0.1	
	5.	Study trip (Rijeka port).	5, 6	They listen to a lecture.	collection points into which traffic flows	8 h	
					from all traffic routes and means of		
					transport of different branches of traffic.		
				They listen to a lecture and read literature.	In colloquium or written and oral exams		
				In the course of the seminar, they	they specify and explain the elements and		
			1 2 2 4	individually explore the content of this	technologies of road transport, and define		
	6.	Road traffic.	1, 2, 3, 4, 5, 6	topic area by searching the database, and	and describe the role of technical and	4 h	
			3,0	on the basis of it and the read literature,	technological characteristics of road		
				come up with their own ideas, and ways to	transport in the transport system. Seminar		
				solve problems.	work is done in groups with discussion.		
	7	Road traffic.	1, 2, 3, 4,	They listen to a lecture and read literature.	In colloquium or written and oral exams	4 h	
	7.	Roau traffic.	5, 6	In the course of the seminar, they	they specify and explain the elements	4 11	
		•	•				



				individually explore the content of this	and technologies of road transport, and		
				topic area by searching the database, and	define and describe the role of technical		
				on the basis of it and the read literature,	and technological characteristics of road		
				come up with their own ideas, and ways to	transport in the transport system.		
				solve problems.	Seminar work is done in groups with		
					discussion.		
					In colloquium or written and oral exams		
					they specify and explain the elements		
					and technologies of railway transport,		
		Rail traffic.	1, 2, 3, 4,	They listen to a lecture and prepare	and to define and describe the role of		
	8.	1st Colloquium	5, 6	individually for the colloquium.	technical and technological	42 h	
		1			characteristics of railway transport in the		
					transport system. Seminar work in		
					groups is prepared with discussion.		
					In colloquium or written and oral exams		
	9.		1, 2, 3, 4, 5, 6	They listen to a lecture and read literature.	they specify and explain the elements		
				In the course of the seminar, they	and technologies of railway transport,		
				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.	and to define and describe the role of		
		Rail traffic.			technical and technological	4 h	
					characteristics of railway transport in the		
					transport system. Seminar work in		
					groups is prepared with discussion.		
				They listen to a lecture and read literature.	In colloquium or written and oral exams		
				In the course of the seminar, they	they specify and explain the elements		
				individually explore the content of this	and technologies of air traffic, and define		
	10.	Air traffic.	1, 2, 3, 4,	topic area by searching the database, and	and describe the role of technical and	4 h	
	10.		5, 6	on the basis of it and the read literature,	technological characteristics of air traffic		
				come up with their own ideas, and ways to	in the transport system. Seminar work is		
				solve problems.	done in groups with discussion.		
				They listen to a lecture and read literature.	In colloquium or written and oral exams		
			1, 2, 3, 4,	In the course of the seminar, they	they specify and explain the elements		
	11.		5, 6	individually explore the content of this	and technologies of postal traffic, and	4 h	
			5,0	topic area by searching the database, and	define and describe the role of technical		
				topic area by scarcining the database, and	define and describe the role of technical		



			on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	and technological characteristics of postal traffic in the transport system. Seminar work is done in groups with discussion.	
12.	Telecommunication traffic.	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
13.	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
14.	City traffic. Taxi traffic. 2nd Colloquium.	1, 2, 3,4, 5,	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
15.	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

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:



	• From 25- extraordina • More than Writing a seminar p teaching through co	 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. 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). 								
	Attendance	1	Written exam	1 (without colloquia)	Project					
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work					
for each activity so that the total number of ECTS points	Essay		Report		Continuous examination	1				
corresponds to the credit score of the course)	Colloquium	1 (without written exam)	Seminar paper	1	Other					
	Class activity	1	Oral exam	1	Other					
3.3. Student workload	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as: 1. Attendance 45 h 2. Design of seminar work and presentation 15 h 3. Preparation for the mid-term / midterm exam 120 h									
4. FORMATION OF GRADES										

		Element of evaluation	Bad	Satisfying	Above average
	4.1. Grading of seminar work	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	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 writing style is excellent, the sentences	



		and with frequent and a grammatical errors.	and with frequent and repeated grammatical errors.		clear, the vocabulary is appropriate and there are few grammatical errors.			are clear and concise, the vocabulary is rich and there are no grammatical errors.		
	Citing and reference references	ing references do not fit the	ces do not fit the topic and and with cursory approach to exploring relevant t		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.			
		Bad			Satisfying			A	Above average	
4.2. Grading of the colloguium / written and oral exam	It responds by mem understanding. Doe terms and concepts. apply or explain the examples.	apply basic ow how to difficulty imparts new knowledge, understands the material explains the terms and concents that			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.					
	Active	70-75% of the presence	76-86% of the presence		he presence	87-100% of	the preser	nce	Case studies resolved	
	attendance	0 points	0 points		0 p	oints		0 points		
	Seminar paper	2	3			4		5		
4.3. Forming the final grade		Made and handed over	Made and ha			Made and handed o		er	Made and handed over	
according to the evaluation	Examination /	2	3			4			5	
elements	Written	50-64%					1-90%		91-100%	
	examination	25-32 points		33-40	-	41-45	points		46-50 points	
	Oral part of the	25 22 : .		32.40		41 4/	5		5	
	exam	25-32 points	1 1	33-40	points	41-45	points		46-50 points	
		f acquired knowledge, skills ar nces (teaching + final exam)	na	nd Number rating		g		ECTS grade		
4.4. Formation of final grade		90 – 100%			5 (excellent)				A	
based on absolute distribution		80 - 89,9%			4 (very good)			В	
		65 – 79,9%			3 (good)			С		
		60 - 64,9%	2 (sufficient)				D			



	50 – 59,9%	Е									
5. ADDITIONAL INFORMATION ON THE SUBJECT											
5.1. Required literature (available in the library and	Title		Number of copies in the library	Availability via other media							
through other media)	 Cerovac, V.: Tehnika i sigurnost prometa; FPZ, Za Božičević, D., Kovačević, D.: Suvremene transport 		3	No							
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	 Lectures Zelenika, R.: Prometni sustavi, Ekonomski fakultet Zelenika, R.: Multimodalni prometni sustavi, Ekon Sussman, J.: Introduction to Transportation System 2000. 	omski fakultet u Rijeci, Rijeka, 2006.	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 or an amended and/or changed or modernized course.

1. GENERAL INFORMATI	ON					
1.1. Course lecturer	Danijel Mileta	1.8. Course code in ISVU	187598			
1.2. Course title	BASICS OF ELECTRICAL ENGINEERING AND	1.9. Course code in MOZVAG				
	ELECTRONICS					
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical	(30+30+0+0)			
		exercises + Seminars + e learning)				
1.4. Study programme	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level),	1 st , course materials are on-			
(specialist, undergraduate,		percentage of on line course performance (max. 20%)	line, 0%			
graduate)						
1.5. Course status (obligatory,	Obligatory	1.12. Number of course revisions	3			
optional)						
1.6. Year of study	1 st	1.13. Modernization	Yes			
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or	Less than 20% X			
•		supplements	More than 20 %			
2. COURSE DESCRIPTION						
2.1. Course objectives	The main objective of the course is to familiarize students w	ith basic knowledge in the field of electrical engineering and e	lectronics.			
2.2. Terms of course entry and						
required competences	Four-year secondary education completed; Possession of a I	Level 4.2 qualification according to the CROQF.				
2.3. Learning outcomes on the	IU4: To apply knowledge from the field of natural and techn	nical sciences to problems in road traffic.				
study programme level	IU8: To solve problems in traffic by using analytical and/or graphical methods.					
	Learning outcomes by Bloom: (maximum 2 werbs for LO)		Level of LO:			
2.4. Expected learning			1 - memory,			
outcomes on the course level (4-			2 - understanding,			
10 learning outcomes)			3 - application,			
			4 - analysis,			
			5 - evaluation,			
			6 – synthesis.			
	1. Set and calculate basic equations of simple circuits and m	agnetic circuits.	3			
	2. Draw or sketch schematics of basic electrical devices		4, 3			



		tify and compare electrical and magn				2, 4	
		cribe electronic components and basis				1	
		ict the results of electrical and magn				5	
25 C		Solve simple tasks in the field of electrostatics and electromagnetism.					
2.5. Course content according to detailed curriculum schedule	Constr	ructive allignement					
detailed culticulum schedule	No	Thematic unit LO of Content/teaching methods Evaluation					
	140	Thematic unit	the course	Content/teaching methods	Eva	nuation	Time
	1.	Introduction to the course and detailed curriculum.	-	Students listen to a lecture. On the computer, they are introduced to the course content and documents on the e-learning course page.		-	2h
	2.	Basics of electricity	3, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	exam they can basic concepts and phenomena or sketch the s calculate simple electricity.	define and describe and identify causes of electricity, draw same, and solve or exaks in the field of	6h
	3.	Electric current and associated phenomena	1, 3, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	exam they can basic concepts, phenomena of related phenom	am, written and oral define and describe identify the basic direct current and ena, draw or sketch e simple tasks in the arrent.	4h
	4.	Simple DC circuits	1, 2, 3, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	exam they can the basic conce electrons in si	define and describe pts, the behavior of imple DC circuits, he same, and set and	4h



_						
					solve or calculate tasks on the topic of simple DC circuits.	
	5.	DC circuits	1, 2, 3, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium, written and oral exam they can define and describe the basic concepts, the behavior of electrons in DC circuits, draw or sketch the same, and set and solve or calculate tasks on the topic of DC circuits.	4h
	6.	Capacitor joints	1, 2, 3, 4, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium, written and oral exam they can define and describe basic terms and related phenomena in capacitors and capacitor joints, draw or sketch the same, and solve or calculate simple tasks of capacitor joints	4h
	7.	Energy, work, power	1, 2, 3, 4, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium, written and oral exam they can define and describe the basic terms and related phenomena related to energy work and power of electricity, draw or sketch the same, and solve or calculate simple tasks in the specified field.	4h
	8.	Lighting	3	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the oral exam, they can define, describe, enumerate and distinguish basic concepts from the domain of luminaries.	1h
	9.	Repetition / Colloquium	1, 2, 3, 4, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	It is necessary to recognize, set and solve simple tasks from thematic units 2-7. At the midterm, written and oral exam they can define and	4h



				describe the basic concepts of electromagnetism.	
10.	Electromagnetism		Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium, written and oral exam they can define and describe the basic concepts of	
		1, 2, 3, 4, 5		electromagnetism, identify related phenomena, draw and sketch them, and solve or calculate simple tasks in the field.	9h
11.	Transformer	1, 2, 3, 4, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium, written and oral exam they can define, describe, draw or sketch the mode of operation of the transformer and the phenomena that occur in it and to	4h
12.	AC generator		Students listen to a lecture and read literature.	solve or calculate simple tasks in the field. At the colloquium, written and oral	
12.	Ac generator	1, 2, 3, 4, 5	The exercises demonstrate how to solve tasks. Independent task solving.	exam they can define, describe, draw or sketch the principle of operation of the generator and solve or calculate simple tasks in the field.	4h
13.	Electromotor	1, 2, 3, 4, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the midterm, written and oral exam they can define, describe, draw and sketch the principle of operation of electric motors and solve or calculate simple tasks in the field.	4h
14.	Basic electronic elements	2, 4	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the oral exam, they are able to define and describe the basic electronic elements.	2h
15.	Repetition / Colloquium	1, 2, 3, 4, 5	Students listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	It is necessary to identify, set and solve simple tasks from thematic units 10-13.	4h



4. EVALUATION OF ST	UDENT WORK	TUDENT WORK								
3.1. Student obligations	In accordance with the	Rulebook on Study and the Ruleb	ook on Student Assessmen	nt and Evaluation: for a	ll full-time students atter	ndance of at least 70%.				
, and the second		equired to attend a class of at leas								
		(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 writte	en exam (test). Written exam (test	can be held in a regular o	or extraordinary exam p	period; more than 50% -	students have the right				
	to take the final exam.	Students can take the final exam	rom the course in two way	ys: a) during the course	of teaching through cor	ntinuous monitoring of				
	students (active particip	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	Attending classes	1	Written exam	1	Project					
(enter the share of ECTS credits for each activity so that the total	Experimental work		Research		Practical work					
number of ECTS credits	Esaay		Report		Continuous check					
corresponds to the course credit	Colloquiums	1	Seminar paper		(other)					
value)	Teaching activities		The oral part of exam	1	(other)					
3.3. Student work-load				-						
4. FORMATION OF STUDENT GRADE										
					T					
4.1. Evaluation of seminar paper	Elements of	Bad	Satis	sfying	Above a	average				
	Elements of evaluation					G				
	Elements of	The paper is not organized in	a The paper is well st	ructured with a clear	The paper is well st	tructured with a clear				
	Elements of evaluation		a The paper is well st distinction between	ructured with a clear the introduction, the	The paper is well st distinction between	tructured with a clear the introduction, the				
	Elements of evaluation	The paper is not organized in	a The paper is well st	ructured with a clear the introduction, the	The paper is well st distinction between main body of the tex	tructured with a clear the introduction, the kt and the conclusion,				
	Elements of evaluation	The paper is not organized in	a The paper is well st distinction between main body of the text	ructured with a clear the introduction, the	The paper is well st distinction between main body of the tex which are logically int	tructured with a clear the introduction, the kt and the conclusion,				
	Elements of evaluation Organization	The paper is not organized in logical order and lacks structure	a The paper is well st distinction between main body of the text in Words and expression	ructured with a clear the introduction, the and the conclusion.	The paper is well st distinction between main body of the tex which are logically int	tructured with a clear the introduction, the ext and the conclusion, terconnected.				
	Elements of evaluation Organization Terminology, writing	The paper is not organized in logical order and lacks structure. Words and expressions are not	a The paper is well st distinction between main body of the text in Words and expression official terminology.	ructured with a clear the introduction, the and the conclusion.	The paper is well st distinction between main body of the tex which are logically int Words and expression official terminology	tructured with a clear the introduction, the ext and the conclusion, terconnected.				
	Elements of evaluation Organization Terminology, writing	The paper is not organized in logical order and lacks structure. Words and expressions are not line with official terminology. The structure of the structure	a The paper is well st distinction between main body of the text in Words and expression official terminology. appropriate, the sente	ructured with a clear the introduction, the and the conclusion. ons are in line with The writing style is	The paper is well st distinction between main body of the tex which are logically int Words and expression official terminology understanding of their	tructured with a clear the introduction, the kt and the conclusion, terconnected. ons are aligned with y and show an				
	Elements of evaluation Organization Terminology, writing	The paper is not organized in logical order and lacks structure. Words and expressions are not line with official terminology. The writing style is not appropriate,	a The paper is well st distinction between main body of the text in Words and expression official terminology, appropriate, the sente the vocabulary is app	ructured with a clear the introduction, the and the conclusion. ons are in line with The writing style is ence structure is clear, propriate and there are	The paper is well st distinction between main body of the tex which are logically int Words and expression official terminology understanding of their style is excellent, the style is excellent.	tructured with a clear the introduction, the kt and the conclusion, terconnected. ons are aligned with y and show an remeaning. The writing				
	Elements of evaluation Organization Terminology, writing	The paper is not organized in logical order and lacks structure. Words and expressions are not line with official terminology. The writing style is not appropriate, sentences are too long, of a model.	a The paper is well st distinction between main body of the text in Words and expression official terminology, appropriate, the sente the vocabulary is app	ructured with a clear the introduction, the and the conclusion. ons are in line with The writing style is ence structure is clear, propriate and there are	The paper is well st distinction between main body of the tex which are logically int Words and expression official terminology understanding of their style is excellent, the style is excellent.	tructured with a clear the introduction, the st and the conclusion, terconnected. Ons are aligned with y and show an meaning. The writing sentences are clear and ry is rich and there are				
	Elements of evaluation Organization Terminology, writing	The paper is not organized in logical order and lacks structure. Words and expressions are not line with official terminology. I writing style is not appropriate, sentences are too long, of a mod vocabulary and with frequent a repeated grammatical errors. The sources are not listed at	a The paper is well st distinction between main body of the text in Words and expression official terminology, appropriate, the sente the vocabulary is appropriate few grammatical erroll. The sources are liste	ructured with a clear the introduction, the and the conclusion. ons are in line with The writing style is ence structure is clear, propriate and there are ors.	The paper is well st distinction between main body of the tex which are logically int Words and expression official terminology understanding of their style is excellent, the sconcise, the vocabular no grammatical errors. The sources are accurrent.	tructured with a clear the introduction, the st and the conclusion, terconnected. The st and the conclusion, terconnected. The st and show an are aligned with any and show an are meaning. The writing sentences are clear and the strick and there are are training.				
	Elements of evaluation Organization Terminology, writing style Citing and referencing	The paper is not organized in logical order and lacks structured. Words and expressions are not line with official terminology. The writing style is not appropriate, sentences are too long, of a mode vocabulary and with frequent a repeated grammatical errors. The sources are not listed at The references do not fit the to	a The paper is well st distinction between main body of the text in Words and expression official terminology, appropriate, the sentents the vocabulary is appropriate few grammatical errors. The sources are listed with errors. The reference is well as the sentence of the sources are listed with errors. The reference of the sources are listed with errors. The reference of the sources are listed with errors. The reference of the sources are listed to the sou	ons are in line with The writing style is ence structure is clear, propriate and there are ors.	The paper is well st distinction between main body of the tex which are logically int Words and expression official terminology understanding of their style is excellent, the sconcise, the vocabular no grammatical errors. The sources are accuracy consistently listed.	tructured with a clear the introduction, the ext and the conclusion, terconnected. The introduction interconnected interconne				
	Elements of evaluation Organization Terminology, writing style Citing and	The paper is not organized in logical order and lacks structure. Words and expressions are not line with official terminology. I writing style is not appropriate, sentences are too long, of a mod vocabulary and with frequent a repeated grammatical errors. The sources are not listed at	a The paper is well st distinction between main body of the text in Words and expression official terminology, appropriate, the sentents the vocabulary is appropriate few grammatical errors. The sources are listed with errors. The reference is well as the sentence of the sources are listed with errors. The reference of the sources are listed with errors. The reference of the sources are listed with errors. The reference of the sources are listed to the sou	ructured with a clear the introduction, the and the conclusion. ons are in line with The writing style is ence structure is clear, propriate and there are ors.	The paper is well st distinction between main body of the tex which are logically int Words and expression official terminology understanding of their style is excellent, the sconcise, the vocabular no grammatical errors. The sources are accuracy consistently listed.	tructured with a clear the introduction, the st and the conclusion, terconnected. The st and the conclusion, terconnected. The st and show an are aligned with any and show an are meaning. The writing sentences are clear and the strick and there are are training.				



					comprehensive and approach.	shows a detailed research
4.2. Gradeing of the		Bad	Satisfyir	20		
colloquium/written and oral		Dau	Satisfying		Above average	
exam	It responds by memory.	without a deeper understanding. It	It reproduces the bas	ic concepts and	Knowledge is at	the level of analysis,
		y basic terms and concepts. It does	without difficulty impart	•		aluation. It observes the
		or explain the contents of the course	understands the material,	explains the terms	legality, accurately	and thoroughly explains
	with examples.		and concepts that it suppo	orts with examples.	the content of the	e material, and logically
					connects and explain	ins the terms and concepts
						with examples. Finds
						e not originally given. It
					notes correlations v	vith related material.
4.3. Forming the final grade	Active attendance on	0-69,9% attendance	70-79,9% attendance	80-89,9%	attendance	90-100% attendance
according to the evaluation elements	class	0 points	5 points	7 points		10 points
Ciomones	Colloquiums x2	2	3	4		5
		16 points	20 points	26 points		30 points
	Written part of exam	2	3		4	5
		50 - 64,9%	65 - 79,9%	80 -	89,9%	90 - 100%
		15 points	20 points	25]	points	30 points
	Onel next of even	2	3		4	5
	Oral part of exam	15 points	20 points	25]	points	30 points
4.4. Formation of the final grade	_	quired knowledge, skills and	Numerical s	grade	ECTS grade	
based on the absolute	competencie	s (teaching + final exam)				
distribution		90 - 100%	5 (excelle	ent)		A
		80 – 89,9%	4 (very go	ood)		В
		65 – 79,9%	3 (good)			С
		60 – 64,9%	2 (sufficient)		D	
		50 – 59,9%	2 (sufficie	ent)		Е



5. ADDITIONAL INFORMATI	5. ADDITIONAL INFORMATION ABOUT COURSE									
5.1. Compulsory literature	Title	Number of copies in the	Availability via other							
(available in the library and via		library	media							
other media)	Stanić, E.: "Osnove elektrotehnike", Školska knjiga, Zagreb	3								
5.2. Additional literature (at the	Kulišić,P.: "Fizika 2", Školska knjiga, Zagreb									
moment of changes and/or	Pinter, V.: "Osnove elektrotehnike 1 i 2", Tehnička knjiga, Zagreb									
amended of study programme)										
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of									
that ensure the acquisition of	attendance and student activity during classes and provided information on students` progress thro	-								
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Stud		_							
competences	as well as the methods of work and the required literature. Indicators of quality assurance system	n: Student survey, monitoring	g of annual data from the							
	Croatian employment service on the annual state of student employment, surveys from employers									
5.4. Informing about the course	It is the responsibility of each student to be regularly informed about the course, the coursework, an		*							
and contacting the course	adjournment will be published in a timely manner on the e-learning site of the course and on the w									
lecturer	during the consultation period (at least one hour per week), while for short questions and explanation	•								
	to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answer	ed as soon as possible (no late	er than five working days							
	after receiving the e-mail).									



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

1. GENERAL INFORMATI	ON		
1.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU	140773
1.2. 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	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level),	1 st , course materials are on-
(specialist, undergraduate,		percentage of on line course performance (max. 20%)	line, 0%
graduate)			
1.5. Course status (obligatory,	Obligatory	1.12. Number of course revisions	4
optional)			
1.6. Year of study	1 st	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 get students on the basis of theoretica learn about the elements of the logistics system identify and overcome logistical processes mastering the modern logistics concepts an	stem, and activities that are related to storage, transportation, and traffic,	
2.2. Terms of course entry and required competences	Enrolled 2 nd academic year, 4 year secondary educa	tion completed; qualification level 4.2 according to the CROQF.	
2.3. Learning outcomes on the study programme level	Croatian and English.	fic technology and organization in written and oral communication	with the professional public in
		y evaluate the opinions and attitudes of team members.	
		et and integrate relevant literature for decision making.	
	11.1	in organization with socially responsible management in technical-te	echnological subjects.
	LO6: Analyze and present relevant facts from the tr	•	
	IU9: Evaluate and organize processes in the field of	road transport and/or transport logistics.	
	IU11: Identity, anticipate and propose solution technology	nologies and techniques of road transport.	



	LO12	: Design a smaller transport process a	nd criticall	y evaluate it.			
	LO13	: To track trends in the development	of techniqu	e, technology and safety in traffic.			
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Lear	ning outcomes by Bloom: (maximum	2 werbs fo	or LO)		Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 - synthesis.	
	1. De	fine and differentiate basic terms and		1, 2			
		alyze and extract information and con				4, 2	
		ect, evaluate and categorize services i		3, 5			
		mpare and connect ways of transporta	4, 6				
		<u> </u>		products and reduction of inventory costs.		6	
				professional literature in their native and English la	nguages.	3	
		1 0 1	roblems, a	nd solutions independently and in a team.		6	
2.5. Course content according to detailed curriculum schedule	Cons	tructive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	Ev	aluation	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 seminar paper that presents	oral exam, stu define and distin in logistics, type	um or the written and idents know how to nguish basic concepts es of logistics, factors evelopment. Seminar	4 h



				the acquired knowledge and presents their own	paper created and presented (by	
				ideas, and ways to solve problems. In group	computer programs).	
				work at the seminar class, the brainstorming		
				method and the discussion method on the topic		
				are applied.		
	3.	Human resources in logistics		They listen to a lecture and read literature. At the	At the colloquium or the written and	
		(management, freight forwarders,		seminar class, they individually explore the	oral exam, students know how to	
		FIATA documents, customs		content of this topic area by searching the	define and distinguish the basic	
		officers).		database, and on the basis of it and reading the	concepts in freight forwarding.	
			1 (7	literature, create a seminar paper that presents	Enumerate all freight forwarding jobs,	4.1.
			1, 6, 7	the acquired knowledge and presents their own	distinguish between customs	4 h
				ideas, and ways to solve problems. In group	documents, human resources working	
				work at the seminar class, the brainstorming	in logistics. Seminar paper created and	
				method and the discussion method on the topic	presented (by computer programs).	
				are applied.		
	4.	Warehouses and storage (concept,		They listen to a lecture and read literature. At the	At the colloquium or the written and	
		types and division, the factors for		seminar class, they individually explore the	oral exam students know how to	
		determining the location,		content of this topic area by searching the	define and differentiate the basic	
		equipment and furnishing		database, and on the basis of it and reading the	concepts of storage. Distinguish,	
		warehouses, methods of storage		literature, create a seminar paper that presents	describe and present warehouse	
		operations)	1, 3, 6,	the acquired knowledge and presents their own	equipment. Analyze and evaluate	4.1.
			7	ideas, and ways to solve problems. In group	factors for determining location.	4 h
				work at the seminar class, the brainstorming	Select, evaluate and categorize	
				method and the discussion method on the topic	services in the warehouse business.	
				are applied.	List the rules and methods for storing	
					goods. Seminar paper created and	
ı					presented (by computer programs).	
	5.	Warehousing and storage of		They use multimedia and network. They listen	At the colloquium or the written and	
		products (video films)		to a lecture and read literature. At the seminar	oral exam, students can distinguish,	
			1, 3, 6,	class, they individually explore the content of	describe and present the warehouse	4 h
			7	this topic area by searching the database, and on	equipment. Choose adequate racks	411
				the basis of it and reading the literature, create a	and forklifts for the storage of	
				seminar paper that presents the acquired	products and internal transport.	



				knowledge and presents their own ideas, and	Seminar paper created and presented	
				ways to solve problems. In group work at the	(by computer programs).	
				seminar class, the brainstorming method and the		
				discussion method on the topic are applied.		
	6.	Freight terminals and Freight-		They use multimedia and network. They listen	At the colloquium or the written and	
		transportation centers (concept		to a lecture and read literature. At the seminar	oral exam, students can define the	
		and division, development goals of		class, they individually explore the content of	basic terms of the Freight terminals	
		Freight-transportation center,		this topic area by searching the database, and on	and the Freight-transportation centers.	
		functions, services, 3PL)	1, 3, 6,	the basis of it and reading the literature, create a	Distinguish between Freight-transport	4 h
			7	seminar paper that presents the acquired	centers by size and location. Select	4 N
				knowledge and presents their own ideas, and	and categorize services provided at	
				ways to solve problems. In group work at the	terminals and centers. Seminar paper	
				seminar class, the brainstorming method and the	created and presented (by computer	
				discussion method on the topic are applied.	programs).	
	7.	Information and communication		They use multimedia and network. They listen	At the colloquium or the written and	4 h
		system in the function of logistics		to a lecture and read literature. At the seminar	oral exam, students can distinguish	
		(elements, methods of		class, they individually explore the content of	between information and	
		communication, modern computer		this topic area by searching the database, and on	communication technologies in	
		programs, warehouse management		the basis of it and reading the literature, create a	logistics, warehouse management	
		system)		seminar paper that presents the acquired	system, Bar code technology, and	
			2, 6, 7	knowledge and presents their own ideas, and	RFID identification. Identify the	
				ways to solve problems. In group work at the	abbreviations of information and	
				seminar class, the brainstorming method and the	communication technologies.	
				discussion method on the topic are applied.	Establish the difference, strengths and	
					the weakness of using it. Seminar	
					paper created and presented (by	
					computer programs).	
	8.	Information and communication		They use multimedia and network. They listen	At the colloquium or written and oral	4 h
		system in the function of logistics		to a lecture and read literature. At the seminar	exam, students know how to define	
		(video films)	2 (5	class, they individually explore the content of	and describe the Bar code technology,	
		,	2, 6, 7	this topic area by searching the database, and on	RFID identification, voice	
				the basis of it and reading the literature, create a	technology, and technology Pick to	
				seminar paper that presents the acquired	light. Establish the difference,	
		1		1	= :	1



				knowledge and presents their own ideas, and	strengths and the weakness of using it.	
				ways to solve problems. In group work at the	Seminar paper created and presented	
				seminar class, the brainstorming method and the	(by computer programs).	
				discussion method on the topic are applied.		
	9.	Inventory management and		They listen to a lecture and read literature. At the	At the colloquium or the written and	4 h
		manipulation with products		seminar class, they individually explore the	oral exam, students can propose ways	
		(inventory planning and control,		content of this topic area by searching the	of manipulating with products	
		supply chain, packaging of goods,		database, and on the basis of it and reading the	(packaging, palletizing) and reducing	
		palletization and containerization)		literature, create a seminar paper that presents	the cost of supplies (supply chain).	
			5, 6, 7	the acquired knowledge and presents their own	Define and describe Supply Chain and	
				ideas, and ways to solve problems. In group	Just in time procurement. Identify the	
				work at the seminar class, the brainstorming	difference between applying pallets	
				method and the discussion method on the topic	and containers. Seminar paper created	
				are applied.	and presented (by computer	
					programs).	
	10.	Transportation in the logistics		They listen to a lecture and read literature. At the	At the colloquium or the written and	4 h
		system (road, rail, air and pipeline		seminar class, they individually explore the	oral exam, students know how to	
		transport, inland waterways		content of this topic area by searching the	distinguish transport modes in	
		transport, transport costs, transport		database, and on the basis of it and reading the	logistics, in all branches of traffic.	
		documents)	2, 4, 6,	literature, create a seminar paper that presents	Identify the advantages,	
			7	the acquired knowledge and presents their own	disadvantages and costs of	
				ideas, and ways to solve problems. In group	transportation. Seminar paper created	
				work at the seminar class, the brainstorming	and presented (by computer	
				method and the discussion method on the topic	programs).	
				are applied.		
	11.	Modern transport technologies in		They use multimedia nad network. They listen	At the colloquium or the written and	4 h
		transport logistics (conditions for		to a lecture and read literature. At the seminar	oral exam, students know how to	
		development, integral transport,		class, they individually explore the content of	isolate and analyze transport	
		technologies on the road, rail,	2, 4, 6,	this topic area by searching the database, and on	technologies in logistics in the road,	
		water, and air transport)	7	the basis of it and reading the literature, create a	rail, water, and air transport.	
				seminar paper that presents the acquired	Compare, identify	
				knowledge and presents their own ideas, and	similarities/differences in the	
				ways to solve problems. In group work at the	transportation of products with	



				seminar class, the brainstorming method and the discussion method on the topic are applied.	modern transportation technologies. Seminar paper created and presented (by computer programs).	
	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 discussion method on the topic are applied.	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. Identify distribution costs. Seminar paper created and presented (by computer programs).	4 h
	13.	City logistics (concept, task, and goal of city logistics, initiatives, the structure of city logistics system, optimization of logistics flows)	4, 5, 6,	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).	4 h
	14.	Study trip to KONZUM Logistics-distribution center (located in Dugopolje).	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.	8 h



	15. Final	aonaidenationa/	Panastin a	They listen to a course	lecture and manage	Compare and conner product transport, or distribution of products of manipulation with the reducing inventory cost	ganization of . Suggest ways e products and	58 h
		considerations/ reparing for the exa		They listen to a course individuals for the exam.	lecture and prepare	-		58 N
3. EVALUATION OF STUD		1 0						
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	Attending	classes	1	Written exam	1 (without colloqiums)	Project		
for each activity so that the total	Experiment	tal work		Research	-	Practical work		
number of ECTS credits corresponds to the course credit	Esaa	у		Report		Continuous check		
value)	Colloqui	iums 1 (wi	thout written part of exam)	Seminar paper	0,5	(other)		
	Teaching ac	ctivities	1	The oral part of exam	0,5	(other)		
3.3. Student work-load				emester hours and is assessed self-study (60 hours).	as attendance (30 hour	s), preparation of semina	r work and prese	ntation
4. FORMATION OF STUDEN		_						
4.1. Evaluation of seminar paper	Elemen evaluat		Bad	Satisfyi	ng	Above	average	
	Organiza	-	per is not organized	The paper is well structured		The paper is well s		
		,	gical order and lacks	between the introduction, the	e main body of the text	distinction between		
		structu	re.	and the conclusion.		main body of the te		clusion,
	which are logically intercon					terconnected.		



	Terminolog, writing	Words and expressions are	Words and expressions are in	line with official	Words and expres	ssions are aligned with
	style	not in line with official	terminology. The writing style	is appropriate, the	official terminol	ogy and show an
		terminology. The writing	sentence structure is clear, t	he vocabulary is	understanding of their meaning. The writing	
		style is not appropriate, the	appropriate and there are few grammatical errors.		style is excellent, the sentences are clear and	
		sentences are too long, of a			concise, the vocabu	lary is rich and there are
		modest vocabulary and			no grammatical erro	ors.
		with frequent and repeated				
		grammatical errors.				
	Citing and	The sources are not listed at	The sources are listed but inc	omplete and with	The sources are ac	curately, completely and
	referencing	all. The references do not	errors. The references are releva		consistently listed	. The references are
	references	fit the topic and show a	show a satisfactory research atti	tude.	11 1	list is "rich" and
		cursory approach to	to		comprehensive and	shows a detailed research
		exploring the topic.			approach.	
4.2. Gradeing of the	Bad		Satisfying		Above average	
colloquium/written and oral						
exam		mory, without a deeper	It reproduces the basic conc	-	Knowledge is at the level of analysis,	
	understanding. It does not know or apply basic terms		difficulty imparts new knowledg		•	luation. It observes the
	-	not know how to apply or	material, explains the terms an	d concepts that it	• •	and thoroughly explains
	explain the contents of	the course with examples.	supports with examples.			material, and logically
					connects and explains the terms and concepts	
						with examples. Finds
						not originally given. It
42.5				T	notes correlations w	rith related material.
4.3. Forming the final grade	Active attendance on	70-75% attendance	76-86% attendance	87-100%	attendance	Mental map created,
according to the evaluation	class					Case studies resolved
elements		2 points	4 points	7 p	oints	3 points
	Seminar paper	2	3		4	5
	Schillar paper	5 points	7 points	8 p	oints	10 points
		2	3		4	5
	Colloquiums/ Written part of exam	50 - 64,9%	65 - 79,9%	80 - 89,9%		90 - 100%
	Find of Gradin	25 points	30 points	35 į	points	40 points



		2	3		5	5
	Oral part of exam	25 points	30 points	3	5 points	40 points
4.4. Formation of the final grade	_	ed knowledge, skills and	Numerical grad	le	ECTS grade	
based on the absolute	•	eaching + final exam)				
distribution	90	- 100%	5 (excellent)			A
	80	- 89,9%	4 (very good)			В
	65	- 79,9%	3 (good)			С
	60	- 64,9%	2 (sufficient)			D
	50	- 59,9%	2 (sufficient)			Е
5. ADDITIONAL INFORMATI	ON ABOUT COURSE					
5.1. Compulsory literature		Title		Nu	mber of copies in the	Availability via other
(available in the library and via					library	media
other media)	Ivakovic C., Stankovic	R., Šafran M.: Freight Forwar	ding and Logistics Processes, Fac	ulty of	-	City of Sibenik library
		s, University of Zagreb, Zagre	<u> </u>			
		•	of Transportation Sciences, Unive	rsity of	-	PDF (Internet website)
	Zagreb, 2013 (selected	± '				
	_	Systems, University of Rijeka,	Faculty of Economics, Rijeka, 20	005	2	
	(selected chapters)					
		s, MATE, Zagreb School of E	Economics and Management, Zagr	eb, 2006	-	City of Sibenik library
5.2. Additional literature (at the	(selected chapters)	. 1	a I comin a contour of the Delete	hair of		
5.2. Additional literature (at the moment of changes and/or	Sibenik for the mention		e e-Learning system of the Polytec	nnic oi		e-learning system
amended of study programme)			, Faculty of Economics, Rijeka, 20	001		City of Sibenik library
amended of study programme)	-	•	ss, University of Rijeka, Faculty o			
	Economics, Rijeka, 200	•	ss, oniversity of rajeka, racarty o			City of Sibenik library
	Logistics www.logistik					Internet website
5.3. Quality assurance methods			ion of necessary knowledge and sl	kills will be ensu	ed through interactive v	vork. By keeping track of
that ensure the acquisition of			ovided information on students` pr		-	
knowledge, skills and			to increase the efficiency of their		=	
competences						



	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	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
and contacting the course	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
lecturer	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).



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

1. GENERAL INFORMATION	ON						
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 More than 20 % □				
2. COURSE DESCRIPTION							
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 fi in Croatian and English.	rom technology and organization of road traffic in written and ora	l communication with the professional public				



	LO2: T	Γο organize and implement tear	m work, and cr	ritically judge the opinions and attitude	es of team members.		
	LO3: 7	Γο individually and responsibly	search, interp	ret and integrate the relevant literature	needed to make decisions.		
	Lear	ning outcomes accroding to th		1- rememb 2- underst 3- applica 4-analysis 5-evaluati 6-synthesi	anding, tion, , on,		
		11.		e professional terminology of English	road traffic in English	2,	
	2. to apply grammatical structures in texts and assignments3. to interpret and use tenses in real-life context						
		-		3, 5,			
	4. to develop an essay within the topics of the course5. to present own ideas for development of traffic problems						0
		-	•	he subjects of the course, to express or	ne own opinions	6	
	7. t	o compare and evaluate differe	nt traffic solut	ions		5	
		o analyse medium complex tex				4	
	9. t	o use part of the general langua	ige competenc	y at levels B1		6	
	Constructive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time
2.5. Course content according to detailed curriculum schedule	1.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		2 h
	2.	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 communication verb tenses are		4 h



					interpreted in a real linguistic context, use part	
					of other language competences at B1 level.	
	3.	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
	4.	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 tasks, use part of other language competences at B1 level.	4 h
	5.	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,	4 h



				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.	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
7.	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	6 h



				solve tasks, use part of other language competences at B1 level.	
8.	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
9.	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 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
10.	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,	6 h



_	1		T		
				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.	
11.	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, 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
12.	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	10 h



					solve tasks, use part of other language competences at B1 level.	
	13.	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 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
	14.	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
	15.	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,	10 h



				id so co di co	press their own opinions, peas related to the development of the devel	ment of transport ger essay within and evaluating traffic of other omplex texts and	
3. EVALUATION OF STUDEN	ITS` WORK						
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.							
	Attendance	0,5	Written exam	1 (without colloquia)	Project		
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work		
for each activity so that the total number of ECTS points	Essay		Report		Continuous examination		
corresponds to the credit score of the course)	Colloquium	1 (without written exam)	Seminar paper		Other		
	Class activity	0,5	Oral exam	1	Other		
3.3. Student workload	1. Attending	classes and exercises 45		nester and is estimated as:	,		



4. GRADING SYSTEM

4.1. Grading seminar papers	-						
	Unsatisfac	tory		Satisfactory		Above a	verage
4.2. Grading colloquia/ written and oral exam	Responds by memory, with understanding. Does not basic terms and conclude know how to apply contents of the course with the co	t know or apply epts. Does not or explain the	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples. evaluation. thoroughly examples and connects and examples.			ge is at the level of analysis, synthesis and n. Observes the principles, accurately and y explains the content of the material, and logically and explains the terms and concepts supported with a Finds solutions that were not originally given. relations with related material.	
	Active course	70-75% of	attendance	76-86% of attendance	87-100% of	attendance	Maksimum bodova
	attendance	3 pc	oints	7 points	20 po	ints	20 bodova
	Seminar paper						
4.3. Final grade according to		2		3	4		5
evaluation elements	Colloquia/ Written	50-6	4,9%	65-79,9%	80-89	,9%	90-100%
	exam	25 p	oints	30 points	35 po	ints	40 bodova
	Oral exam	2	2	3	4		5
	Orai exam	25 p	oints	30 points	35 points		40 bodova
	Percentage of acquired (teac	l knowledge, skil hing + final exan	-	Numerical grade	ECTS grade		CTS grade
4.2 Einel and according to		90 – 100%		5 (excellent)			A
4.3. Final grade according to absolute division		80 – 89,9%		4 (very good)			В
absorate division		65 – 79,9%		3 (good)			С
		60 – 64,9%		2 (satisfactory)			D
		50 – 59,9%		2 (satisfactory)			Е

5. ADDITIONAL COURSE INFORMATION



5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media			
(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 Langzage 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. 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	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, a possible adjournment will be published in a timely manner on the e-learning site of the course and or teachers during the consultation period (at least one hour per week), while for short questions and exp possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answed ask after receiving the e-mail).	n the website of the Polyte lanations they can be cont	chnic. Students can contact acted during class. It is also			



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

1. GENERAL INFORMATI	ON					
1.1. Course lecturer	Luka Olivari	1.8. Course code in ISVU	187600			
1.2 Course title	TECHNICAL MECHANICS 1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(45+45+0+0)			
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	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%)				
1.5. 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)	8	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %			
2. COURSE DESCRIPTION						
2.1. Course objectives	<u> </u>	ontent of technical mechanics (statics, kinematics and dynamics); for solving practical tasks in the field of transport;				
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification le	vel 4.2 according to the CROQF.				
2.3. Learning outcomes on the	LO4: To apply knowledge from the field of natural and tec	chnical sciences to problems in road traffic.				
study programme level	LO8: To solve problems in traffic by using analytical and	or graphical methods.				
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Learning outcomes by Bloom: (maximum 2 werbs for LO) Learning outcomes by Bloom: (maximum 2 werbs for LO) 2 - understanding, 3 - application, 4 - analysis,					



						I	
						5 - evaluation,	
						6 – synthesis.	
	1.	Define and explain basic concepts				1, 2	
	2.	Explain and analyze the axioms of	f solid state stati	cs and physical laws and phenomena in the fie	eld of mechanics.	2, 4	
	3.	Apply and analyze equilibrium eq		3, 4			
	4.	Evaluate the consequences of the analytical methods.	5				
	5.	Sketch the diagrams of internal fo		4			
	6.	Identify the type of motion of a pa	nematics.	4, 4			
	7.	Analyze and sketch kinematic dia		4, 4			
	8.	Select physical laws and principle dynamics of particles and solids.	l problems in the	5, 4			
2.5. Course content according to detailed curriculum schedule	Constr	uctive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	Ev	aluation	Time
	1.	Introductory presentation (introducing students to the content and obligations of the course). Field of study and division of technical mechanics. Basic concepts, physical quantities and units of technical mechanics.	1	Listen to a lecture. By working independently on a computer, they are introduced to the course content, writing a seminar paper and documents on the elearning page of the course. The exercises demonstrate how to solve tasks. Independent task solving.	oral exam they	m or the written and define and explain the rsical quantities and ement.	6 h
	2.	Laws and axioms of statics. A system of forces, coupling forces and torques.	1, 2, 4	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	oral exam they kexplain and anal solid state static the field of mecl	lyze the axioms of s and physical laws in	6 h



				or static moment using graphical and analytical methods.	
3.	Equilibrium and equilibrium conditions. Graphic equilibrium conditions.	1, 3, 4	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	Apply and analyze equilibrium equations for a rigorous or written and oral exam, evaluate the consequences of the action of a system of forces and / or static moment using graphical and analytical methods, solve numerical problems in the specified field.	6 h
4.	The center of gravity of a rigid body. Friction	1, 3	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 know how to define, explain the center of gravity and calculate the coordinates of the center of gravity of the rigid body; define and explain friction, analyze the impact of friction; solve numerical tasks from the specified area.	6 h
5.	Straight full beam, diagrams of internal forces and moments.	3, 4, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums.	They can apply and analyze the equations of equilibrium for a straight full carrier, evaluate the consequences of the action of a force system, sketch diagrams of internal forces and moments at a colloquium or a written and oral exam.	6 h
6.	Introduction to particle and solid body kinematics.	1, 6, 7	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 they can define and explain the basic concepts in kinematics, identify the type of motion of a particle or solid, solve numerical problems in the field of kinematics.	6 h



7.	Straight motion, kinematic diagrams	1, 6, 7	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 they can define and explain the basic concepts in kinematics, identify the type of motion of a particle or solid, solve numerical problems in the field of kinematics.	6 h
8.	Variable linear motion, harmonic motion	1, 6, 7	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 can define and explain the basic concepts in kinematics, identify the type of motion of a particle or solid, solve numerical problems in the field of kinematics.	6 h
9.	Curvilinear movement, circular motion.	1, 6, 7	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums.	At the colloquium or the written and oral exam they can define and explain the basic concepts in kinematics, identify the type of motion of a particle or solid, solve numerical problems in the field of kinematics.	6 h
10.	An introduction to particle and solid body dynamics.	1, 2, 4, 6, 8	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 they can define and explain basic concepts in dynamics, explain and analyze physical laws in the field of mechanics, evaluate the consequences of the action of forces and moments, identify the type of motion of a particle or solid, select physical laws and principles, and use them solve numerical tasks in the field of dynamics.	6 h
11.	D'Alembert principle, mechanical work and power	1, 2, 4, 6, 8	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 they can define and explain basic concepts in dynamics, explain and analyze physical laws in the field	6 h



				of mechanics, evaluate the consequences of the action of forces and moments, identify the type of motion of a particle or solid, select physical laws and principles, and use them solve numerical tasks in the field of dynamics.	
12.	Mechanical energy, the law of conservation of mechanical energy	1, 2, 4, 6, 8	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 they can define and explain basic concepts in dynamics, explain and analyze physical laws in the field of mechanics, evaluate the consequences of the action of forces and moments, identify the type of motion of a particle or solid, select physical laws and principles, and use them solve numerical tasks in the field of dynamics.	6 h
13.	Force impulse, quantity of motion, law of quantity of motion, law of conservation of quantity of motion, collisions	1, 2, 4, 6, 8	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 they can define and explain basic concepts in dynamics, explain and analyze physical laws in the field of mechanics, evaluate the consequences of the action of forces and moments, identify the type of motion of a particle or solid, select physical laws and principles, and use them solve numerical tasks in the field of dynamics.	6 h
14.	Dynamic moment of inertia, rigid body rotation	1, 2, 4, 6, 8	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums.	At the colloquium or written and oral exam they can define and explain basic concepts in dynamics, explain and analyze physical laws in the field	6 h



							of mechanics, evaluate consequences of the a and moments, identify motion of a particle or physical laws and printhem solve numerical field of dynamics.	ction of forces y the type of r solid, select nciples, and use	
	15.	Final consideration	on			ture and read literature. ally for the exam.	-		6 h
3. EVALUATION OF STUDE	ENT WO	ORK							
3.1. Student obligations	attend coordinates	classes at least 70% es by the day of the	, which is also a colloquium, and l exam in the co	requirement for to earn a minin	r obtaining the lectunum of 25% of the p	t and Evaluation of Studen arer's signature. Full-time s points at the previous colloc ourse, by taking three collo	students are required to a quiums in order to qualify	ttend a minimum	of 70% oquium.
3.2. Student work monitoring	Attendi	ng classes	3		Written exam	3 (without colloquiums)	Project		
(enter the share of ECTS credits	Experin	nental work			Research		Practical work		
for each activity so that the total	Essay				Report		Continuous check		
number of ECTS credits corresponds to the course credit	Colloqu	iiums	3 (without write	ten exam)	Seminar paper		Field works or Study trips		
value)	Teachin	g activities			The oral part of exam	2	(other)		
		workload on all tion of seminar wo			nours of work per	semester and is estimated	as going to fieldwork of	or study trips (30	hours),
3.3. Student work-load		Obligation				Hours (estimated)			
3.3. Student Work-toad	1.	Attending class				90			
	2.	-	nd written exam i		ration	90			
	3.	Oral exam indi	vidual preparation	n		60			



	Elements of evaluation	Bad	Sa	tisfying	Al	bove average
	Physical quantities and	Nonstandard physical units have not	Nonstandard units	s have been converted	Nonstandard u	nits have been converted
	their units of	been converted to basic or have been	to basic units with	minor errors in	to base units w	vithout error.
	measurement	converted wrong.	calculation.			
	Structure, traceability,	The task is not properly structured, it	The task is satisfa	ctorily structured,	The task is cle	arly structured,
	legibility and orderliness	is not traceable, and it is not readable	. traceable and read	lable. The diagrams and	complete, very	neat and legible. The
	of the procedure,	Diagrams and sketches are non-	sketches are mean	ingful, neat with minor	diagrams are c	completely accurate, clear
4.1. Evaluation of written exam	diagrams and sketches	existent, inaccurate, messy, unclear	errors.		and very neat.	
		and ambiguous.				
	Application of	Uses expressions that do not describe	Uses expressions	that describe the	Uses expression	ons that describe the
	appropriate equation	the problem specified, or incorrectly	problem in questi	on, accurately derives	problem in que	estion, accurately derives
	(formulas) and the final	expresses the physical unit from the	physical quantitie	s from the expression,		ities from expressions,
	result.	expression. Numeric values are not	incorporates nume	erical values into the	lists units of m	neasure without errors,
		included in the expression. The end	_	maller numbers, the	the final result is completely accurate.	
		result is incorrect. final result has smaller deviations from				
			the exact result.			
	Knowledge and	It responds by memory, without a	-	pasic concepts and	_	at the level of analysis,
	expression.	deeper understanding. Does not know	-	-	-	evaluation. Observes the
		or apply basic terms and concepts.	_	stands the material,		hysical laws, accurately
		Does not know how to apply or	-	and concepts supports		y explains the content of
		explain the contents of the course	_	es. Knows the expert		nd logically connects and
4.2. Evaluation of oral exam		with examples.	terminology.		-	rms and concepts and
					~ ~	with examples. Finds
						were not originally
					_	correlations with related
						nt in professional
					terminology.	
4.3. Forming the final grade		1		T		
according to the evaluation	Colloquiums/	2	3	4		5
elements	Written exam	50-64,9%	65-79,9%	80-89,9%	6	90-100%
		50-64,9 bodova	65-79,9 bodova	80-89,9 bod	lova	90-100 bodova



	The oral part of exem	2		3	4		5	
		50-64,9 bodova		65-79,9 bodova	80-8	89,9 bodova	90-100 bodova	
		ed knowledge, skills and aching + final exam)		Numerical grade		ECTS grade		
4.4. Formation of the final grade	90 -	- 100%	5 (excellent)		A			
based on the absolute	80 –	89,9%		4 (very good)		В		
distribution	65 –	79,9%		3 (good)		С		
	60 – 64,9%			2 (sufficient)		D		
	50 -	59,9%		2 (sufficient)		Е		

5. ADDITIONAL INFORMATION ABOUT COURSE

5.1. Compulsory literature (available in the library and via	Title	Number of copies in the library	Availability via other media
other media)	1. mr.sc. Srećko Đuranović, dipl. ing: Udžbenik iz Tehničke mehanike, izdanje VUŠ, Šibenik 2015.	-	on-line (e-learning)
5.2. Additional literature (at the moment of changes and/or amended of study programme)	 Teaching materials from the lectures and exercises on the e-learning system of the Polytechnic for the course Technical Mechanics. Jurum Kipke, J.: Mehanika u prometnom inženjerstvu, Fakultet prometnih znanosti, Zagreb, 2001. Jurum Kipke, J., Wolf, H., Muftić O.: Mehanika u prometu, Udžbenik Sveučilišta u Zagrebu, Fakultet prometnih znanosti, Zagreb, 2009. Jecić S., Mehanika (kinematika i dinamika), Tehnička knjiga, Zagreb, 1989. 	- - 5 2	on-line (e-learning)
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 ensu attendance and student activity during classes and provided information on students` progress through further guidance to students will be provided in order to increase the efficiency of their work. Students as well as the methods of work and the required literature. Indicators of quality assurance system: St Croatian employment service on the annual state of student employment, surveys from employers and	short colloquiums and ho will be informed about the udent survey, monitoring	omework, information for neir rights and obligations
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 cla adjournment will be published in a timely manner on the e-learning site of the course and on the websit during the consultation period (at least one hour per week), while for short questions and explanations the	e of the Polytechnic. Stud	lents can contact teachers



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).



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 □ no						
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 aim is that student, based on theoretical knowledge and case studies, be able to: 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					
	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.					
2.3. Learning outcomes on the	LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions.					
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.					



	LO11: To identify, predict and propose solutions in road traffic technology and technique.	d propose solutions in road traffic technology and technique.					
	LO13: To track trends in the development of technique, technology and safety in traffic.						
	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)	 LO Level: Recapture, Understanding, Application, Analysis, Evaluation, Synthesis 					
2.4. Expected learning outcomes	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					
on the course level	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					

	Cons	tructive alignment				
	No:	Thematic ensemble / Lecture Topic	Course LO	Content / Teaching Method	Evaluation	Time needed
2.5. Course content according to detailed curriculum schedule	1.	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.	l _	2 h
	1.	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	4 h



				,		
					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. In a colloquy or written and oral exam	
	2.	Ecological factors.	1, 6, 7	Listen to the lecture and read the literature.	students can name, distinguish and give an example of an ecological factor.	4 h
	3.	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 distinguish organisms with regard to the trophy.	4 h
	4.	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
	5.	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	In a colloquy or written and oral exam students can define and describe the	10 h



			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.	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).	
6.	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
7.	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	10 h



						paper (by independent use of computer programs).	
		8.	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 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 types of fossil fuels and RES and choose and comment on the most environmentally acceptable solution. Created and Presented seminar paper (by independent use of computer programs).	4 h
		9.	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
		10.	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 roads	8 h



				and to propose mitigation and / or rehabilitation measures. Solved case study.	
11.	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
12.	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 programs).	1
13.	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	In a colloquy or written and oral exam students can define and describe the underlying concepts of noise pollution,	6 h



The state of the s									
					database and based o students write semina the acquired knowled own ideas, and way	area by searching the n it and read literature r paper thus presenting dge and making their s to solve problems. In and discussion on the ed in the whole group.	enumerate road noise south the effects of noise on human propose measures to reduce out of the vehicle. Of Presented seminar independent use of programs).	an health and e noise in and Created and paper (by	
	14.	Ecologically according of traffic.	-	1, 2, 3, 5, 6, 7	Listen to the lecture a	nd read the literature.	In a colloquy or written are they can describe and critic the most environmentally form of traffic, analyse this historical and contemporar traffic technology, give are the impact of air and rail to environment.	cally evaluate y acceptable choice in the ry context of n example of	6 h
	15.	Concluding Cons Repeating and Pr Exam.			Listen to the lec preparation for the exa		-		20 h
3. EVALUATION OF STUDEN	T WO	RK							
3.1. Students` obligations	Part-t who l	ime students have have during the couple from 0 – 24,99 From 25 – 49,9 or extraordinar More than 50% ents can pass the final map, solving cas	the obligation to urse achieved: 6 ECTS credits- 9% ECTS credits y exam period; 6 ECTS credits - mal exam in two se studies, makin	attend at less is rated F (- is rated I students have ways: a) (g and pres	east 50% of lectures. All (unsuccessful) and cannot FX (inadequate) and has ave the right to access the during the course through the seminar paper.	ot get ECTS credits and at to come out and pass the efinal exam of the subject continuous student at and passing two collocates seminar paper) and passing two collocates are are also as a continuous student at the seminar paper) and passing two collocates are also as a continuous student at the continuous stu	or all regular students attend esent and positively colloque must re-enrol the subject in t e test (exam). A written exar ect. tendance (active participatio quia); b) during the course (a passing the exam (written and	y seminar paper the next acades on can be held on in the lesson active particip	er. Students mic year; in a regular ns, creating
3.2. Monitoring student work (enter the share of ECTS credits	Atten	dance		1	Written exam	2 (by submitting both colloquiums the	Project		



for each activity so that the total number of ECTS points corresponds to the credit score				student is relieved of an written examination)	
of the course)	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)
			ECTS point for 30 hours		d is estimated as:
	Commitmen			Hours (estimate)	
3.3. Student workload	1. Attending c			45	
		d Presenting seminar paper for the Colloquium / exam		10 65	
4. GRADING					
	TT			~	

	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.	distinction between the introduction, the l
	Terminology, writing style	Words and phrases are low harmonized with official terminology. Writing style is not appropriate, sentences are too long, modest	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.	understanding of their meaning. The



		vocabulary, and freque grammatical mistakes.	-	ted			lear and concise, the vocabulary is rich nd there are no grammatical errors.	
	Quoting and referencing	Sources are not speci references do not mate show a superficial a research topic.	ch the topic a	and with errors.	The reference the subject and	es are co show a th	ources are accurate, complete and onsistent. The references are appropriate, neir list is "rich" and comprehensive and hows a robust research approach.	
		Poor		Satisfying			Above average	
4.2. Colloquium / exam grading	apply the basic terr	memory, no deeper not know and does not ms and concepts. Cannot contents of the course.	transfers ne matter, expl	basic terms, with w knowledge, unders ains the terms and th by examples.	stands subject	evaluation thoroughly logically li that it end	te is at the level of analysis, synthesis and a. It observes legitimacy, accurately and by explains the content of the subject, and ainks and explains the terms and concepts capsulates. Find solutions that are not given. There is a correlation with the subjects.	
	Active participation in the	70-75% of attendance	76-8	36% of attendance	87-100%	of attendan	Created mental map. Solved case study.	
	lessons	2 points		4 points	points 7 pc		3 points	
	Comingna	2		3		4	5	
4.3. Creating a final grade	Seminar paper	5 points		7 points	8	points	10 points	
according to evaluation		2		3		4	5	
elements	Colloquium / written exam	50-64,9%		65-79,9%	80	-89,9%	90-100%	
	written exam	25 points		30 points	35	points	40 points	
	Ovel even	2		3		5	5	
	Oral exam	25 points		30 points	35	points	40 points	
4.4. Creating a final grade according to absolute allocation	1	ed knowledge, skills and cor aching + final exam)	mpetences	Numerou			ECTS grade	
		90 - 100%		5 (exce	ellent)	1	A	



80 – 89,9%	4 (very good)	В
65 – 79,9%	3 (good)	С
60 – 64,9%	2 (sufficient)	D
50 – 59,9%	2 (sufficient)	Е

5. ADDITIONAL INFORMATION ABOUT THE COURSE

	Title	Number of copies in the library	Availability via other media
5.1. Compulsory literature (available in the library and through other media)	 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	1. Radić Lakoš, T., Upravljanje okolišem, VUŠ, Šibenik, 2018. (selected chapters)		Available On-line
moment of changes and/or	2. Glavač, V., Uvod u globalnu ekologiju, Hrvatska sveučilišna naklada, Zagreb, 2001.	5	
amended of study programme)	3. Udovičić, B., Čovjek i okoliš, Kigen, Zagreb, 2009.	2	
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 ensure attendance and student activity during classes and provided information on students` progress through sh further guidance to students will be provided in order to increase the efficiency of their work. Students wi as well as the methods of work and the required literature. Indicators of quality assurance system: Students are ployment service on the annual state of student employment, surveys from employers and Al	ort colloquiums and hom Il be informed about thei lent survey, monitoring o	ework, information for rights and obligations
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. teaching will be published on the e-learning pages of the course and on the web pages of the Polytechn consultation term (at least one hour per week), while brief questions and explanations can be addressed du mail (from the official e-mail address from the domain @ vus.hr) that will be answered in a short time (no e-mail).	ic. Students can contact uring classes. It is possible	the teachers during the e to ask questions by e-



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

1. GENERAL INFORMATI	ON					
1.1. Course lecturer	Srećko Đuranović, Luka Olivari	1.8. Course code in ISVU	187601			
1.2 Course title	BASICS OF MECHANICAL ENGINEERING	1.9. Course code in MOZVAG				
1.3. Assistants and/or associates		Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(45+45+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 on line course performance (max. 20%)	of 1st, course materials are on-line, 0%			
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	5			
1.6. Year of study	2 nd	1.13. Modernization	Yes			
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %			
2. COURSE DESCRIPTION						
2.1. Course objectives	= =	· · · · · · · · · · · · · · · · · · ·				
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualificati	on level 4.2 according to the CROQF.				
2.3. Learning outcomes on the	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.					
study programme level 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	LO8: To solve problems in traffic by using analytical and / or graphical methods.				
			Level of LO:			
	Learning outcomes by Bloom: (maximum 2 werbs f	or LO)	1 - memory,			
	2 - un					



2.4. Expected learning outcomes on the course level (4-10 learning outcomes)						3 - application, 4 - analysis, 5 - evaluation, 6 - synthesis.	
	1.	Define and explain basic conce	epts in mechar	nical engineering.		1, 2	
	2.	Explain and comment on mate	rial characteri	stics and properties, and procedures for testi	ng material properties.	2, 4	
	3.	Distinguish between basic mad	chine elements	s, coupling elements, and power and motion	transmission elements.	4	
	4.	Analyze and evaluate the stres	s of the mater	ial and the deformation due to load on the ex	ample.	4, 5	
	5.	Sizing machine elements based	d on sizing cri	teria.		5	
	6.	Formulate expressions and calc	culate the gear	ratio and power losses in complex power an	d motion transmissions.	6, 4	
	7.	Distinguish the basic concepts	and laws of h	eat science and select appropriate laws to so	lve a given problem.	4, 5	
	8.	Synthesize the adopted laws to	solve comple	ex problems		6	
2.5. Course content according to detailed curriculum schedule	Constr	uctive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	Evaluat		Time
	1.	Introductory presentation (introducing students to the content and obligations of the course). Introduction to mechanical engineering, determining the shape and dimensions of machine parts, selection of materials	1	Listen to a lecture. By working independently on a computer, they are introduced to the course content, writing a seminar paper and documents on the elearning page of the course. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the exam they define and econcepts from the basic engineering.	explain the basic	6 h
	2.	Material structure, properties of metals and alloys, properties of materials	1, 2	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the exam they know: to explore comment on the character properties of the material procedures for examinity solve numerical tasks for examinity solves numerical tasks for examinity so	plain and teristics and ial, as well as the ng the material;	6 h



				area.the action of a system of forces and / or static moment using graphical and analytical methods.	
3.	Types of load and strain.	1, 2, 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 know: to analyze and calculate the heat conduction and thermal stretching of the material; explain and comment on material characteristics and properties, and material testing procedures; solve numerical tasks from the specified area.	6 h
4.	Fundamentals of testing the mechanical properties of materials, Diagram σ-ε, Permissible stress and safety factor	1, 2, 4, 8	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 know: to explain and comment on the characteristics and properties of the material, as well as the procedures for examining the material; analyze and evaluate the stress of the material and the deformation due to loading; solve numerical tasks from the specified area.	6 h
5.	Stress Concentration, Torque Moments, Hardness and Hardness Testing	1, 2, 4	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums.	At the colloquium or the written and oral exam they know: to explain and comment on the characteristics and properties of the material, as well as the procedures for examining the material; analyze and evaluate the stress of the material and the deformation due to loading; to dimension machine elements based on sizing criteria; solve numerical tasks from the specified area.	6 h
6.	Creep and creep test, Toughness and toughness test.	1, 2, 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 know: to explain and comment on the characteristics and	6 h



					properties of the material, as well as the procedures for examining the material; analyze and evaluate the stress of the material and the deformation due to loading; solve numerical tasks from the specified area.	
	7.	Division of machine elements. Machine elements: rivets, welded joints, soldered joints	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 are able to: explain and comment on the characteristics and properties of the material and the procedures for examining the material; analyze and evaluate the stress of the material and the deformation due to loading; solve numerical tasks from the specified area.	6 h
	8.	Machine Elements: screw joints, clamp joints	1, 3, 5, 8	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 know: to distinguish between the basic elements of machines, the elements for coupling, and the elements for the transmission of power and motion; analyze and evaluate the stress of the material and the deformation due to loading; solve numerical tasks from the specified area.	6 h
	9.	Machine Elements: springs shafts, bearings, couplings	1, 3, 5, 6	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums.	At the colloquium or the written and oral exam they know: to distinguish between the basic elements of machines, the elements for coupling, and the elements for the transmission of power and motion; analyze and evaluate the stress of the material and the deformation due to loading; solve numerical tasks from the specified area.	6 h



		Machine Elements: bearings,		Listen to a lecture and read literature.	At the colloquium or the written and oral		
		couplings		The exercises demonstrate how to solve	exam they know: to distinguish between		
				tasks. Independent task solving.	the basic elements of machines, the		
					elements for coupling, and the elements		
	10.		1, 3, 5, 6		for the transmission of power and	6 h	
			, , ,		motion; analyze and evaluate the stress		
					of the material and the deformation due		
					to loading; solve numerical tasks from		
					the specified area.		
		Machine Elements: power		They listen to a lecture and read	At the colloquium or the written and oral		\dashv
		transmissions		literature. The exercises demonstrate	exam they know: to distinguish between		
		<u></u>		how to solve tasks. Independent task	the basic elements of machines, the		
				solving.	elements for coupling, and the elements		
				331.11.6	for the transmission of power and		
	11.		1, 3, 5, 6, 8		motion; analyze and evaluate the stress	6 h	
			_, _, _, _,		of the material and the deformation due		
					to loading; calculate the transmission		
					ratio and power losses of complex power		
					and motion transmitters; solve numerical		
					tasks from the specified area.		
		Introduction to the science		They listen to a lecture and read	At the colloquium or the written and oral		\dashv
		of heat. Kinetic molecular		literature. The exercises demonstrate	exam they know: to distinguish between		
		theory.		how to solve tasks. Independent task	the basic elements of machines, the		
				solving.	elements for coupling, and the elements		
					for the transmission of power and		
	12.		1, 2, 7		motion; analyze and evaluate the stress	6 h	
					of the material and the deformation due		
					to loading; calculate the transmission		
					ratio and power losses of complex power		
					and motion transmitters; solve numerical		
					tasks from the specified area.		
	12	Heat conduction. Laws of	1 7	They listen to a lecture and read	At the colloquium or the written and oral	(1	\exists
	13.	thermodynamics.	1, 7	literature. The exercises demonstrate	exam they know: to distinguish between	6 h	



				how to solve tasks. In solving.	dependent task	the basic elements of material and the deformate loading; calculate the transmission of power analyze and evaluate the sematerial and the deformate loading; calculate the transmit and power losses of complete motion transmitters; solve tasks from the specified area.	the elements and motion; tress of the tion due to mission ratio x power and e numerical	
	14.	Equation of state of an idea gas. Changes in the state of gases.		They listen to a lectur literature. The exercis how to solve tasks. In solving. Individual procolloquiums.	es demonstrate dependent task eparation for	At the colloquium or the write exam they can: define and ex basic concepts from the basic mechanical engineering; form to determine the traction force resistance of the vehicle; solve tasks from the specified area.	plain the es of nulate terms ee and the ve numerical	6 h
	15.	Circular processes	1, 7, 8	They listen to a lecture The exercises demon tasks. Independent Individual preparation	strate how to solve task solving.	-		6 h
3. EVALUATION OF STUD	ENT W	ORK						
3.1. Student obligations	attend of class Student	classes at least 70%, which is es by the day of the colloquium	s also a requireme um, and to earn a r	nt for obtaining the lectroninimum of 25% of the	urer`s signature. Full- points at the previous	tudent Performance: Full-time time students are required to a colloquiums in order to qualify colloquiums and oral part of	ttend a minimu for the next co	um of 70% olloquium.
3.2. Student work monitoring (enter the share of ECTS credits		ing classes 3		Written exam	2 (without colloquiums)	Project		
for each activity so that the total	Experin	nental work		Research		Practical work		
number of ECTS credits	Essay			Report		Continuous check		



corresponds to the course credit	Colloquiums	2 (without written	Seminar paper		Field works or Study		
value)		exam)			trips		
	Teaching activities		The oral part of	1	(other)		
			exam				
	Student workload on all	bases is 1 ECTS credit for	30 hours of work per	semester and is estimated	l as going to fieldwork or	r study trips (30 hours),	
	preparation of seminar wo	ork and presentation (30 hou	urs).				
3.3. Student work-load	Obligation	Obligation Hours (estimated)					
5.5. Student work-road	Attending class	1. Attending classes 90					
	Colloquiums and written exam individual preparation 60						
	3. Oral exam indiv	vidual preparation		30			

4. FORMATION OF STUDENT GRADE

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



		explain the contents of the course with examples. Knows the terminology.			explains the tersupports them solutions that vigiven. It notes	and logically connects and rms and concepts and with examples. Finds were not originally correlations with related at in professional	
	Colloquiums/	2	3		4	5	
4.3. Forming the final grade	Written exam	50-64,9%	65-79,9%	80-	-89,9%	90-100%	
according to the evaluation elements		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	9,9 bodova	90-100 bodova	
		ed knowledge, skills and aching + final exam)	Numerical grade		ECTS grade		
4.4. Formation of the final grade	90 -	- 100%	5 (excellent)		A		
based on the absolute	80 –	89,9%	4 (very good)		В		
distribution	65 –	79,9%	3 (good)		C		
	60 –	64,9%	2 (sufficient)		D		
	50 –	59,9%	2 (sufficient)			Е	
5. ADDITIONAL INFORMATI	ION ABOUT COURSE						
5.1. Compulsory literature (available in the library and via		Title		Num	ber of copies in the library	Availability via other media	
other media)		ć, dipl. ing: udžbenik iz Osnova str			-	on-line (e-learning)	
5.2. Additional literature (at the	_	rials from the lectures and exercises	• •	f the	-	on-line (e-learning)	
moment of changes and/or	Polytechnic for	r the course Introduction to Mechan	ncai Engineering.		5	-	

2

amended of study programme)



	2. Vrhovski,D., Nikšić.M.: Strojarstvo. Zbirka riješenih zadataka, Sveučilište u Zagrebu,					
	Fakultet prometnih znanosti, Zagreb, 2005.					
	3. Perše, S., Višnjić.V.: Strojarstvo u prometu, Sveučilište u Zagrebu, Fakultet prometnih					
	znanosti, Zagreb, 2005.					
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of					
that ensure the acquisition of	attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for					
knowledge, skills and	orther guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations					
6 7	as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the					
competences	Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.					
	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					
5.4. Informing about the course	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					
and contacting the course	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					
lecturer	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).					



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

1. GENERAL INFORM	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 DESCRIPTIO	ON						
2.1. Course objectives	The goal is to provide students with the	pretical knowledge and practical skills needed for performing statistical an	alysis and interpretation of the results.				
2.2. Terms of course entry and required competences	4 year secondary education completed; of	qualification level 4.2 according to the CROQF.					
	LO1: To apply and link professional terr Croatian and English.	ms from technology and organization of road traffic in written and oral co	ommunication with the professional public in				
2.3. Learning outcomes on	LO6: To analyze and present relevant fa	cts from the field of traffic needed to reach conclusions.					
the study programme level	LO8: To solve problems in traffic by using analytical and / or graphical methods.						
2.4. Expected learning outcomes on the course level	Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO) Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO) 1- remembering, 2- understanding,						



	3- application, 4-analysis, 5-evaluation, 6-synthesis
1. To define fundamental concepts of descriptive statistics and interpret indicator values from the field of descriptive statistics.	1,2
2. To calculate and interpret values for the measures of central tendency and dispersion parameters.	3, 4
3. To define fundamental concepts and solve basic problems in the field of combinatorics and probability theory.	1,4
4. To select and apply probability models for different stochastic phenomena	5,3
5. To state the statistical hypothesis and conduct a chi-square test	6,4
6. To conduct correlation and regression analysis and derive conclusions on variable relationship	4
7. To apply descriptive and inferential statistical methods in transport problems solving.	4

Constructive allignement

2.5. Course content
according to detailed
curriculum schedule

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.	10 h



				Students will apply probability theory in transport problems solving.	
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.	8h
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.	8h
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.	10 h
7.	Continuous random variables. Normal distribution.	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.	10 h
8.	Partial exam preparation		Group problem solving and discussion. Exam preparation.		3 h



9.	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.	8h
10.	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
11.	Measures of central tendency, dispersion parameters.Standardized values. Outliers. Data distribution.	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
12.	Descriptive statistics. Partial exam preparation		Attending lectures. Actively involving students through problem solving and discussion. Group problem solving and discussion. Exam preparation.		3 h



		1			1
13.	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 apply statistical methods for solving transport problems	11 h
14.	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
15.	Final conclusions. Exam preparation		Group problem solving and discussion. Exam preparation.		5 h
DENT	S` WORK				
least 7 the con	0%. Part-time students are required to atterurse achieved: from 0 - 24,9% ECTS credits- are rated from 25 - 49,9% - are assessed by FX (exam period; more than 50% - students have the right	and classes and F (unsucce insufficient) at to take the	t least 50%. All students are require ssful) and cannot obtain ECTS creat and must pass the written exam (to final exam. ys: a) during the course of teaching	d to carry calculator and formulae list. Students who dits, and must re-enroll in the next academic year; est). Written exam (test) can be held in a regular or e	have during
	14. 15. In accoleast 7 the con Studen	Correlation and regression. 15. Final conclusions. Exam preparation DENTS` WORK In accordance with the Regulations on Studying least 70%. Part-time students are required to attethe course achieved: • from 0 - 24,9% ECTS credits- are rated. • from 25 - 49,9% - are assessed by FX (exam period; • more than 50% - students have the rights students can take the final exam from the course.	14. Correlation and regression. 15. Final conclusions. Exam preparation DENTS` WORK In accordance with the Regulations on Studying and the Regleast 70%. Part-time students are required to attend classes at the course achieved: • from 0 - 24,9% ECTS credits- are rated F (unsucce) • from 25 - 49,9% - are assessed by FX (insufficient) exam period; • more than 50% - students have the right to take the Students can take the final exam from the course in two ways	13. Hypothesis testing. Chi-square test. 14. Correlation and regression. 15. Final conclusions. Exam preparation 16. Final conclusions on Studying and discussion. 17. Group problem solving and discussion. 18. Final conclusions on Studying and discussion. 19. Group problem solving and discussion. 19. Group problem solving and discussion. Exam preparation. 19. Exam preparation. 10. Group problem solving and discussion. Exam preparation. 10. Exam preparation. 10. Group problem solving and discussion. Exam preparation. 10. Exam preparation. 11. Group problem solving and discussion. Exam preparation. 12. Group problem solving and discussion. Exam preparation. 13. Attending lectures. Actively involving students through problem solving and discussion.	Hypothesis testing. Chi-square test. 13. Hypothesis testing. Chi-square test. 5,7 broblem solving and discussion. Attending lectures. Actively involving students through problems solving transport problems Students will apply statistical methods for solving transport problems Students will conduct correlation and regression analysis and derive conclusions on variable relationship through colloquia or written/oral exams. 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 students through problem solving and discussion. Group problem solving and discussion. Exam preparation. Group problem solving and discussion analysis and derive conclusions on variable relationship through colloquia or written/oral exams. Students will apply statistical methods for solving transport problems The problem solving and discussion. Exam preparation. Students will apply statistical methods for solving transport problems The problem solving and discussion. Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems Students will apply statistical methods for solving transport problems S

3 (without

colloquia)

Project

Practical work

Written exam

Research

3.2. Monitoring student

work (enter the share of

ECTS credits for each

activity so that the total

Attendance

Experimental

work

0.2



number of ECTS points corresponds to the credit	Essay		Report			Continuous examinatio	1 ()	.1
score of the course)	Colloquium	3 (without written exam)	Seminar p	aper		Other		
	Class activity	0.2	Oral exam	l	0.5	Other		
3.3. Student workload	1. Attend	ad on all bases for 1 E ling classes and exerci ing colloquia or exam	ses 45 hours	s		estimated as	:	
4. GRADING SYSTEM								
4.1. Grading seminar papers								
		Unsatisfactory			Satisfactory			Above average
4.2. Grading colloquia/written and oral exam	understanding basic terms an	. Does not know or ap d concepts. Does not or explain the contents	Ooes not know or apply difficult understate explain the contents of the difficult understate terms		Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.		evaluation explains the and explain Finds solu	e is at the level of analysis, synthesis and . Observes the principles, accurately and thoroughly ne content of the material, and logically connects ns the terms and concepts supported with examples. tions that were not originally given. Notes as with related material.
4.3. Final grade according to evaluation elements	Final grade is d	etermined on the oral	exam after s	successful	y passing the colloqui	a ot written o	exam.	
		age of acquired knowl apetences (teaching +	•	and	Numerical gr	ade		ECTS grade
42 E' 1 1 1'		90 – 100%			5 (excellen	t)		A
4.3. Final grade according to absolute division		80 – 89,9%			4 (very good	d)		В
to ausolute division		65 – 79,9%			3 (good)			С
		60 - 64,9%	-		2 (satisfactor	•	-	D
	50 – 59,9%				2 (satisfactory) E			Г



5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(available in the library and via other media)	Kovač Striko E., Fratović T., Ivanković B., Vjerojatnost i statistika, Udžbenici Sveučilišta u Zagrebu, Zagreb 2008.	1	Ne Ne
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Šošić I., Serdar V., Uvod u statistiku, Školska knjiga, Zagreb, 2002. Šošić I., Primijenjena statistika, Školska knjiga, Zagreb, 2004. Azcel A. Sounderpandian J., Complete Business Statistics, McGraw Hill, 2009. Zenzerović Z., Statistički priručnik, Sveučilište u Rijeci, Pomorski fakultet u Rijeci, Rijeka, 2004. Čižmešija M., Kurnoga Živadinović N., Zbirka riješenih zadataka iz osnova statistike, Mirorad d.o.o., Zagreb,2006 Patrick R. McMullen, Poslovna statistika za stručne studije [prijevod Devčić,K., Perišić,A.], Veleučilište u Šibeniku, 2017 Nastavni materijali na e-learningu	1 12 1 - 5 2 -	Ne Ne Ne Ne Ne Ne Da Da
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 the attendance and student activity during classes and provided information on students` progress through short colloque guidance to students will be provided in order to increase the efficiency of their work. Students will be informed the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring service on the annual state of student employment, surveys from employers and Alumni association.	niums and homework, in about their rights and	nformation for further obligations as well as
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 classroor adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Poly the consultation period (at least one hour per week), while for short questions and explanations they can be con questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (not the e-mail).	technic. Students can catacted during class. It is	ontact teachers during s also possible to ask



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

1. GENERAL INFORMATION			
1.1. Course title	INTERNAL TRANSPORT AND STORAGE	1.8. Course code at ISVU	140768
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+0+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%)	1st- some of the material available Online, 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 □ No
1.7. Credit point (ECTS)	5	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 case studies: • Define the basic concepts of internal transport and storage; • Understand the characteristics of internal transport and storage; • Apply the learned content of this course in the storage and production system.
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the HKO.
	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.
2.3. Learning outcomes on the	LO8: To solve problems in traffic by using analytical and/or graphical methods.
study programme level	LO9: To assess and organize processes in the area of road traffic and/or traffic logistics. LO10: To compare and choose technical and technological solutions in traffic and/or goods flows.
	LO10: To compare and choose technical and technological solutions in traffic and/or goods flows. LO11: To identify, predict and propose solutions in road traffic technology and technique.
	,,



	LO12: To set up a minor traffic process and critically evaluate it.	
	LO13: To track trends in the development of technique, technology and safety in traffic.	
		Level of LO:
		1 - memory,
	Learning outcomes according to Bloom's taxonomy:	2 - understanding,
	(maximum 2 werbs for LO)	3 - application,
	(maximum 2 weros for LO)	4 - analysis,
		5 - evaluation,
		6 – synthesis.
14 E	1. demonstrate knowledge and understanding of the content of the course by defining and describing the basic concepts in	1, 1
.4. Expected learning outcomes	the internal transport and storage,	1, 1
n the course level	2. distinguish and choose types of warehouses, equipment and means of internal transport and storage according to the type	2, 5
	of goods,	2, 3
	3. comment on goods flows and processes in the internal transport and storage,	4
	4. examine the storage capacity and utilization,	4
	5. distinguish between business benchmarks and uts costs,	4
	6. define and calculate the required number of pallets and forklifts,	1, 3
	7. use materials and tools to search scientific and professional literature in their native and English languages,	3
	8. connect the technological processes of internal transport and storage in production.	6

	Constructive allignement									
	no Thematic unit		LO of the course	Content/teaching methods	Evaluation	Time				
2.5. Course content according to detailed curriculum schedule	1.	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				
		The term, goal, structure and function of internal transport.	1,6	They listen to a lecture and read literature. In the exercise classes, they explain and	At the colloquium or written and oral exam define basic terms in the internal transport and storage.	3 h				



			comment on the necessary expressions for		
			the calculations.		
2.	Roads and material flows in internal transport and storage.	1, 3, 4	They listen to a lecture and read literature. In the teaching of exercises, the analytical method solves the tasks.	At the colloquium or the written and oral exam they can explain the traffic junctions and internal roads and explain the flow of materials in production and public warehouses. They know how to define and describe the basic concepts for calculating storage capacity and utilization of storage space. Calculate the usable storage area.	6 h
3.	Types, designs and purposes of the warehouse.	2, 4, 6	They listen to a lecture and read literature. In the teaching of exercises, the analytical method solves the tasks.	At the colloquium or the written and oral exam they can list and describe the types of warehouses and choose the type of warehouse according to the type of goods. Calculate storage capacity.	12 h
4.	Field teaching WINERY ŠIBENIK	3, 6, 7	They are listening to a lecture. (Tour of the winery and warehouse. Monitoring of the process of wine production and transshipment machinery used. Depalletizers in the production process. Monitoring of the process of preparation of goods for storage (palletizers) and the method of stacking goods in the warehouse. The method of experiential learning and learning by self-discovery is applied. The method of brainstorming and the method of discussing technological processes and transshipment mechanization in internal transport and storage are applied on the examples of expert visits.	At the colloquium or written and oral exam, they can explain the technological processes and equipment in production and storage. Calculate the degree of free storage area.	4 h



5.	Storage equipment.	1, 2, 4	They listen to a lecture and read literature. In the teaching of exercises, the analytical method solves the tasks.	At the colloquium or written and oral exam, they know how to define what warehouse equipment is, what it is used for and enumerate the technical-technological equipment of the warehouse. They know how to calculate the area and volume of the ground floor warehouse and the area and free height of the warehouse floor at the floor warehouse.	
6.	Field teaching PORT OF ŠIBENIK	3, 6, 7	They are listening to a lecture. (Tour of warehouses and docks, transhipment machinery, monitoring of storage and transhipment processes from railway wagons, trucks and ships). The method of experiential learning and learning by self-discovery is applied. The method of brainstorming and the method of discussing technological processes and transshipment mechanization in internal transport and storage are applied on the examples of expert visits.	At the colloquium or written and oral exam, they can describe and explain internal transport and storage, as well as equipment for transhipment and control of the amount of cargo. They know how to calculate the capacity of one-time storage of the warehouse and the total area of the warehouse.	4 h
7.	Field teaching Impol-TLM Šibenik	3, 6, 7	They are listening to a lecture. (Tour of the factory and transhipment machinery. Introduction to the technological process of production, storage and warehousing of finished products and equipment). The method of experiential learning and self-discovery learning is applied. The method of brainstorming and the method of discussing technological processes and transshipment mechanization in internal	At the colloquium or written and oral exam, they can describe and explain the internal transport and storage in production, as well as the equipment and the method of controlling the quantity of goods. They know how to calculate the capacity of one-time storage of the warehouse and the total area of the warehouse.	4 h



8.	Economics of internal transport and storage.	1, 4, 5	transport and storage are applied on the examples of expert visits. They listen to a lecture and read literature. In the teaching of exercises, the analytical method solves the tasks.	At the colloquium or written and oral exam, they know how to define the basic concepts for measuring and monitoring the performance of internal transport and storage operations, as well as the costs of internal transport and storage by origin.	6 h
9.	Repetition and preparation for the colloquium. Colloquium I.	1, 2, 3, 4, 5	They listen to lectures and read literature. They prepare individually for the colloquium.	They know how to calculate the required number and load capacity of a forklift. - At the colloquium or written and oral	27 h
10.	Information and communication system of the internal transport and storage. Designing the performance, location and reconstruction of the warehouse. Technical process of storage.	1, 3, 4	They listen to a lecture and read literature. In the teaching of exercises, the analytical method solves the tasks.	At the colloquium or written and oral exam, they know how to define the information and communication system in internal transport and storage and list its elements. List the positive effects of electronic communication in internal transport and storage and explain the role of the information system in business decisions. They know how to define the term warehouse design and list the key elements for designing the construction or adaptation of a warehouse. State the principles of storage operation and storage procedures. They know how to calculate the storage capacity and the intensity of storage operations.	/ h
11.	Means and tools for internal transport and storage.	1, 2, 4	They listen to a lecture and read literature. In the teaching of exercises, the analytical method solves the tasks.	At the colloquium or written and oral exam, they know how to define, describe and differentiate the means for gripping, lifting, transferring, lowering and	12 h



					disposing of cargo. Know how to define, describe and differentiate means for internal transport of cargo and means for packing, unpacking and control of cargo. Calculate the required number of flat pallets.	
	12.	Field teaching "MLINAR" factory in Šibenik	3, 6, 7	They are listening to a lecture. (Introduction to automation of technological processes. Storage of raw materials and storage of finished products). The method of experiential learning and self-discovery learning is applied. The method of brainstorming and the method of discussing technological processes and transshipment mechanization in internal transport and storage are applied on the examples of expert visits.	At the colloquium or written and oral exam, they can describe and explain internal transport and storage and production automation. Calculate how many goods may be stacked on a flat pallet.	4 h
	13.	Design of internal transport and storage.	2, 3, 4	They listen to a lecture and read literature. In the teaching of exercises, the analytical method solves the tasks.	At the colloquium or written and oral exam, they can enumerate and describe the activities in the design of internal transport and storage in production and public warehouses, and enumerate the methods of placing goods in the warehouse. Calculate the required number of box pallets and how many goods are in the box pallets.	5 h
	14.	Repetition and preparation for the colloquium. Colloquium II.	1, 2, 3, 4, 6	They listen to lectures and read literature. They prepare individually for the colloquium.	-	27 h
	15.	Concluding considerations. Repeating and preparing for the exam.	-	They listen to a lecture and prepare individually for the exam.	-	22 h



3. EVALUATION OF STUDENT	WORK								
3.1. Students` obligations	Part-time students are have achieved during • From 0 - 2-4 • From 25-44 extraordinar • More than Students can pass the	accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students attendance of at least 70%. art-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar paper. Students who ave achieved during the course: • 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. tudents can pass the final exam in the course in two ways: a) during classes through continuous monitoring of students (active participation in classes and two colloquia); b) during classes (active participation in classes) and taking exams (written and oral part of the exam).							
	Attendance		Written exam	4 (without colloquia)	Project			
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research			Practical v	work		
for each activity so that the total number of ECTS points	Essay		Report			Continuou examination			
corresponds to the credit score of the course)	Colloguium	(without written exam)	Seminar paper			Other			
	Class activity 0),5	Oral exam	0,5	5	Other			
	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:								
3.3. Student workload	Obligation			Hours (estimated)					
3.3. Student Workload		ss attendance		60					
	2. Preparing colloquia or exams through individual work 90								
4. FORMATION OF GRADES									
	Element of evaluat	tion	Bad		Satisfying		Above average		
4.1. Evaluation of a project assignment	Organization	The paper is not order and lacks	organized in a logical structure.	clear of	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 and the conclusion, we are 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.		

interconnected.



	Terminology, writing style Citing and referencing references		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.
			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.
		Bad		Satisfying			Above average
4.2. Grading of the colloguium / written and oral exam	understanding. Do terms and concep	difficulty the mater or explain the contents of the course with		mparts new knowle , explains the terms with examples.	the basic concepts and without parts new knowledge, understands xplains the terms and concepts that th examples.		edge is at the level of analysis, synthesis aluation. It observes the legality, tely and thoroughly explains the content material, and logically connects and as the terms and concepts that it supports camples. Finds solutions that were not ally given. It notes correlations with material.
	Active	70-75% of the presence		of the presence			
	attendance	2 points	4	points		7 points	10 points
4.3. Forming the final grade	Examination /	2		3		4	5
according to the evaluation elements	Written	50-64,9%		5-79,9%		0-89,9%	90-100%
Cicinents	Oral part of the	25 points 2	30) points	3	5 points	40 points
	exam	25 points	3() points	3	5 points	40 points
4.4. Formation of final grade based on absolute distribution	Formation of final grade Percentage of acquired (team			Number rating 5 (excellent)		ECTS grade 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)	Е						
5. ADDITIONAL INFORMATION ON THE SUBJECT									
5.1. Required literature (available	Title		Number of copies in the library	Availability via other media					
in the library and through other media)	 Dundović Č., Hess S.: Unutarnji transport i skladišter 2007. 	nje, PFR, Sveučilište u Rijeci, R	ijeka, 3						
	2. Miloš I.: Unutarnji transport i skladištenje, Veleučilis	šte u Rijeci, Rijeka, 2003.	1						
	 Boris Ribarić: Primjeri riješenih zadataka iz predmet prometnih znanosti, Zagreb, 1994. (selected chapters 	ltet 0							
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	1. Prikril B., Božičević D.: Mehanizacija pretovara i sk	6							
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 o 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 a working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employmen 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 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 conta teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It 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 fir working days after receiving the e-mail).								



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

1. GENERAL INFORMATI	ON						
1.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU					
1.2. Course title	LOGISTIC AND SUPPLY CHAIN	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(45+0+15+0)				
1.4. Study programme	Undergraduate professional study of traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), 1 st , course mate					
(specialist, undergraduate,		percentage of on line course performance (max. 20%)	0%				
graduate)							
1.5. Course status (obligatory,	Obligatory	1.12. Number of course revisions	1				
optional)							
1.6. Year of study	2 nd	1.13. Modernization	Yes				
1.7. Credit score (ECTS)	5	1.14. Percentage estimate of course changes and/or	Less than 20% X				
		supplements	More than 20 % □				
2. COURSE DESCRIPTION							
2.1. Course objectives	The goal is to get students on the basis of theoretical knowledge and case studies: learn about the elements of the logistics system and supply chain, identify and overcome processes in supply chain which are related to the storage, transport, purchase, inventory and reverse logistics, 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	n completed; qualification level 4.2 according to the CROQF.					
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 a	nd integrate relevant literature for decision making.					
	LO5: To apply basic legal and economic principles in	organization with socially responsible management in technical	-technological subjects.				
	LO6: Analyze and present relevant facts from the traffi	-					
	LO9: Evaluate and organize processes in the field of ro						
	LO11: Identity, anticipate and propose solution technology	ogies and techniques of road transport.					



	LO12	: Design a smaller transport process a	nd criticall	y evaluate it.				
	LO13	: To track trends in the development	of techniqu	e, technology and safety in traffic.				
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Lear	ning outcomes by Bloom: (maximum	2 werbs fo	or LO)		Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 - synthesis.		
	1. De	fine and differentiate basic terms and	division in	logistics and supply chain.		1, 2		
	2. Ide	ntify, explain, and analyze flows in di	stribution	channels.		4, 2		
	١ `	ganize the procurement process and se	• •	•		6, 5		
				types and choose a strategy for inventory managem		4, 3		
	5. Choose storage equipment and information technology, evaluate and categorize services in the warehousing. 3,							
		licate the participants and to distinguis	•	•		1, 4		
				professional literature in their native and English la	nguages.	3		
			roblems, aı	nd solutions independently and in a team.		6		
2.5. Course content according to detailed curriculum schedule	Cons	tructive allignement						
	No	Thematic unit	LO of the course	Content/teaching methods	Ev	aluation	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.	e f -		2 h	
	2.	The term of Logistics (term, developmental factors, elements of the logistics system, logistics system division)	1, 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	oral exam, stu	um or the written and dents know how to nguish basic concepts es of logistics, factors	5 h	



				literature, create a seminar paper that presents	of logistics development. Seminar	
				the acquired knowledge and presents their own	paper created and presented (by	
				ideas, and ways to solve problems. In group	computer programs).	
				work at the seminar class, the brainstorming		
				method and the discussion method on the topic		
				are applied.		
	3.	The term of Supply chain		They listen to a lecture and read literature. They	At the colloquium or the written and	
		(concept, jobs, goal, structure,		use multimedia and network. At the seminar	oral exam, students know how to	
		information technologies, e-		class, they individually explore the content of	define the basic terms of Supply	
		commerce)		this topic area by searching the database, and on	chain. List the tasks that are	
				the basis of it and reading the literature, create a	performed in the supply chain. To	
			1, 7, 8	seminar paper that presents the acquired	divide the functional stages and	5 h
				knowledge and presents their own ideas, and	cycles. Distinguish information	
				ways to solve problems. In group work at the	technologies for the supply chain	
				seminar class, the brainstorming method and the	management. Explain E-commerce.	
				discussion method on the topic are applied.	Seminar paper created and presented	
				The second secon	(by computer programs).	
	4.	Purchase in the supply chain (goal,		They listen to a lecture and read literature. They	At the colloquium or the written and	
		organization and processes, types		use multimedia and network. At the seminar	oral exam students know how to	
		of purchase, purchase system Just		class, they individually explore the content of	define the basic terms of purchase.	
		in time)		this topic area by searching the database, and on	Indicate the goal and purpose of the	
		in time)	1, 3, 7,	the basis of it and reading the literature, create a	purchase. Distinguish and explain the	
			8	seminar paper that presents the acquired	processes in purchase. Explain the	5 h
			U	knowledge and presents their own ideas, and	purchase system Just in time. Seminar	
				ways to solve problems. In group work at the	paper created and presented (by	
				seminar class, the brainstorming method and the	computer programs).	
				discussion method on the topic are applied.	computer programs).	
		Worsh avaign in the supplies the in			At the collegeions on the confusion and	
	5.	Warehousing in the supply chain		They listen to a lecture and read literature. At the	At the colloquium or the written and	
		(Part I.) (concept, types and	1 5 5	seminar class, they individually explore the	oral exam, students can know how to	
		division, factors for determining	1, 5, 7,	content of this topic area by searching the	define the basic term of warehouse	5 h
		the location, equipment and	8	database, and on the basis of it and reading the	and warehousing. Distinguish,	
		arrangement of the warehouse)		literature, create a seminar paper that presents	describe, and present the warehouse	
				the acquired knowledge and presents their own	equipment. Divide and evaluate the	



				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.	factors for selecting accommodation of the warehouse. Choose, evaluate, and categorize services in the warehouse business. Seminar paper created and presented (by computer programs).	
	6.	Warehousing in the supply chain (Part II.) (Logistics centers, manipulation with goods, warehouse management system)	1, 5, 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 basic terms of the Logistics centers or Freight-transportation centers. Distinguish the difference between logistics centers. Select and categorize services provided in logistics centers. Suggest ways to manipulate a particular type of goods. Explain how it works and divide parts of the Warehouse Management System. Seminar paper created and presented (by computer programs).	5 h
	7.	Warehousing in supply chain (video films)	1, 5, 7, 8	They use multimedia and network. 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, distinguish and describe warehouse equipment. Distinguish between automated and classic warehouse. Explain Bar code, RFID Identification Technology, Voice Technology and Pick to Light Technology. Establish the difference, strengths and the weakness of using it. Seminar paper created and presented (by computer programs).	5 h
	8.	Transport in the supply chain (road, rail, air and pipeline	3, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the	At the colloquium or written and oral exam, students know how to single	5 h



documents) 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 growing method and the discussion method on the topic are applied. 9. Modern transport technologies (conditions for development, integral transport, lechnologies on the road, rail, water, and air transport) 3,7,8 (conditions for development, integral transport, lechnologies on the road, rail, water, and air transport) 10. Modern transport technologies (video films) 10. Modern transport technologies (video films) 3,7,8 (conditions) (condit							
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. P. Modern transport technologies (conditions for development, integral transport, technologies on the road, rail, water, and air transport) A the colloquium or the written and read interature, Arthese 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. A the colloquium or the written and randyze transport technologies in the road, rail, water, and air transport. Tompare, identify the advantages, disadvantages, and costs of transport for individual goods. Seminar paper tead on the extension of 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 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 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 their own ideas, and ways to solve problems. In group work 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 their own ideas, and ways to solve problems. In group work at the seminar paper that presents the content of this topic area by searching the database, and on the basis of it and reading the literature with the seminar class, the brainstorming method and the discussion method on the topic are applied. They use multimedia and network. At the seminar paper that presents the rown ideas, they individually explore the content of this topic area by searching the d			transport, transport costs, transport		content of this topic area by searching the	out the types of transport in the supply	
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. 9. Modern transport technologies (conditions for development, integral transport, integral transport, integral transport, and intransport in the road, rail, water, and air transport) 3.7.8 10. Modern transport technologies (video films) 11. Distribution in supply chain (terms, distribution featwork) 11. Distribution in supply chain (terms, distribution featwork) 12. 6.7. 8 13. 6.7. 8 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. They use multimedia and network. At the colloquium or the written and or the basis of it and reading the content of this topic area by searching the database, and on the basis of it and reading the content of this topic area by searching the database, and on the basis of it and reading the content of this topic area by searching the database, and on the basis of it and reading the content of this topic area by searching the database, and on the basis of it and reading the content of this topic area by searching the database, and on the basis of it and reading the content of this topic area by searching the database, and on the basis of it and reading the content of this topic area by searching the content of this topic area			documents)		database, and on the basis of it and reading the	chain, in all branches of traffic.	
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network) 8 seminar class, they individually explore the define the term of distribution. To determine differences between the			(terms, distribution channels,	267	They use multimedia and network. At the	oral exam, students know how to	
network) content of this topic area by searching the determine differences between the			functions, flows, distribution		seminar class, they individually explore the	define the term of distribution. To	
database, and on the basis of it and reading the direct and indirect channel of			network)	o	content of this topic area by searching the	determine differences between the	
					database, and on the basis of it and reading the	direct and indirect channel of	



				literature, create a seminar paper that presents	distribution. Identify flows in	
				the acquired knowledge and presents their own	distribution channels. Compare and	
				ideas, and ways to solve problems. In group	explain the concepts of the	
				work at the seminar class, the brainstorming	distribution network. Seminar paper	
				method and the discussion method on the topic	created and presented (by computer	
				are applied.	programs).	
	12.	Inventories (stock) in the supply		They listen to a lecture and read literature. At the	At the colloquium or written and oral	5 h
		chain (concept, function, types,		seminar class, they individually explore the	exam, students know define the term	
		management strategies)		content of this topic area by searching the	of invetories (stock).	
				database, and on the basis of it and reading the	Explain the function of stocks in the	
			3, 4, 7,	literature, create a seminar paper that presents	supply chain. Distinguish and	
			8	the acquired knowledge and presents their own	categorize types of stock.	
				ideas, and ways to solve problems. In group	List and comment on inventory	
				work at the seminar class, the brainstorming	management strategies. Seminar	
				method and the discussion method on the topic	paper created and presented (by	
				are applied.	computer programs).	
	13.	Reverse logistics (concept, goal,		They listen to a lecture and read literature. At the	At the colloquium or written and oral	
		carriers, recycling, design of return		seminar class, they individually explore the	exam, students know how to define	
		logistics system)		content of this topic area by searching the	the concept of reverse logistics. List	
		logisties system)		database, and on the basis of it and reading the	and distinguish the carriers of reverse	
				literature, create a seminar paper that presents	logistics.	
			6, 7, 8	the acquired knowledge and presents their own	Identify factors for designing a	5 h
				ideas, and ways to solve problems. In group	reverse logistics system. Recommend	
				work at the seminar class, the brainstorming	the best options for returning goods or	
				method and the discussion method on the topic	products. Seminar paper created and	
				are applied.	presented (by computer programs).	
	14.	Study trip to LIDL Logistics-		are applied.	On a study tour, students will be able	
	17,	distribution center (located in			to define and differentiate basic terms	
		Perušić).			and divisions in logistics,	
		i ciusic).			warehousing, and freight forwarding.	8 h
					Select, evaluate and categorize	9 11
					services in the warehouse business.	
					Compare and connect modes of	



			They listen to a course	lecture and prepare	product transport, or distribution of products of manipulation with the reducing inventory cost	. Suggest ways are products and ts.	80 h
3. EVALUATION OF STUD	and preparing ENT WORK	or the exam.	individuals for the exam.				
3.1. Student obligations	In accordance with the Part-time students are have achieved during academic year; from regular or extraordinat two ways: a) during the state of the part of the state of the part of the state of the part of the	e Rulebook on Study and the Rule required to attend a class of at let the course: from 0 - 24,9% ECTS 25 - 49,9% - are assessed by FX (ry exam period; more than 50% - are course of teaching through contoral part of the exam).	ast 50%. All students must S credits- are rated F (unsucinsufficient) and must pass students have the right to ta	create, present and poccessful) and cannot ea and pass the written eake the final exam. Stud	sitively colloquy seminarn ECTS credits, and mexam (test). Written exardents can take the final of	ar papers. Students ust re-enroll in the n (test) can be held exam from the course	who e next d in a rse in
3.2. Student work monitoring (enter the share of ECTS credits	Attending classes	1	Written exam	1 (without colloqiums)	Project		
for each activity so that the total	Experimental work		Research		Practical work		
number of ECTS credits	Esaay		Report		Continuous check		
corresponds to the course credit value)	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 a	ll bases is 1 ECTS credit for 30 ser	mester hours and is assessed	as attendance (45 hour	rs), preparation of semina	ar work and presenta	ation
	· /· I I	n for the midterm/exam through s	elf-study (90 hours).				
4. FORMATION OF STUDEN			G		1		
4.1. Evaluation of seminar paper	Elements of evaluation	Bad	Satisfy	ying		average	
	Organization	The paper is not organized in a					
		logical order and lacks	distinction between the body of the text and the	*	distinction between main body of the te		
		su acture.	body of the text and the o	Conclusion.	which are logically in		.51011,
	Terminolog, writing	Words and expressions are not	Words and expressions a	are in line with official			with
	style	in line with official	terminology. The writin	g style is appropriate,	official terminolog	gy and show	an



		terminology. The writing style	the sentence structure is clear	the vocabulary is	understanding of th	eir meaning. The writing
		is not appropriate, the	appropriate and there are	few grammatical	style is excellent, th	ne sentences are clear and
		sentences are too long, of a	errors.		concise, the vocabu	lary is rich and there are
		modest vocabulary and with			no grammatical erro	ors.
		frequent and repeated				
		grammatical errors.				
	Citing and	The sources are not listed at all.	The sources are listed but inc	complete and with	The sources are ac	curately, completely and
	referencing	The references do not fit the	errors. The references are re-	levant to the topic	consistently listed	. The references are
	references	topic and show a cursory	and show a satisfactory resea	arch attitude.	appropriate, their	list is "rich" and
		approach to exploring the			comprehensive and	shows a detailed research
		topic.			approach.	
4.2. Gradeing of the		Bad	Satisfying		Abov	ve average
colloquium/written and oral						
exam		without a deeper understanding.	It reproduces the basic con-	-	Knowledge is at the level of analysis,	
		ply basic terms and concepts. It	difficulty imparts new knowledge, understands		synthesis, and evaluation. It observes the	
		apply or explain the contents of	the material, explains the te	-		and thoroughly explains
	the course with exampl	es.	that it supports with example	es.		material, and logically
					-	ns the terms and concepts
						with examples. Finds
						not originally given. It
				Г	notes correlations w	rith related material.
4.3. Forming the final grade	Active attendance on	70-75% attendance	76-86% attendance	87-100%	attendance	Mental map created,
according to the evaluation	class					Case studies resolved
elements		2 points	4 points	7 p	oints	3 points
	Seminar paper	2	3		4	5
	Semmar paper	5 points	7 points	8 p	oints	10 points
		2	3		4	5
	Colloquiums/ Written part of exam	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		nired knowledge, skills and (teaching + final exam)	Numerical g	rade	EC	ECTS grade			
distribution	5	0 – 100%	5 (exceller	nt)	A				
	8	0 – 89,9%	4 (very goo	od)	В				
	6	5 – 79,9%	3 (good)			С			
	6	0 – 64,9%	2 (sufficier	nt)		D			
	5	0 – 59,9%	2 (sufficier	nt)		Е			
5. ADDITIONAL INFORMATI	ON ABOUT COURSE								
5.1. Compulsory literature		Title		1	Number of copies in the	Availability via other			
(available in the library and via				library	media				
other media)	-	R., Šafran M.: Freight Forwardin	culty of	-	City of Sibenik library				
		s, University of Zagreb, Zagreb, 2							
	Prester J.: Supply chain	management, Sinergija, Zagreb,	2012.		2				
	Zelenika R.: Logistics S	Systems, University of Rijeka, Fac	culty of Economics, Rijeka, 2	005	2				
	(selected chapters)								
	Bloomberg D.: Logistic	s, MATE, Zagreb School of Ecor	nomics and Management, Zag	reb, 2006	=	City of Sibenik library			
	(selected chapters)								
	Crkvenčić M., Buntak I	K., Krpan Lj.: Supply chain manag	ement, University NORTH, K	oprivnica,	2				
	2018.								
	Regodić D.: LOGISTIC	CS Supply chains, University of S	ingidunum, Belgrade, 2014.			PDF (Internet website)			
5.2. Additional literature (at the	Teaching materials from	n lectures and seminars on the e-I	Learning system of the Polyte	chnic of		a learning system			
moment of changes and/or	Sibenik for the mention	ed course.				e-learning system Internet webiste			
amended of study programme)	Logistics www.logistik	a.com.hr			internet webiste				
5.3. Quality assurance methods		he control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of							
that ensure the acquisition of		endance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for							
knowledge, skills and	_	ents will be provided in order to i							
competences		of work and the required literatu	· •	•	•	g of annual data from the			
	Croatian employment s	ervice on the annual state of stude	ent employment, surveys from	employers and	d 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).



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

1. GENERAL INFORMATION	1. GENERAL INFORMATION									
1.1. Course lecturer	Ivana Kardum Goleš	1.8. Course code in ISVU	140775							
1.2. Course title	ENGLISH LANGUAGE III	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	2							
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 More than 20 % □							
2. COURSE DESCRIPTION										
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 creation and use of passives, causative constructions, mastery of conditional sentences, transformation of direct into reported speech in the past. 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 II									
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms from in Croatian and English.	n technology and organization of road traffic in written and ora	l communication with the professional public							



	LO2: 7	Γo organize and implement tean	n work, an	d critically judge the opinions and attit	tudes of team members.				
	LO3: 7	Γο individually and responsibly	search, int	erpret and integrate the relevant literat	ture needed to make decisions.				
	Lear	rning outcomes accroding to the	e Bloom`s	taxonomy: (up to two verbs per LO)		1- rememb 2- underston 3- applican 4-analysis 5-evaluation 6-synthesion	anding, tion, on,		
	1 1	o understand, apply and link ter and oral communication	ms from tl	ne professional terminology of English	road traffic and use them in written	2, 3	3		
		to apply grammatical structures				3			
	l	to interpret and use tenses in rea	3, 4 5, 6						
		4. to develop a longer essay within the topics of the course							
		o present own ideas for develop		1		3			
		Č ,		in the subjects of the course, to expres	s one own opinions	6			
		o compare and evaluate differen		Diutions		5			
		o analyse complex texts and solor use part of the general langua		on on at levels D1/D2		4			
			ge compet	elicy at levels B1/B2		6			
	Constructive allignement								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time		
2.5. Course content according to detailed curriculum schedule	1.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		2 h		
	2.	Britains Earliest Roads – Tenses	1, 2, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exac grammatical structures on texts a evaluated, understand, apply and lir the professional terminology of Engli	and tasks are	4 h		



				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.	
3.	The Age Of Bad Roads - The Passive Voice	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
4.	Roads And The Church - The Passive Voice, Sadašnja Vremena	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
5.	Early Carriages - The Passive Voice, Prošla Vremena	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	4 h



				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	
6.	Trade And Transport In The Turnpike Era - The Passive Voice, Buduća Vremena	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	level. 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
7.	Rivers And River Transport - The Passive Voice	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
8.	The World Of Transport - 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	10 h



				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.	
9.	The Satellite - The Infinitive and the Gerund	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
10.	Technology And The Relation Between Transport And Communication - Conditional Sentences (0 And I Type)	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	6 h



ſ							
						tasks, use part of other language competences at B1	
						level.	
						In colloquium or written and oral exams the applied	10 h
						grammatical structures on texts and tasks are	
						evaluated, verb tenses are interpreted in a real	
						linguistic context, can communicate in foreign	
			Transport, Communications	ons Listen to lectures and read languages within the course	languages within the course topic, express their		
		1.1	And City Organisation -	1, 2, 3,	literature. Use multimedia and	own opinions, present their own ideas related to the	10 h
		11.	Conditional Sentences (II	5, 6, 9	internet. Solve exercises.	development of transport solutions to develop a	
			Type)			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.	
						In colloquium or written and oral exams the applied	
						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	
					Listen to lectures and read		
			Navigation Devices -	1,2, 3, 4, 5, 6,	literature. Use multimedia and	languages within the course topic, express their own opinions, present their own ideas related to the	
		12.	Conditional Sentences (III		internet. Solve exercises.	development of transport solutions to develop a	10 h
			Type)	7, 8, 9		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.	
					Listen to lectures and read	In colloquium or written and oral exams the applied	
					literature. During lectures	grammatical structures on texts and tasks are	
			Safe And Clean Road	1,2,	individually research the content of	evaluated, verb tenses are interpreted in a real	
		13.	Transport - Conditional	3,4, 5,	this thematic field by searching	linguistic context, can communicate in foreign	4 h
		10.	Sentences (Mixed Types)	6, 7, 8,	data bases, presentt acquired	languages within the course topic, express their	
			zintences (inned Types)	9	knowledge, express their own ideas	own opinions, present their own ideas related to the	
					and ways of problem solving.	development of transport solutions to develop a	
L					and ways of problem solving.	development of transport solutions to develop a	



				Brainstorming, discussion. Solve exercises.	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.	
	14.	Scientific Road Making - Conditional Sentences	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
	15.	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.



	active participation the final evaluation from the written p learning outcomes inform oneself abo	n in teaching as well as n are the two written te art of the final exam an are: essays, objective ty tut the course. All notice	his/her presentation of the sts that students take during ad is obliged to take the or type assignments, discussions about maintenance or ex	e written work that the sing the semester. If the siral exam only. The final on, roleplay, presentation entual postponement of	tudent produces for homework tudent successfully passes both exam consists of a written and creation, etc. The obligation teaching will be published on	tion being paid to the student's ck. Of particular importance for the exams, he / she is exempted and an oral part. Ways to check n of each student is to regularly the web site of the Polytechnic and the list of literature are also
	Attendance	0,5	Written exam	1 (without colloquia) Project	
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work	
for each activity so that the total number of ECTS points	Essay		Report		Continuous examination	
corresponds to the credit score of the course)	Colloquium 1 (without written exam)		Seminar paper		Other	
	Class activity	0,5	Oral exam	1	Other	
3.3. Student workload	1. Attending	classes and exercises 4	credit is 30 hours in a sen 5 hours ough individual work 45 l		s:	
4. GRADING SYSTEM						
4.1. Grading seminar papers	-					
	Unsa	tisfactory	Satisfa	ctory		average
4.2. Grading colloquia/ written and oral exam	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.	



	Active course	70-75% of attendance	76-86% of attendance	87-100% of attendance	Maksimum bodova
	attendance	3 points	7 points	20 points	20 bodova
	Seminar paper				
4.3. Final grade according to	Schillar paper				
evaluation elements	Colloquia/ Written	2	3	4	5
evaluation elements	exam	50-64,9%	65-79,9%	80-89,9%	90-100%
	CAMIII	25 points	30 points	35 points	40 bodova
	Oral exam	2	3	4	5
	Orar exam	25 points	30 points	35 points	40 bodova
		quired knowledge, skills and s (teaching + final exam)	Numerical grade	ECTS	grade
42 5' 1 1 1' '		90 – 100%	5 (excellent)		4
4.3. Final grade according to absolute division		80 – 89,9%	4 (very good)]	В
absolute division		65 – 79,9%	3 (good)		C
		60 – 64,9%	2 (satisfactory)]	D
		50 – 59,9%	2 (satisfactory)	Е	

5. ADDITIONAL COURSE INFORMATION

5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(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 Langzage 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. 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	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 or an amended and/or changed or modernized course.

1. GENERAL INFORMATI	ON		
1.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU	140771
1.2. 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	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level),	1 st , course materials are on-line,
(specialist, undergraduate,		percentage of on line course performance (max. 20%)	0%
graduate)			
1.5. Course status (obligatory,	Obligatory	1.12. Number of course revisions	4
optional)			
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	Less than 20% X
		supplements	More than 20 % □
2. COURSE DESCRIPTION	I		
2.1. Course objectives	The goal is that students on the basis of theoretical knowled become familiar with the creation and development		
	 analyze and comment of commodity exchange (tra 	•	
	 distinguish the main transport corridors in Europe 		
2.2. Terms of course entry and	Enrolled 2 nd academic year, 4 year secondary education con	mpleted; qualification level 4.2 according to the CROQF.	
required competences			
2.3. Learning outcomes on the study programme level	and English.	ogy and organization in written and oral communication with	the professional public in Croatian
	LO2: Organize and conduct teamwork, and critically evaluate	ate the opinions and attitudes of team members.	
	LO3: Independently and responsibly search, interpret and is	ntegrate relevant literature for decision making.	
	LO6: Analyze and present relevant facts from the traffic are	_	
	LO10: Compare and select technical and technological solu	itions for traffic and/or goods flows.	
	LO12: Design a smaller transport process and critically eva	luate it.	



2.4. Expected learning outcomes on the course level (4-	Learn	ing outcomes by Bloom: (maximum 2 w	erbs for LO	O)		Level of LO: 1 - memory, 2 - understanding, 3 - application,	
10 learning outcomes)							
	1. Pres	sent and comment on the historical develo	opment of t	he traffic branches.		6 – <i>synthesis</i> . 6, 3	
	2. List	and explain the main factors for the crea	tion and de	evelopment of commodity flows.		1, 2	
	3. Ana	alyze and evaluate world trade in goods.				4, 5	
	4. Pres	sent and comment on the traffic connection	on of the Ro	epublic of Croatia.		6, 4	
	5. List	and compare major transport corridors in	n Europe aı	nd the Republic of Croatia.		1, 2	
	6. Cor	nment on the objective and strategy of the	e Marco Po	lo Program and the current White Paper EU about	transport.	4	
	7. Use	materials and tools to search scientific an	nd professi	onal literature in native and English languages.		3	
	8. Pres	sent the acquired knowledge, ideas, probl-	ems, and so	olutions independently and in a team.		6	
2.5. Course content according to detailed curriculum schedule	Const	ructive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	Eva	luation	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 knowledge and presents their own	and oral exame to define, distinguish the the formation a	ium or the written students know how numerate and e main factors for and development of flows (general,	6 h



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



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Europe, Pan-European transport corridors, pipeline corridors, inland waterways) 5,7,8 database, and on the basis of it and reading the literature, create a seminar paper that presents their own Define the term of traffic corridor.			European transport network, transport		seminar class, they individually explore the	oral exam students know state and	
corridors, pipeline corridors, inland waterways) literature, create a seminar paper that presents their own befine the term of traffic corridor.			corridors in Western and Northern		content of this topic area by searching the	compare the main transport	
waterways) the acquired knowledge and presents their own Define the term of traffic corridor.			Europe, Pan-European transport	5, 7, 8	database, and on the basis of it and reading the	corridors in all parts of Europe	
			corridors, pipeline corridors, inland		literature, create a seminar paper that presents	and all branches of transport.	
			waterways)		the acquired knowledge and presents their own	Define the term of traffic corridor.	
					ideas, and ways to solve problems. In group	List the countries through which	



				work at the seminar class, the brainstorming	each transport corridor passes.	
				method and the discussion method on the topic	Seminar paper created and	
				are applied.	presented (by computer	
					programs).	
	9.	Transport corridors in the Republic of		They listen to a lecture and read literature. At the	At the colloquium or the written	6 h
		Croatia (Geographical location, traffic		seminar class, they individually explore the	and oral exam, students can	
		directions, traffic corridors in the road,		content of this topic area by searching the	identify and compare major traffic	
		rail, air, water, and pipeline transport)		database, and on the basis of it and reading the	corridors in Europe and the	
				literature, create a seminar paper that presents	Republic of Croatia. Present,	
			4, 5, 7,	the acquired knowledge and presents their own	critically evaluate the traffic	
			8	ideas, and ways to solve problems. In group	connection of the Republic of	
				work at the seminar class, the brainstorming	Croatia in the road, rail, air,	
				method and the discussion method on the topic	pipeline and inland waterway	
				are applied.	transport. Seminar paper created	
				11	and presented (by computer	
					programs).	
	10.	Merchandise and traffic flows in the		They listen to a lecture and read literature. At the	At the colloquium or the written	6 h
		modern world (Concept and		seminar class, they individually explore the	and oral exam, students know	
		characteristics of traffic flow,		content of this topic area by searching the	how to define the concept of	
		commodity flows of food, raw		database, and on the basis of it and reading the	goods traffic. Categorize, analyze	
		materials, and industrial products)		literature, create a seminar paper that presents	and evaluate the world trade of	
		F		the acquired knowledge and presents their own	food, raw materials, and industrial	
			3, 7, 8	ideas, and ways to solve problems. In group	products. List the countries with	
				work at the seminar class, the brainstorming	the largest importers and	
				method and the discussion method on the topic	exporters of all types of goods.	
				are applied.	Seminar paper created and	
				шо иррпоси	presented (by computer	
					programs).	
	11.	Merchandise and traffic flows of the		They listen to a lecture and read literature. At the	At the colloquium or the written	6 h
	11.	Republic of Croatia (import and		seminar class, they individually explore the	and oral exam students know how	O II
		export of products, merchandise and	3, 4, 7,	content of this topic area by searching the	to analyze and evaluate the trade	
l		traffic flows of the Republic of Croatia	8	database, and on the basis of it and reading the	of products in the Republic of	
		in land, water, and air)		literature, create a seminar paper that presents	Croatia. List the products that the	
		in rand, water, and an j		merature, create a seminar paper that presents	Croana. List the products that the	



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Transport (White Paper titles, key 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) 14. Study visit to the port of Rijeka Study visit to the port of Paper titles, key 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) 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 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. 6,7,8 4. Study visit to the port of Rijeka 3,4,5 Study visit to the Paper titles, key content of this topic area by searching the database, and on the basis of it and reading 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). 6,7,8 Study visit to the port of Rijeka 3,4,5				discussion method on the topic are applied.		
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transport area for the future, visions for developing a competitive and sustainable transport system, strategy - what needs to be done) 6,7,8 46,7,8 6,7,8 database, and on the basis of it and reading the literature, create a seminar paper that 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. 14. Study visit to the port of Rijeka 3,4,5 database, and on the basis of it and reading the literature, create a seminar paper that presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method on the topic are applied. 6 h 6 h 6 b 6 During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic		Transport (White Paper titles, key		seminar class, they individually explore the	oral exam, students define	
for developing a competitive and sustainable transport system, strategy - what needs to be done) 6, 7, 8 Ilterature, create a seminar paper that 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. 6 h 6 h 6 h 6 h 6 h 6 h 6 h		content areas, preparing the European		content of this topic area by searching the	objective and strategy of the	
sustainable transport system, strategy - what needs to be done) 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. 14. Study visit to the port of Rijeka 3, 4, 5 3, 4, 5 the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming method on the topic are applied. During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the field of transport. Seminar paper created and presented (by computer programs).		transport area for the future, visions		database, and on the basis of it and reading the	current EU White Paper on	
sustainable transport system, strategy - what needs to be done) 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. 14. Study visit to the port of Rijeka 3, 4, 5 3, 4, 5 the acquired knowledge and presents their own ideas, and ways to solve problems. In group work at the seminar class, the brainstorming created and presented (by computer programs). During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic		for developing a competitive and	<i>(</i> 7 0	literature, create a seminar paper that presents	transport. Comment on EU	(1
work at the seminar class, the brainstorming method and the discussion method on the topic are applied. 14. Study visit to the port of Rijeka 3, 4, 5 3, 4, 5 work at the seminar class, the brainstorming method on the topic computer programs). During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic		sustainable transport system, strategy	0, 7, 8	the acquired knowledge and presents their own	professional projects in the field	o n
method and the discussion method on the topic are applied. 14. Study visit to the port of Rijeka During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic		- what needs to be done)		ideas, and ways to solve problems. In group	of transport. Seminar paper	
are applied. 14. Study visit to the port of Rijeka 15. During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic				work at the seminar class, the brainstorming	created and presented (by	
14. Study visit to the port of Rijeka During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic				method and the discussion method on the topic	computer programs).	
14. Study visit to the port of Rijeka During the study visit, students will be able to analyze and evaluate the exchange of products through seaports in the Republic				are applied.		
3, 4, 5 evaluate the exchange of products through seaports in the Republic	14.	Study visit to the port of Rijeka			During the study visit, students	
through seaports in the Republic					will be able to analyze and	
through seaports in the Republic			3, 4, 5		evaluate the exchange of products	8 h
of Croatia. To present and					through seaports in the Republic	
					of Croatia. To present and	



							comment on the traffic	c connection	
							of the Republic of Cro		
							and rail transport.		
							compare major transp		
							in Europe and the	Republic of	
							Croatia.		
	15.		ons/Repeating and	_	They listen to a course	lecture and prepare	_		40 h
		preparing for the ex	xam.		individuals for the exam.				
3. EVALUATION OF STUD									
3.1. Student obligations			•		ok on Student Assessment				
		-			0%. All students must creat				
		•			are rated F (unsuccessful) a				
					and must pass and pass the				
		•			the right to take the final				-
	-	•		nuous moni	toring of students (active p	participation in classes a	and through two exams	s); b) passing	the exam
22 8: 1		en and oral part of th	e exam).		*** ***	1 ('.1)	D : .	1	
3.2. Student work monitoring (enter the share of ECTS credits	At	tending classes	1		Written exam	1 (without	Project		
for each activity so that the total	Eve	perimental work			Research	colloqiums)	Practical work		
number of ECTS credits	EX								
corresponds to the course credit		Esaay			Report		Continuous check		
value)	(Colloquiums	1 (without writter	n part of	Seminar paper	0,5	(other)		
, and o			exam)						
	Tea	ching activities	1		The oral part of exam	0,5	(other)		
3.3. Student work-load	Studer	nt workload on all ba	ses is 1 ECTS credit	for 30 seme	ster hours and is assessed a	s attendance (60 hours)	, preparation of seminar	work and pre	esentation
	(16 ho	urs), preparation for	the midterm/exam the	hrough self-	study (44 hours).				
4. FORMATION OF STUDENT	GRAI	DE							
4.1. Evaluation of seminar paper	Eleme	ents of evaluation	Bad		Satisf	ying	Above	average	
	(Organization	The paper is not or		1 1		* *		
			logical order	and lacks		· · · · · · · · · · · · · · · · · · ·	distinction between		<i>'</i>
			structure.		body of the text and the	conclusion.	main body of the te		
					which are logically interconnected				



	Terminolog, writing	Words and expressions are not	Words and expressions are in	n line with official	Words and expres	sions are aligned with
	style	in line with official	terminology. The writing st		official terminolo	
		terminology. The writing style	the sentence structure is clear	•	_	eir meaning. The writing
		is not appropriate, the	appropriate and there are	few grammatical		e sentences are clear and
		sentences are too long, of a	errors.			lary is rich and there are
		modest vocabulary and with			no grammatical erro	ors.
		frequent and repeated				
		grammatical errors.				
	Citing and referencing	The sources are not listed at all.	The sources are listed but in	*		curately, completely and
	references	The references do not fit the	errors. The references are re	_	•	. The references are
		topic and show a cursory	and show a satisfactory resea	arch attitude.	appropriate, their	
		approach to exploring the			· •	d shows a detailed
		topic.			research approach.	
4.2. Gradeing of the		Bad	Satisfying		Above average	
colloquium/written and oral						
exam		ithout a deeper understanding. It	It reproduces the basic con-	•	_	the level of analysis,
		asic terms and concepts. It does	difficulty imparts new knowledge, understands the material, explains the terms and concepts		synthesis, and evaluation. It observes the	
		explain the contents of the course			legality, accurately and thoroughly explains	
	with examples.		that it supports with example	es.		material, and logically
						plains the terms and
					concepts that it supports with examples.	
						at were not originally
					•	rrelations with related
4.2. Familia da Carlanda	Active attendance on	I			material.	Mantalanananatal
4.3. Forming the final grade		70-75% attendance	76-86% attendance	87-100%	attendance	Mental map created, Case studies resolved
according to the evaluation elements	class			_	•	
elements		2 points	4 points	7 p	oints	3 points
	Seminar paper	2	3		4	5
	Zumiui pupui	5 points	7 points	8 p	oints	10 points
	Colloquiums/	2	3		4	5
	Written part of exam	50 - 64,9%	65 - 79,9%	80 -	89,9%	90 - 100%



		25 points	30 points		35 points	40 points
		2	3		5	5
	Oral part of exam	25 points	30 points		35 points	40 points
4.4. Formation of the final grade	Percentage of acqu	ired knowledge, skills and	Numerical gra	ade	ECT	TS grade
based on the absolute	competencies	(teaching + final exam)				
distribution	9	0 - 100%	5 (excellent	(1)		A
	8	0 – 89,9%	4 (very good	1)		В
	6	5 – 79,9%	3 (good)			С
	6	0 – 64,9%	2 (sufficient	<u>:</u>)		D
	5	0 – 59,9%	2 (sufficient	<u>:</u>)		Е
5. ADDITIONAL INFORMAT	ION ABOUT COURSE					
5.1. Compulsory literature		Title		N	umber of copies in the	Availability via
(available in the library and via					library	other media
other media)	Sego Darijo: Traffic corri Sibenik 2016.	dors and merchandise flows, Scrip	t for internal use, Polytechnic of	f Sibenik,		e-learning system
	Strategy for Transport Dechapters)	evelopment of the Republic of Cro	patia for the Period 2014-2030.	(selected		Internet website
	World trade organization	http://www.wto.org/ (selected cha	apters)		-	Internet website
	Transport in EU http://ec	.europa.eu/transport/index en.htm	(selected chapters)		-	Internet website
	Central Bureau of Statist	ics of the Republic of Croatia https	s://www.dzs.hr/			Internet website
5.2. Additional literature (at the		lectures and seminars on the e-	Learning system of the Polyte	echnic of	-	e-learning system
moment of changes and/or	Sibenik for the mentione	d course.				
amended of study programme)	International trade statist	ics <u>https://www.trademap.org/Inde</u>	ex.aspx			Internet website
	UN agency for food http:	//www.fao.org/home/en/				Internet website
5.3. Quality assurance methods	The control of students'	work quality and the acquisition of	f necessary knowledge and skil	ls will be ensu	red through interactive wo	ork. By keeping track of
that ensure the acquisition of	attendance and student a	ctivity during classes and provided	d information on students` prog	gress through s	short colloquiums and hon	nework, information for
knowledge, skills and		nts will be provided in order to in-			-	
competences	_	of work and the required literature	•			•
-		vice on the annual state of student	- ·	•	•	



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).



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

1. GENERAL INFORMATION			
1.1. Course title	TRAFFIC LAW	1.8. Course code in ISVU	140781
1.2. Course lecturer	Krešimir Nimac	1.9 Course code in MOZVAG	
1.3. Assistants and 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 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	3
1.6. Year of study	2 nd	1.13. Modernization	X yes □ no
1.7. Credit score (ECTS)	3	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 aim of the course is to acquaint students with the basic concepts of law in general, as well as all branches of traffic law with special emphasis on road aw. In this way, students acquire basic knowledge about the system of traffic law and the relationship between specific modes of transport, as well as the ctivities necessary for the functioning of transport as a whole.						
2.2. Terms of course entry and required competences	Completed a four-year high school education; possession of a qualification at level 4.2. according to the CROQF.						
	LO1: Use and connect professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English.						
2.3. Learning outcomes on the	LO2: Organize and conduct teamwork, and critically judge the opinions and attitudes of team members.						
study programme level	LO3: Independently and responsibly search, interpret and integrate the relevant literature needed for decision making.						
	LO5: Apply basic legal and economic principles in the organization with socially responsible business in technical-technological entities.						
	LO6: Analyze and present relevant facts from the traffic area needed to draw conclusions.						
	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
2.4. Expected learning outcomes		6-synthesis
on the course level (4-10	1. Define basic concepts and concepts of law, and connect them with different branches of traffic	1, 3
learning outcomes)	2. Classify and analyze branches of transport, as well as administrative law and property legal regulation of all individual	2, 4
	transport branches	2, 4
	3. Recommend measures to improve the road safety situation in the Republic of Croatia	5
	4. Define trends in traffic law	1
	5. Draw up a draft contract for the carriage of passengers, luggage or items in road transport	6
	4. Define trends in traffic law	5 1 6

	Constr	ructive alignment				
	No.	Thematic unit	LO of the	Content/teaching methods	Evaluation	Time
			course			
2.5. Course content according to detailed curriculum schedule	1.	Introduction into the course and detailed plan.	-	Students listen to a lecture. In the course of seminary classes students are introduced to the course content and documents on the e-learning page of the course	- 2	
detailed culticulum schedule		FUNDAMENTALS OF LAW - concept and elements, legal rule and legal relationship	1	Students listen to a lecture, browse databases and read literature.	At the midterm or oral exam, they know how to define basic legal concepts, legal rule and legal relationship.	3
	2.	LEGAL ACTS - types of legal acts, Constitution, laws and bylaws, and international agreements	1	Students listen to a lecture, browse databases and read literature.	At the midterm or oral exam, they know how to define a legal act, distinguish the types of legal acts, define the basic functions of the constitution and laws, and define the basic constitutional principles in the Republic of Croatia. Developed and presented practical work (independent use of computer programs).	3



3.	ORGANIZATION OF STATE AUTHORITY - legislative, executive and judicial authorities, Constitutional Court of the Republic of Croatia	1	Students listen to a lecture and read literature. In seminar classes, independently and in a group, using the brainstorming method and the method of discussing different models of state organization.	At the midterm or oral exam, they know how to distinguish forms of government in the Republic of Croatia, define the theory of division of power, and know the structure and jurisdiction of the Constitutional Court. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	4
4.	CONCEPT, MEANING, SOURCES OF TRAFFIC LAW - concept, meaning and scope of traffic and traffic law, sources of traffic law	1,2	Students listen to a lecture, browse databases and read literature.	At the midterm or oral exam, they can explain the concept, meaning and scope of traffic, and enumerate and explain the sources of traffic law. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	3
5.	TRAFFIC LAW OF THE EUROPEAN UNION AND INTERNATIONAL TRAFFIC ORGANIZATIONS - institutions of the European Union, European law, legal regulation of transport in the European Union and international transport organizations	1	Students listen to lectures and read literature. In the seminar classes, individually and in groups, they analyze examples from the practice of European Union countries and draw conclusions about the application of legal regulations to a specific factual situation.	At the midterm or oral exam, they know the basic features of the structure of the European Union, the legal regulation of transport in the European Union, and the structure and competences of the basic international transport organizations. Prepared and presented practical work (independent use of computer programs and sources of legal practice of the European Union).	3
6.	TRAFFIC INSURANCE - purpose and subject of insurance, types of insurance and insurance contract	1	Students listen to lectures and read literature. They use multimedia and networking. In seminar classes in group work, they analyze examples from the practice of insurance companies, and draw conclusions about the application of legal	At the midterm or oral exam, they can define the basic concepts related to traffic insurance, types of insurance as well as the characteristics of insurance contracts. Prepared and presented practical work (independent use of computer programs and sources of court and legal practice).	3



			regulations to a specific factual situation.		
7.	AIR LAW - international conventions, international air traffic agreements, airports, air traffic, obligatory relations in air traffic	2,4	Students listen to lectures and read literature. In seminar classes in group work, they analyze examples from practice and draw conclusions about the application of legal regulations to a specific factual situation.	At the colloquium or oral exam, they know how to define the legal regulation of international air traffic with the basic provisions of international conventions, and define institutes related to administrative and property regulation of air traffic in the Republic of Croatia with special emphasis on air transport contracts. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	4
8.	RAILWAY LAW - railway infrastructure, railway safety, contracts on railway transport, legal regulation of international railway transport	2,4	Students listen to lectures and read literature. In the seminar classes, they analyze examples from practice independently and in a group and draw conclusions about the application of legal regulations to a specific factual situation.	At the colloquium or oral exam, they know how to define the manner of administrative regulation of railway transport in the Republic of Croatia, as well as property regulation with special emphasis on contracts for transport in railway transport. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	4
9.	ROAD LAW - transport of passengers and cargo, public roads, legal regulation of international road traffic, international conventions and organization of road traffic	2.4	Students listen to lectures and read literature. In seminar classes, they browse databases individually and in groups with a special focus on public road management.	At the midterm or oral exam, they know how to define the basic concepts in road traffic, and the manner of administrative regulation of road traffic in the Republic of Croatia. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	5
10.	ROAD TRANSPORT CONTRACTS - concept of transport contract, essential elements, conclusion of contract, liability, transport of goods and transport of passengers	2,4,5	Students listen to lectures, browse databases and read literature. At the seminar classes, they group up a contract on the transport of passengers and things.	At the midterm or oral exam, they know how to define the essential features of a contract on road transport in accordance with the Civil Obligations Act of the Republic of Croatia. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	4



11.	ROAD SAFETY	2,3,4	Students listen to lectures and read literature. The seminar method uses the brainstorming method and the method of discussing legislation with special reference to young drivers.	At the midterm or oral exam, they know how to define basic institutes related to road traffic safety in accordance with the Road Traffic Safety Act in the Republic of Croatia. Developed and presented practical work (independent use of computer programs and sources of legal practice)	3
12.	MARITIME LAW - ports, waterways, ship, ship's captain, rescue, ship collision, shipping contracts, international conventions	2,4	Students listen to lectures and read literature. In the seminar classes, they individually research the content of this thematic area by searching the database.	At the midterm or oral exam, they know how to define basic institutes in maritime law in accordance with the Maritime Code of the Republic of Croatia, with special emphasis on shipping contracts. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	3
13.	POSTAL LAW - postal network, Postal Services Council, accession treaty, international postal traffic organizations	2,4	Students listen to lectures and read literature. In seminar classes, they analyze examples from practice individually or in a group.	At the midterm or written / oral exam, they can define the basic concepts related to postal law, as well as the manner of administrative and property regulation of postal traffic in the Republic of Croatia. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	3
14.	TELECOMMUNICATION LAW - HAKOM, infrastructure, concessions, protection of service users' rights, market competition	2,4	Students listen to lectures, browse databases and read literature.	At the colloquium or oral exam, they know how to define the basic concepts related to telecommunications law, as well as the manner of administrative and property regulation of telecommunications traffic in the Republic of Croatia. Prepared and presented practical work (independent use of computer programs and sources of legal practice).	3
15.	CONCLUDING REMARKS, REPETITION AND PREPARATION FOR THE EXAM	-	Students listen to lectures and read literature. Students prepare individually for the exam.		40



3. EVALUATION OF STUDEN	TTS` WORK							
3.1. Students` obligations	• more than 50% - students have the right to take the final exam. 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 teaching, preparation and presentation of seminar work and two midterm exams); b) during class (active participation in teaching, preparation and presentation of seminar work) and taking exams (written and oral part of the exam).							
2.2 Manitania a atudant mada	Attendance	0,5	Written exam		Project			
3.2 Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work			
for each activity so that the total number of ECTS points	Esssay		Report		Continuous examination			
corresponds to the credit score	Colloquium (midterm)	2	Seminar paper	0,5	Other			
of the course)	Class activity		Oral exam	2 (without colloquia/midterm)	Other			
	Student workload on all b	pases for 1 ECTS credit is	30 hours in a semester ar		_			
	Obligation			Hours (estimated)				
3.3. Student workload	1. Attendance			35				
		ar paper and presentation		15				
	3. Preparation for	the midterm / exam thro	ugh self-study	40				
4. ASSESSMENT FORMATION	N							



	The evaluation element	Unsatisfact	cory	Satisfactory			Above average		
4.1. Grading seminar papers	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 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 wofficial terminology. The writing stris appropriate, the sentence structure clear, the vocabulary is appropriate and there are few grammatical error		style of ur ture is tte arrors.	are clear and concise, the vocabulary is rich and there are no grammatical errors.		
	Citing and 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.		re ar	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and show a detailed research approach.		
	Unsatisfactory			Satisfactory			Above average		
4.2. Grading colloquia/ written and oral exam	Student responds by me understanding, does not terms and concepts, does or explain the contents of examples.	know or apply basic	without diffic understands the	Student reproduces the basic concept without difficulty imparts new known understands the material, explains the teresoncepts supporting them with examples.		e, content of the material, and logically connects			
4.3. Final grade according to absolute division	Active attendance	70-75% attendance	76-8	36% attendance	87-100	% attendan	nce	Solved case studies	
		2 points		4 points	7 points			3 points	
	Seminar paper	2		3		4		5	
		5 points		7 points		8 points		10 points	
		2		3	4			5	



	Taking a	50-64,9%	65-79,9%	80-89,9%	90-100%	
	colloquium/midterm	25 points	30 points	35 points	40 points	
	Oral ayam	2	3	5	5	
	competences (t	25 points	30 points	35 points	40 points	
		ired knowledge, skills and teaching + final exam)	Numerical grade	ECTS grade		
445.1.1.1.	90	0 – 100%	5 (excellent)	A		
4.4. Final grade according to absolute division	80	0 – 89,9%	4 (very good)	E	3	
absolute division	65	5 – 79,9%	3 (good)	С		
	60) – 64,9%	2 (satisfactory)	D		
	50) – 59,9%	2 (satisfactory)	Е		

5. ADDITIONAL COURSE INFORMATION

5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(available in the library and via	1. Slobodan Kaštela i Ladislav Horvat: Prometno pravo, Školska knjiga Zagreb, 2008.	5	
other media)	2. Dragan Bolanča: Prometno pravo (udžbenik u elektronskom obliku), Veleučilište Šibenik, 2016.		
5.2. Additional literature (at the moment of changes and/or amended of study programme)	 Aleksandra Vasilj i Biljana Činčurak Erceg: Prometno pravo i osiguranje, Pravni fakultet Osijek, 2016. Teaching materials from lectures 		
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 the attendance and student activity during classes and provided information on students' progress through short of further guidance to students will be provided in order to increase the efficiency of their work. Students will be as well as the methods of work and the required literature. Indicators of quality assurance system: Student sur Croatian employment service on the annual state of student employment, surveys from employers and Alumn	colloquiums and homewore informed about their rig	rk, information for thts and obligations



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 or an amended and/or changed or modernized course

1. GENERAL INFORMATION			
1.1. Course title	TRANSSHIPMENT RESOURCES	1.8. Course code at ISVU	140767
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)	(45+15+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 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 □ No
1.7. Credit point (ECTS)	6	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: • Distinguish between types of transshipment resources; • Understand the principle of continuous operation of transhipment 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. • 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	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.
study programme level	LO2: To organize and implement team work, and critically judge the opinions and attitudes of team members.



	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.							
	LO13: To track trends in the development of technique, technology and safety in traffic.							
	Learning outcomes according to Bloom's taxonomy:							
	1. state the division of goods according to the technical suitability for transport and transhipment and list the physical and	1						
2.4. Expected learning outcomes	technical characteristics of the goods,	1						
on the course level	2. to sketch and comment on continuous operation transhipments,	3, 4						
on the course level	3. calculate the productivity of individual continuous-action transhipment means,	4						
	4. recommend loading and unloading means depending on the type of goods and productivity,	5						
	5. sketch and select the required elements of the crane,	4, 3						
	6. distinguish and propose types of cranes with regard to the scope,	2, 6						
	7. calculate the productivity of transshipment mechanization with periodically action,	3						
	8. define and calculate the number of pallets and containers required.	1, 3						

	Constr	Constructive allignement								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time				
2.5. Course content according to detailed curriculum schedule	1.	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	They listen to lectures and read literature. At the seminar classes, they get acquainted with the methodology of writing seminar papers.	At the colloquium or written and oral exam, they state the types of transhipment according to the degree of mechanization	6 h				



			They choose the topics of seminar papers. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied. During the exercises classes they repeat the units of	and automation. They state the division of goods according to the technical convenience for transport and transhipment and state the physical and technical characteristics of the goods. They	
			measurement and formulas needed to calculate the productivity of transhipment machinery.	define and sketch the embankment angle. They list the types of productivity of transhipment machinery with continuous operation.	
2.	Belt conveyors. Band conveyor belts.	2, 3, 4	They listen to lectures and read literature. In seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied. In the exercises classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral exam, they can list the features and sketch the belt conveyor and explain its constituent elements. Give an example of application. List and explain the types of conveyor belts. State and sketch the shapes of the bearing surfaces of the conveyor belts of the belt conveyor. They know how to calculate the productivity of belt conveyors.	10 h
3.	Drums and rollers of belt conveyors. Devices for loading and unloading. Calculation of belt conveyors.	2, 3, 4	They listen to lectures and read literature. In seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied. In the exercises classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral exam, they can enumerate and explain the role of drums. Sketch the belt conveyor drive with one, two and three drive drums. List and sketch the types of rollers according to construction solutions and shape. They can state, sketch and explain the role of loading and unloading devices. Prepared and presented seminar paper (independent use of computer programs). They know how to calculate the required belt width for a belt conveyor. They know	10 h



				how to calculate the productivity of belt conveyors.	
4.	Screw conveyors. Scope, shapes and calculation of a screw conveyor.	2, 3, 4	They listen to lectures and read literature. In seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied. In the exercises classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral exam, they can explain the role of screw conveyors and state its advantages and disadvantages. Give an example of application. They can enumerate and sketch the shapes of the conveyor auger and indicate the type of material they are used for. Sketch and explain the working principle of a screw conveyor for piece goods. Prepared and presented seminar paper (independent use of computer programs). They know how to calculate the productivity of belt conveyors.	8 h
5.	Elevators. Forms of construction and calculation. Pneumatic conveyors. Forms of construction and calculation.	2, 3, 4	They listen to lectures and read literature. In seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied. In the exercises classes, they calculate the productivity of the conveyor by analytical methods.	At the colloquium or written and oral exam, they know how to define elevators and list and explain the types of elevators. Sketch and explain the principle of operation of the elevator. List the types of buckets and the elements for the transfer of piece goods. At the colloquium or written and oral exam, they can state the types of pneumatic conveyors, sketch and explain their working principle. Prepared and presented seminar paper (independent use of computer programs). They know how to calculate the productivity of screw conveyors.	8 h
6.	Sectional conveyors. Features and calculation of sectional conveyors. Vibrating conveyors.	2, 3, 4	They listen to lectures and read literature. In seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it	At the colloquium or written and oral exam, they can state the characteristics of sectional conveyors and sketch and explain their working principle.	8 h



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	Scope, forms and calculation.	1, 2, 3, 4	and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied. In the exercises classes, they calculate the productivity of the conveyor by analytical methods. They listen to lectures and read literature. In	At the colloquium or written and oral exam, they can state the characteristics of vibrating conveyors, explain their working principle and sketch them. Prepared and presented seminar paper (independent use of computer programs). They know how to calculate the productivity of elevators. At the colloquium or written and oral	8 h
7.	Gravity conveyors. Scope, shapes and calculation of gravity conveyors. Conveyors scrapers. Scope, forms and calculation of scraper conveyors.		seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied. In the exercises classes, they calculate the productivity of the conveyor by analytical methods.	exam, they know how to define gravity conveyors, explain the principle of work and state their advantages and disadvantages. Explain the principle of operation of a flat gravity slide and sketch it. Explain the principle of operation of a spiral gravity slide, list the designs and sketch them. List the types of gravity rollers and explain their working principle. Give an example of application. They can explain the principle of operation and sketch the scraper conveyor. Give an example of application. Explain what redlers are. Prepared and presented seminar paper (independent use of computer programs). They know how to calculate the productivity of pneumatic conveyors.	
8.	Repetition and preparation for the colloquium.Colloquium I.	1, 2, 3, 4	They listen to lectures and read literature and individually prepare for the colloquium.	-	25 h
9.	Crane operating class. Crane elements.	5, 6, 7	They listen to lectures and read literature. In the seminar classes, they individually research databases and, based on that, read	At the colloquium or written and oral exam, they can state and explain the classes of the crane and calculate the	8 h



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11. Pulleys. Brakes. which presents the acquired knowledge. The brainstorming method and the discussion method are applied in the seminar classes. In the exercises classes, they solve numerical which presents the acquired knowledge. The brakes, list the types and give an example from practice. Sketch and explain the brakes with two and one pedal. They can							
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method are applied in the seminar classes. In the exercises classes, they solve numerical brakes with two and one pedal. They can		11.	Pulleys. Brakes.		_ =	I = =	
the exercises classes, they solve numerical brakes with two and one pedal. They can						1	
						from practice. Sketch and explain the	
problems for manipulative vehicles using the sketch and explain conical, belt and					· ·	<u> </u>	
					problems for manipulative vehicles using the	sketch and explain conical, belt and	



			analytical method In the exercises classes, they solve numerical problems with the analytical method, which determine the parameters for classifying cranes into classes.	lamellar brakes. Calculate the parameters for classifying cranes into classes and, based on the parameters, classify the cranes into a specific class.	
12.	Division of the crane. Design of small cranes.	5, 6, 7, 8	They listen to lectures and read literature. In the seminar classes, they individually research databases and, based on that, read the literature and prepare a seminar paper which presents the acquired knowledge. The brainstorming method and the discussion method are applied in the seminar classes. In the exercises classes, they solve numerical problems for a hydraulic crane using the analytical method.	At the colloquium or written and oral exam, they can list small and large cranes. Sketch and explain small cranes and give an example from practice. Calculate the required pressure in the hydraulic jack cylinder, the required force at the end of the drive lever and the piston diameter.	10 h
13.	Large cranes.	5, 6, 7, 8	They listen to lectures and read literature. In the seminar classes, they individually research databases and, based on that, read the literature and prepare a seminar paper which presents the acquired knowledge. The brainstorming method and the discussion method are applied in the seminar classes. In the exercises classes, they solve numerical problems with the use of containers using the analytical method.	At the colloquium or written and oral exam they know how to group large cranes. Sketch and explain large cranes. Explain the difference between boundaries and cranes. Give an example from practice. Calculate the required number of containers.	12 h
14.	Universal manipulative vehicles. Forklifts, loaders and small towing vehicles. Pallets and containers.	8	They listen to lectures and read literature. In the seminar classes, they individually research databases and, based on that, read the literature and prepare a seminar paper which presents the acquired knowledge. The brainstorming method and the discussion method are applied in the seminar classes.	At the colloquium or written and oral exam, they know how to list and define universal manipulative vehicles. State the division of the forklift and give an example from practice. Explain loaders, list and describe small towing vehicles and give an example from practice. At the colloquium or written and oral exam, they	8 h



		Paratition or	nd preparation	5, 6, 7, 8	In the exercises class numerical problems containers using the	with the use of	know how to define and line pallets and containers and from practice. Calculate the number of the container.	give an example	40 h
	15.	for the colloc	quium. II. Concluding ns. nd preparing	3, 0, 7, 8	They listen to the lect literature and individual colloquium/ exam.		-		40 11
3. EVALUATION OF STUDEN	T WOR	K							
3.1. Students` obligations	Part-tin Student Student prepara	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: • 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. Students can pass the final exam in the course in two ways: a) during classes through continuous monitoring of students (active participation in classes and preparation and presentation of seminar paper and two colloquia); b) during classes (active participation in classes and preparation and presentation of seminar paper) and taking exams (written and oral part of the exam).							
	Attenda				Written exam	4 (without colloquia)	Project		
3.2. Monitoring student work (enter the share of ECTS credits	Experir work	nental			Research		Practical work		
for each activity so that the total number of ECTS points	Essay				Report		Continuous examination		
corresponds to the credit score of the course)	Colloqu	11um	4 (without writte exam)	n	Seminar paper	0,5	Other		
	Class a	ctivity	0,5		Oral exam	1(without colloquia)	Other		
3.3. Student workload	Student	workload on	all bases is 1 ECT	ΓS credit (30 semester hours and is e	stimated as:			



Obligation	Hours (estimated)
1. Class attendance	75
2. Preparation of seminar paper and presentation	10
3. Preparing colloquia or exams through individual work	95

4. FORMATION OF GRADES

		Element of evaluation	Bad		Satisfying		Above average	
	4.1. Grading of seminar work	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.	
		Ва	ad		Satisfying		Above average	
	4.2. Grading of the colloguium / written and oral exam			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.		



	Active	70-75% of the presence	76-86% of the presence	87-100% of the presence	Case studies resolved	
	attendance	2 points	4 points	7 points	10 points	
	Cominon nonon	2	3	4	5	
4.3. Forming the final grade	Seminar paper	5 points	7 points	8 points	10 points	
according to the evaluation	Examination /	2	3	4	5	
elements	Written	50-64,9%	65-79,9%	80-89,9%	90-100%	
	examination	25 points	30 points	35 points	40 points	
	Oral part of the	2	3	4	5	
	exam	25 points	30 points	35 points	40 points	
		of acquired knowledge, skills an tences (teaching + final exam)	d Number rating	ECTS grade		
445 661 1		90 - 100%	5 (excellent)	A		
4.4. Formation of final grade		80 – 89,9%	4 (very good)	В		
based on absolute distribution		65 – 79,9%	3 (good)		С	
		60 – 64,9%	2 (sufficient)	D		
		50 – 59,9%	2 (sufficient)	Е		

	Title	Number of copies in the library	Availability via other media
5.1. Required literature	1. Mavrin I.: Transporteri, Fpz, Zagreb, 1999.	0	
(available in the library and	2. Šćap D.: Prenosila i dizala, FSB, Zagreb, 2004. (selected chapters)	0	Available online
through other media)	3. Bognolo, D., Kršulja, M.: Prekrcajna sredstva, Zbirka riješenih zadataka, Veleučilište u	3	
	Rijeci, Rijeka 2017. (selected chapters)		
	4. Boris Ribarić: Primjeri riješenih zadataka iz predmeta pretovarna mehanizacija, Fakultet prometnih znanosti, Zagreb, 1994. (selected chapters)	0	
5.2. Supplementary literature (at			
the time of the submission of	1. Serdar J.: Prenosila i dizala, Leksikografski zavod "M. Krleža", Zagreb, 1995.	5	
changes and / or additions to the	1. Schuai J., I teliosila i dizala, Leksikogiaiski zavod Ivi. Kiteza , Zagieo, 1993.		
study program)			



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 or an amended and/or changed or modernized course.

1. GENERAL INFORMATI	ON					
1.1. Course lecturer	Luka Olivari	1.8. Course code in ISVU				
1.2. Course title	VEHICLE MOVEMENT THEORY	1.9. Course code in MOZVAG				
1.3. Assistants and/or associates	Bazijanac Ernest	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 on line course performance (max. 20%)	f 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 aim of the course is to provide students with the the problem of road vehicle exploitation.	pretical knowledge and practical examples to acquire the knowledge ne	cessary to successfully solve			
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the CROQF.					
	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.					
2.3. Learning outcomes on the	LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic.					
study programme level	LO8: To solve problems in traffic by using analytical and / or graphical methods.					
	LO13: To track trends in the development of technique	ue, technology and safety in traffic.				
			Level of LO:			
	Learning outcomes by Bloom: (maximum 2 werbs f	·	1 - memory,			
2 - understanding,						



2.4. Expected learning outcomes						3 - application,	
on the course level (4-10						4 - analysis,	
learning outcomes)						5 - evaluation,	
						6 – synthesis.	
	1, 2						
	2.	Distinguish the drive engines,	concepts and	elements of transmission of road vehicles.		4	
	3.	Formulate the final equation movement of the vehicle.	of motion of	the vehicle based on the traction forces	and the resistance of the	6	
	4.	Evaluate the fuel economy of a	a road vehicle			5	
	5.	Analyze the stability of the roa	ad vehicle und	er different operating conditions.		4	
2.5. Course content according to detailed curriculum schedule	Constr	ructive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	Evalua	ntion	Time
		Introductory presentation		Listen to a lecture. By working	At the colloquium or the	written and oral	3 h
		(introducing students to the		independently on a computer, they	exam they define and ex	plain the basic terms,	
		content and obligations of the		become acquainted with the course	physical quantities and u	nits of measurement.	
		course).		content, obligations, literature and			
	1.	Area of study of vehicle	1	documents on the e-learning course			
		motion theory.		page. Listen to a lecture and read			
		Exploitation of vehicle		literature. The exercises demonstrate			
		technical characteristics.		how to solve tasks. Independent task			
				solving.			
		Performance characteristics		Listen to a lecture and read literature.	At the colloquium or the	written and oral	
		related to vehicle movement.		The exercises demonstrate how to	exam they define and ex		
		Construction of motor		solve tasks. Independent task solving.	concepts; distinguish bet	•	
	2.	vehicles.	1, 2	G.	concepts and elements of	_	3 h
					vehicles; solve numerica		
					specified area;		
		Dynamism. Traction		Listen to a lecture and read literature.	At the colloquium or wri	itten and oral exam	
	3.	dynamic. Braking dynamic.	1, 2, 3	The exercises demonstrate how to	define and explain the ba	asic concepts;	3 h
				solve tasks. Independent task solving.	distinguish between pow	vertrains, 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;	
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. Inertia motion with the engine off.	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
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;	3 h



				evaluate the fuel economy of a road vehicle;	
				solve numerical tasks from the specified area;	
	Stability. Longitudinal		Listen to a lecture and read literature.	At the colloquium or the written and oral	
	stability. Transverse		The exercises demonstrate how to	exam they define and explain the basic	
8.	stability. Rotate the vehicle	1, 5	solve tasks. Independent task solving.	concepts; analyze the stability of the road	3 h
	on a horizontal and			vehicle under different operating conditions;	
	transverse inclined path			solve numerical tasks from the specified area;	
	Single axle sliding. Force		Listen to a lecture and read literature.	At the colloquium or the written and oral	
	distribution		The exercises demonstrate how to	exam they define and explain the basic	
9.		1, 5	solve tasks. Independent task solving.	concepts; analyze the stability of the road	3 h
				vehicle under different operating conditions;	
				solve numerical tasks from the specified area;	
	Distribution of tangential		Listen to a lecture and read literature.	At the colloquium or the written and oral	
	forces across axles		The exercises demonstrate how to	exam they define and explain the basic	
10.		1, 5	solve tasks. Independent task solving.	concepts; analyze the stability of the road	3 h
				vehicle under different operating conditions;	
				solve numerical tasks from the specified area;	
	Constant deceleration curve.		Listen to a lecture and read literature.	At the colloquium or the written and oral	
	Curves of constant brake		The exercises demonstrate how to	exam they define and explain the basic	
	grip coefficient		solve tasks. Independent task solving.	concepts; formulate the final equation of	
11.		1, 3, 5		motion of the vehicle based on the traction	3 h
11.		1, 3, 3		forces and the resistance of the vehicle;	311
				analyze the stability of the road vehicle under	
				different operating conditions; solve	
				numerical tasks from the specified area;	
	Possibility of distributing		Listen to a lecture and read literature.	At the colloquium or the written and oral	
	braking forces.		The exercises demonstrate how to	exam they define and explain the basic	
			solve tasks. Independent task solving.	concepts; formulate the final equation of	
12.		1, 3, 5		motion of the vehicle based on the traction	3 h
12.		1, 3, 3		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;	



		Braking force co	ntrol		Listen to a lecture an	d read literature	At the colloquium or the writte	en and oral exam	
		device. Corrector			The exercises demon		they define and explain the		
	13.	braking (ABS) de		1, 5	solve tasks. Independ		analyze the stability of the roa	-	3 h
	13.	oraking (ADS) u	evices.	1, 3	solve tasks. Independ	icht task solving.	different operating conditions;		3 11
							tasks from the specified area;	solve numerical	
		Construction of a	nti lock		Listen to a lecture an	d road literature	At the colloquium or the writte	an and oral	
		braking systems			The exercises demon		exam they define and explain to		
		commercial vehi			solve tasks. Independ		concepts; analyze the stability		
	14.	Characteristic ins		1, 5	solve tasks. Independ	ient task solving.	vehicle under different operati		3 h
							-	•	
		of AB systems in vehicles	passenger				solve numerical tasks from the	e specified area;	
	15		onsideration,		Listen to a lecture a	nd read literature.			2.1
	15.	repetition and pre	eparation for	_	Prepare individually	for the exam.			3 h
		the exam.							
3. EVALUATION OF STUD	ENT W	ORK							
	In acco	rdance with the Ru	ulebook on St	udy and the F	Rulebook on Assessmen	nt and Evaluation of	Student Performance: Full-time	e students are requ	uired to
3.1. Student obligations	attend o	classes at least 70%	6, which is als	so a requireme	ent for obtaining the lec	turer`s signature. St	udents can take the final exam is	n the course in two	o ways:
	a) durir	ng the course, by ta	king colloqui	ums and oral	part of the exam; b) pas	ssing the written and	l oral part of the exam.		
	Attendi	ng classes	1,5		Written exam	1 (without	Project		
3.2. Student work monitoring						colloquiums)			
(enter the share of ECTS credits	Experir	nental work			Research		Practical work		
for each activity so that the total	Essay				Report		Continuous check	0,5	
number of ECTS credits	Colloqu	iiums	1 (without v	vritten	Seminar paper		Field works or Study		
corresponds to the course credit			exam)				trips		
value)	Teachir	ng activities			The oral part of	1	(other)		
					exam				
	Student	workload on all	bases is 1 EC	TS credit for	30 hours of work per	semester and is es	timated as going to fieldwork of	or study trips (30	hours),
	prepara	tion of seminar wo	ork and presen	ntation (30 hou	urs).				
3.3. Student work-load		Obligation				Hours (estimated)			
	1.	. Attending class	ses			45			
	2. Continuous check preparations					15			



3. Colloquiums and written exam individual preparation	30
4. Oral exam individual preparation	30

4. FORMATION OF STUDENT GRADE

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



	Attending classes > 80% 4 points		> 85%	> 90% prisustva	100%	
			6 points	8 points	10 points	
	Continuous check	0-5	6-10	11-15	16-20	
4.3. Forming the final grade	Colloquiums/	2	3	4	5	
according to the evaluation elements	Written exam	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	
	•	ed knowledge, skills and eaching + final exam)	Numerical grade	1	ECTS grade	
4.4. Formation of the final grade	90	- 100%	5 (excellent)		A	
based on the absolute	80 -	- 89,9%	4 (very good)		В	
distribution	65 -	- 79,9%	3 (good)		С	
	60 -	- 64,9%	2 (sufficient)		D	
	50 -	- 59,9%	2 (sufficient)		Е	

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	1. Perše, S., Višnjić, V.: Strojarstvo u prometu, Fakultet prometnih znanosti, Zagreb, 2005. (odabrana poglavlja)	10	
other media)	 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	1. Teaching materials from the lectures and exercises on the e-learning system of the	-	on-line (e-learning)
moment of changes and/or amended of study programme)	Polytechnic for the course Technical Mechanics.	1	(* 10g)



	2. Rotim, F.: Elementi sigurnosti cestovnog prometa, Svezak 2. , Znanstveni savjet za					
	promet HAZU, Zagreb, 1991.					
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of					
that ensure the acquisition of	attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for					
knowledge, skills and	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					
o .	as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the					
competences	Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.					
	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					
5.4. Informing about the course	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					
and contacting the course	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					
lecturer	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).					



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

1. GENERAL INFORMATION			
1.1. Course title	FREIGHT-DISTRIBUTIONAL CENTRES AND TERMINALS	1.8. Course code at ISVU	140777
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+30+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 - some of the material available Online, 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
1.7. Credit point (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %

2. COURSE DESCRIPTION					
	The goal is to provide students with theoretical knowledge:				
	Define basic goods-distribution terms;				
2.1. Course objectives	• Understand the division, structure and function of goods-distribution centers and terminals;				
2.1. Course objectives	• Understand the technical and technological characteristics of goods-distribution centers and terminals and the design and planning of management				
	systems;				
	• 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.				
	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in				
2.3. Learning outcomes on the study programme level	Croatian and English.				
	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team members.				
	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.						
	LO10: Compare and select technical and technological solutions for traffic and / or goods flows.						
	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 according to Bloom's taxonomy: (maximum 2 werbs 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 basic goods -distribution concepts,	1, 1					
	2. comment on the fundamental characteristics of the goods centers and terminals in the transport system,	4					
	3. integrate and critically evaluate technological processes in goods distribution centers and terminals,	3,5					
	4. to choose transshipment facilities at terminals according to the type of goods and technological procedures,	3					
	5. distinguish between types of storage and technological storage procedures.	2					
	6. present the acquired knowledge independently and in a team.	6					

	Constructive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time	
2.5. Course content according to detailed curriculum schedule	1.	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. at the seminar teaching, they are introduced to the methodology of writing seminar papers. They choose the topic of the seminar papers and the brainstorming method and the method of discussing the selected topic are applied.	-	2 h	



		Goods transport centers and types of goods transport centers	1, 2,	They listen to a lecture and read literature.	At the colloquium or the written and oral exam define the basic goods-distribution terms. They describe the role and difference of goods-distribution centers, warehouses and goods-transport centers and know	2 h	
					They listen to a lecture. (Touring the goods	how to list and explain logistic activities of goods-transport centers.	
		2.	Field teaching VELPRO Šibenik.	2, 3	distribution center. Getting acquainted with the technology of receiving and distributing goods, ways of storing and storing goods, and commissioning goods for distribution. The method of experiential learning and self-discovery is applied. At seminar classes, they make seminar papers individually or in pairs and discuss the given topic.	At the colloquium or the written and oral exam they can explain the role of goods distribution.	6 h
		3.	Terminals and terminal types	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. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching.	At the colloquium or the written and oral exam they define the basic terms of the terminal. They know how to list and distinguish types of terminals.	8 h
		4.	Port Terminals. Multifunctional and universal terminals.	1, 2, 3	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. The brainstorming method and the method of discussing the topic discussed are applied in the seminar teaching.	At the colloquium or the written and oral exam they know how to define and enumerate port terminals. Describe the role and characteristics of multipurpose and universal terminals. Seminar paper created and presented (using computer programs independently).	6 h



5.	Container terminals.	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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 what containerization and container is, and list the advantages and disadvantages of containerization. Enumerate and describe container types. Describe container port terminals, their technological processes, types of warehouses and list loading and unloading devices. Seminar paper created and presented (using computer programs independently).	10 h
6.	Container terminals.	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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 enumerate the types of container ships at the colloquium or the written and oral exam. Define and describe land-based container terminals. Explain Huckepack technologies and list loading and unloading devices. Describe storage types. Seminar paper created and presented (using computer programs independently).	10 h
7.	Ro-Ro terminals. 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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 and describe Ro-Ro terminals, explained by technological processes of work on them, enumerate and describe the loading and unloading devices and describe storage. List the advantages and disadvantages of Ro-Ro technology.	8 h



	8.	LUF terminals. LASH terminals.	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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 and describe LUF and LASH terminals explain the technological processes of work on them, enumerate and describe the loading and unloading devices and describe storage. List the advantages of the LUF system and the advantages and disadvantages of the LASH system. List the types of LASH ships and describe the technology of loading / unloading barges on ships. Seminar paper created and presented (using computer programs independently).	8 h
	9.	Terminals for the transhipment of dry and bulk cargo.	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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 know how to define and describe ways of transshipment in ports and terminals. Describe the coal and iron ore transhipment terminal and the phosphate transhipment terminal and explain their technological processes. Enumerate loading and unloading devices and explain storage of coal and iron ore and phosphate. Seminar paper created and presented (using computer programs independently).	10 h
	10.	Terminals for the transhipment of dry and bulk cargo.	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 reading the literature, create a seminar paper that presents	At the colloquium or the written and oral exam they can define and describe cereals and cement transshipment terminals. Explain their technological processes of work and	10 h



					1
			the acquired knowledge and presents their own	the list of loading unloading devices.	
			ideas, and ways to solve problems. In the group	Explain storage of cereals and	
			work on seminar teaching, the brainstorming	cement. Seminar paper created and	
			method and the discussion method on the topic	presented (using computer programs	
			are applied.	independently).	
11.	Field teaching Port of Split and LDC KONZUM in Dugopolje.	2, 3, 4, 5	They listen to a lecture. (Visiting Split RO-RO, container and truck terminals, coastal and refrigeration warehouses, bulk cargo terminals, timber terminals, iron terminals. Getting acquainted with technological processes at terminals, warehousing and warehousing of goods and transhipment machinery. the Konzum distribution center monitoring the process of storing and storing different types of goods in the rack warehouse and cold store and preparing and controlling the goods before distribution. The experiential and self-discovery methods are applied.	At the colloquium or written and oral examination know to describe and explain the technological processes of work on terminals, state of loading unloading devices and explain storage.	4 h
12.	Terminals for the transhipment of liquid and liquefied gases.	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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 know how to define and describe the terminals for transhipment of oil and petroleum products and terminals for transhipment of liquefied gases. Explain their technological processes of work and the list of loading unloading devices. List the types of storage and explain storage. Enumerate and describe systems with buoys for cargo handling. Seminar paper created and presented (using computer programs independently).	11 h



13.	Dangerous goods terminals. Terminals for the transhipment of heavy and very heavy loads. The terminals for the transhipment of wood and wood products.	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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 and enumerate dangerous cargoes. List the systems by which the classification of the transport of dangerous goods is carried out. Describe the technological process of handling hazardous materials. Give an example for very heavy loads. List and describe methods for loading heavy loads on board. Enumerate loading / unloading devices and explain storage of heavy loads. Describe the technological process of work on the terminal for wood and wood products. Enumerate the loading and unloading devices and describe storage at the terminal for wood. Seminar paper created and presented (using computer programs independently).	12 h
14.	Terminals for animal transshipment. Terminals for the transshipment of southern fruit and food products. Colloquium II.	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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 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 are able to list the factors on which the transport, transhipment and storage of perishable products depends. List the groups of frozen foods and give an example. Explain the technological process of working at a food product terminal. List the infrastructure and superstructure that the animal terminal must have at its disposal. Describe the technological process of	8 h



				work and the list of loading unloading devices for animals.				
15. Repeating	and preparing	They listen to a for the exam.	lecture and prepare individuall	ly -	35 h			
T WORK								
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 where achieved during the course: • 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 extraordinary exam period; • 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 extraordinary exam period; • More than 50% - students have the right to take the final exam. 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 development and presentation of seminar work and two colloquium); b) during class (active participation in class and development and presentation of seminar work and two colloquium); b) during class (active participation in class and development and presentation of seminar work and two colloquium); b) during class (active participation in class and								
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				
Class activity	0,5	Oral exam	1 (without colloquia)	Other				
Obligati 1. Active c 2. Designin	lass attendance ng a seminar paper and p	presentation	Hours (estimated) 60 20 70	Hours (estimated) 60 20				
	T WORK In accordance with Part-time students have achieved during From 0 - From 25 extraording More that Students can take to participation in cladevelopment and participation in Classactivity Colloquium Class activity Student workload of Obligation 1. Active conduction 2. Designing for the example of the exam	for the exam. T WORK In accordance with the Rulebook on Study Part-time students are required to attend a have achieved during the course: • From 0 - 24.9% of ECTS credits • From 25-49.9% - are assessed by extraordinary exam period; • More than 50% - students have to Students can take the final exam in the courant participation in classes and development and development and presentation of seminar work Experimental work Essay Colloquium 3 (without written exam) Class activity 0,5 Student workload on all bases is 1 ECTS coursely considered to the course of the	T WORK In accordance with the Rulebook on Study and the Rulebook on Stude Part-time students are required to attend a class of at least 50%. All have achieved during the course: • From 0 - 24.9% of ECTS credits - they are rated F (unsucce • From 25-49.9% - are assessed by FX (insufficient) and must extraordinary exam period; • More than 50% - students have the right to take the final ex Students can take the final exam in the course in two ways: a) during participation in classes and development and presentation of seminar development and presentation of seminar work) and passing exams (valued to the final exam in the course in two ways: a) during participation in classes and development and presentation of seminar work) and passing exams (valued to the final exam in the course in two ways: a) during participation in classes and development and presentation of seminar work) and passing exams (valued to the final exam in the course in two ways: a) during participation in classes and development and presentation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation in classes and development and presentation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation of seminar work) and passing exams (valued to take the final exam in the course in two ways: a) during participation of seminar work) and passing exams (v	TWORK In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation Part-time students are required to attend a class of at least 50%. All students must create, present a have achieved during the course: • From 0 - 24.9% of ECTS credits - they are rated F (unsuccessful) and cannot earn ECTS of From 25-49.9% - are assessed by FX (insufficient) and must pass and pass the written examinate extraordinary exam period; • More than 50% - students have the right to take the final exam. Students can take the final exam in the course in two ways: a) during the course of teaching through participation in classes and development and presentation of seminar work and two colloquium); b) development and presentation of seminar work) and passing exams (written and oral part of the examal text examinate examination of seminar work). Experimental work Essay Report Colloquium 3 (without written exam) Research Report Colloquium 3 (without written exam) 1 (without colloquia) Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as: Obligation Hours (estimated) 1. Active class attendance 2. Designing a seminar paper and presentation	Concluding considerations. Repeating and preparing for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and prepare individually for the exam. They listen to a lecture and present and Evaluation: for all full-time students attendance of at least 50%. All students must create, present and positively colloquy seminar paper. Students exhibited during the course. They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the extraordinary exam period; They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the extraordinary exam period; They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the extraordinary exam period; They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the exam. They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the exam. They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the exam. They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the exam. They are rated F (unsuccessful) and cannot earn ECTS credits and must re-enroll in the next acader of the exam. They are rated F (unsuccessful) and cannot earn ECTS cr			



	Element of evaluation	Satisfying			Above average			
4.1. Evaluation of a of seminar work	Organization	The paper is not organ order and lacks structu	_	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.		th a dinthe text co	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. 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.	
	Terminology, writing style	Words and expressions with official terminolo style is not appropriate are too long, of a mode and with frequent and grammatical errors.	gy. The writing e, the sentences est vocabulary	Words and expressions are in line official terminology. The writing is appropriate, the sentence structure of the clear the vocabulary is appropriate.		ne with or ng style uncture is riate 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.		are an	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.	
	В	Bad					Above average	
4.2. Grading of the colloguium / written and oral exam	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 concept difficulty imparts new knowledg the material, explains the terms that it supports with examples.		ge, understands	e, understands and concepts of the material, and logically connects and explains the terms and concepts that it sup with examples. Finds solutions that were originally given. It notes correlations with related material.		
	Active 7	0-75% of the presence	76-86% of t	he presence	87-100% of	the presence	e Case studies resolved	
4.3. Forming the final grade	attendance	2 points	4 pc	oints	7 pc	oints	10 points	
according to the evaluation	Seminar paper	2	3			1	5	
elements	Semma paper	5 points		oints	8 points		10 points	
		2	3		2	1	5	
		50-64,9%	65-79,9%		80-89,9%		90-100%	



	Examination / Written examination	25 points	30 points	35 poir	nts	40 points		
	Oral part of the	2	3	4		5		
	exam	25 points	30 points	35 poir	nts	40 points		
4.4. Formation of final grade		of acquired knowledge, skills an ences (teaching + final exam) $90 - 100\%$ $80 - 89,9\%$	Number rating 5 (excellent) 4 (very good)	5 (excellent)		ECTS grade A		
based on absolute distribution		65 – 79,9%	3 (good)		<u>В</u> С			
		60 – 64,9%	2 (sufficient)		D			
		50 – 59,9%	2 (sufficient)					
5.1. Required literature (available in the library and through other media)	Title Number of copies in the library 1. Poljičak, AM., Ljubić Hinić, M.: Robni terminali, Autorizirana skripta, VUS, Šibenik, 2016. Availa							
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	 Dundović, Č.: Lučki terminali, PFR, 2002. Mlinarić T. J.: Robno transportni centri, Fpz, Zagreb, 2013. Dundović, Č., Kesić, B.: Tehnologija i organizacija luka, PFR, Rijeka, 2001. Kirinčić, J.: Luke i terminali, Školska knjiga, Zagreb, 1991. 							
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	4. Kirincic, J.: Luke i terminali, Skolska knjiga, Zagreb, 1991. 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 or an amended and/or changed or modernized course

1. GENERAL INFORMATION	T .		
1.1. Course title	TECHNOLOGY AND ORGANIZATION OF PUBLIC CITY TRANSPORT	1.8. Course code at ISVU	140782
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)	(30L+15P)
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%)	1st
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	3.
1.6. Year of study	2 nd	1.13. Modernization	X Yes □ No
1.7. Credit point (ECTS)	5	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 aim is to provide students with theoretical knowledge and case studies to: • know the basic principles of public transport; • understand the advantages and disadvantages of conducting public passenger and freight transport; • adopt knowledge and a logical way of thinking about the possibilities of organizing public transport; • learn and understand the issues of the relationship between public and individual transportation; • know the possibilities of improving public transport and increasing the mobility of passengers; • 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 members.



	LO3: Independently and responsibly search, interpret and integrate relevant literature needed to reach conclusions.					
	LO5: To apply basic legal and economic principles in organization with socially responsible management in technical-technological subjects.					
	LO6: Analyze and interpret relevant road transport facts needed to reach conclusions.					
	LO9: Assess and organize processes in the field of road transport and / or transport logistics.					
	LO11: To identify, predict and propose solutions in road traffic technology and technique.					
	LO12: To set up a minor traffic process and critically evaluate it.					
	LO13: Follow trends in technology, technology and traffic safety.					
	Learning outcomes according to Bloom's taxonomy:					
2.4. Expected learning outcomes	1. to define and describe the public transportation system 1, 1					
on the course level	2. to explain and distinguish between the technical and technological features of the public transport system 2, 4					
	3. to analyze and identify the wishes and behaviors of travelers 4, 1					
	4. to distinguish conventional from innovative passenger transport technologies 4					
	 5. to identify and connect the needs and opportunities for improving public transport organization in cities 1, 5 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					

	Cons	onstructive allignement								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time				
2.5. Course content according to detailed curriculum schedule	1.	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 elearning page of the course.	-	1 h				



	Historical development.	1, 6	Listen to lectures and read literature.	In colloquium or the written and oral exam they indicate the historical development of the elements of the public urban transport system.	2 h
2.	Symbiotic connection city - public urban transport. Public urban transport in the Republic of Croatia.	1, 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 the written and oral exam they define, enumerate and explain the factors that influenced the development, location and structure of cities, and enumerate and describe forms of public transport in the Republic of Croatia and their efficiency in passenger mobility.	3 h
3.	The meaning and efficiency of public urban transport.	1, 3, 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 define and describe the problems and significance of public urban transport, and state and explain the criteria for evaluating efficiency, with suggestions for improvement.	3 h
4.	Urban passenger transport technology.	1, 2, 3, 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 state the need and role of public transport, define the main technologies and modes of traffic in cities and state the consequences of greater representation of individual transport in relation to public transport. Seminar work is organized in groups, with discussion and proposing measures for possibilities of improving public transport.	3 h
5.	Urban passenger transport technology.	1, 2, 3, 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 can state the need and role of public transport, define the main technologies and modes of traffic in cities and state the consequences of greater representation of individual transport in relation	3 h



			basis of it and the read literature, come up with their own ideas, and	to public transport. Seminar work is organized in groups, with discussion and proposing measures	
6.	Urban passenger transport technology.	1, 2, 3, 5, 6, 7	ways to solve problems. 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.	for possibilities of improving public transport. In colloquium or written and oral exams they can state the need and role of public transport, define the main technologies and modes of traffic in cities and state the consequences of greater representation of individual transport in relation to public transport. Seminar work is organized in groups, with discussion and proposing measures for possibilities of improving public transport.	3 h
7.	Models of passenger behavior. Planning of public urban passenger transport.	1, 2, 3, 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 levels of traffic planning and explain the process of planning public transport taking into account the wishes of passengers. Seminar work is organized in groups, with discussion and proposing measures for possibilities of improving public transport.	3 h
8.	Public passenger transport vehicles. 1st Colloquium	1, 2, 3, 5, 6	They listen to a lecture and prepare individually for the colloquium.	In colloquium or written and oral exams they define and state the types and types of public transport vehicles and their technical and technological characteristics that are important for the establishment and organization of public transport systems.	38 h
9.	Public passenger transport vehicles.	1, 2, 3, 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 define and state the types and types of public transport vehicles and their technical and technological characteristics that are important for the establishment and organization of public transport systems. Seminar work is organized in groups, with discussion and proposing measures for possibilities of improving public transport.	3 h



10.	Conventional modes of public transportation.	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 and state the types and methods of conventional public transport and their technical, technological and exploitative characteristics, which are important for the establishment and organization of the public transport system. Seminar work is organized in groups, with discussion and proposing measures for possibilities of improving public transport.	3 h
11.	Conventional modes of public transportation.	1, 3, 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 and state the types and methods of conventional public transport and their technical, technological and exploitative characteristics, which are important for the establishment and organization of the public transport system. Seminar work is organized in groups, with discussion and proposing measures for possibilities of improving public transport.	3 h
12.	Network of public transport lines.	1, 3, 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 and describe the types of networks and ways of providing the route of lines, to specify and analyze the factors that determine the quality of the network of lines. Seminar work is organized in groups, with discussion and proposing measures for possibilities of improving public transport.	3 h
13.	Urban expansion, telecommuting and transportation. Paratransit.	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,	In colloquium or written and oral exams they state and describe the causes and consequences of urban expansion, and define and describe the forms of paratransit and its effects and influence on the public transportation system in cities.	3 h



				come up with their ways to solve prob		discussion	work is organized in grou on and proposing measure ities of improving public t	es for			
	14.	Innovative transportation technologies. 2nd Colloquium.	1, 2, 3,4, 5, 6, 7	They listen to a lee individually for th		In colloc define ar transpor	quium or written and oral and describe the forms of int technologies, and explainact on the public transport	exams they nnovative n the effects	38 h		
	15.	Concluding considerations. Repeating and preparing for the exam.	6, 7	They listen to a led individually for the		-			38 h		
3. EVALUATION OF STUDEN	3. EVALUATION OF STUDENT WORK										
3.1. Students` 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 paper. Students who have achieved during the course: • 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. 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).										
	Atten		Writ	ten exam	1 (without colloq	uia)	Project				
3.2. Monitoring student work (enter the share of ECTS credits	Exper work	rimental	Rese	earch			Practical work				
for each activity so that the total number of ECTS points	Essay		Repo	ort			Continuous examination				
corresponds to the credit score of the course)	Collo	quium 1 (without writted exam)	Sem	inar paper	1		Other				
	Class	activity 1	Oral	exam	1		Other				



3.3. Student workload

Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:

- 1. Attendance 30 h
- 2. Design of seminar work and presentation 15 h
- 3. Preparation for the mid-term / midterm exam 115 h

4. FORMATION OF GRADES

		Element of evaluation	Bad		Satisfying		Above average	
		Organization	The paper is not organized order and lacks structure	_	The paper is well structured with a clear distinction between the introduction, the main body of the tex 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.	
	4.1. Grading of seminar work	Terminology, writing style	Words and expressions with official terminolog style is not appropriate, are too long, of a modes and with frequent and r grammatical errors.	gy. The writing the sentences st vocabulary	The writing e sentences occabulary Words and expressions are in line official terminology. The writing is appropriate, the sentence struct clear the vocabulary is appropriate.		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 references do not fit the show a cursory approach the topic.	e topic and	pic and and with errors. The references a		The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.	
		Ba	d		Satisfying		Above average	
	4.2. Grading of the colloguium / written and oral exam	terms and concepts. Does not know how to		difficulty impa the material, ex	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.	



Active

	1						ise studies resorved
	attendance	0 points		0 points	0 point	ts	0 points
	Carrier on manage	2		3	4		5
4.3. Forming the final grade	Seminar paper	Made and handed over	Ma	de and handed over	Made and han	ded over Ma	ide and handed over
according to the evaluation	Examination /	2		3	4		5
elements	Written	50-64%		65-80%	81-909	%	91-100%
	examination	25-32 points		33-40 points	41-45 po	ints	46-50 points
	Oral part of the	2		3	5		5
	exam	25-32 points		33-40 points	41-45 po	ints	46-50 points
4.4. Formation of final grade based on absolute distribution 5. ADDITIONAL INFORMATIONAL INFORMATIO	compe	e of acquired knowledge, skills an etences (teaching + final exam) 90 - 100% 80 - 89,9% 65 - 79,9% 60 - 64,9% 50 - 59,9%	d	Number rating 5 (excellent) 4 (very good) 3 (good) 2 (sufficient) 2 (sufficient)		ECTS grade A B C D E	
5.1. Required literature (available in the library and	ION ON THE SUB-	Tit	le			Number of copies in the library	Availability via other media
through other media)	1. Štefančić	, G.: Tehnologija gradskog prome	ta I, FPZ	Z, 2008. (odabrana poglav	lja)	3	No
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	2. Suvremen	, G.: Tehnologija gradskog prome ni promet; časopis Hrvatskog znar D. : Transport and Urban Develop		0 0 0	No No Yes		

76-86% of the presence

87-100% of the presence

Case studies resolved

70-75% of the presence



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 or an amended and/or changed or modernized course

1. GENERAL INFORMATION	ON						
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 More than 20 % □				
2. COURSE DESCRIPTION							
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 fro in Croatian and English.	m technology and organization of road traffic in written and ora	l communication with the professional public				



	LO2:	O2: To organize and implement team work, and critically judge the opinions and attitudes of team members.							
	LO3: 7	Γο individually and responsibly searc	ch, interpre	t and integrate the relevant literature n	needed to make decisions.				
		rning outcomes accroding to the Blo	Level of LO: 1- rememberin 2- understand 3- application 4-analysis, 5-evaluation, 6-synthesis	ing,					
	í	to understand, apply and link terms frand oral communication	2, 3						
		2. to create CV (Europass template), job application, offer, complaint							
	l	o interpret and use tenses in real-life				3, 4			
	1 1	o develop a longer essay within the t	-			5, 6			
	l	o present own ideas for development		•		3 6			
		o communicate in a foreign language to compare and evaluate different training tr		e subjects of the course, to express one	e own opinions	5			
		to analyse complex texts and solve ta		1115		4			
		to use part of the general language co		at levels B1/B2		6			
		structive allignement	1 ,			L			
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time		
2.5. Course content according to detailed curriculum schedule	1.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-		2 h		
	2.	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 applied grammatical structures are evaluated, understand, applifrom the professional terminological structures.	on texts and tasks by and link terms	4 h		



_				,	
				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.	
3.	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
4.	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
5.	Transport And Tourism - Direct And Indirect Speech – Questions Past	1, 3, 6,	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	4 h



_					_
6.	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.	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. 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
7.	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



					,	
	8.	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
	9.	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
	10.	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 development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of	6 h



		1	T		
				other countries, analyze medium complex texts	
				and solve tasks, use part of other language	
				competences at B1 level.	
				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	
			Listen to lectures and read	languages within the course topic, express their	
1.1	The History Of Railways -	1, 3, 5,	literature. Use multimedia and	own opinions, present their own ideas related to	101
11.	Connective Relative Clauses	6, 9	internet. Solve exercises.	the development of transport solutions to develop	10 h
				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.	
				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	
	The Telephone Of Today And		Listen to lectures and read	languages within the course topic, express their	
	Tomorrow - Business Letters –	1,2, 3, 4, 5, 6,	literature. Use multimedia and	own opinions, present their own ideas related to	
12.	Abbreviations In Business		internet. Solve exercises.	the development of transport solutions to develop	10 h
	English	7, 8, 9	internet. Solve exercises.	a longer essay within course topics, comparing	
	Eligiisii			and evaluating different solutions in the traffic of	
				other countries, analyze medium complex texts	
				and solve tasks, use part of other language	
				1	
			Tital to the state of the state	competences at B1 level.	
		1.2	Listen to lectures and read	In colloquium or written and oral exams the	
	The Modern Wonder Of	1,2,	literature. During lectures	applied grammatical structures on texts and tasks	
13.	Electronics - Business Letters –	3,4, 5,	individually research the content of	are evaluated, verb tenses are interpreted in a real	4 h
	Job Intervju	6, 7, 8,	this thematic field by searching	linguistic context, can communicate in foreign	
	,	9	data bases, presentt acquired	languages within the course topic, express their	
			knowledge, express their own	own opinions, present their own ideas related to	



	_	_			4
			ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	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.	
14.	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
15.	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 all the information on the course as well as the teaching materials and the list of literature are also available.								
	Attendance	0,5	Written exam	1 (without colloqui	a) Project				
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work				
for each activity so that the total number of ECTS points	Essay		Report		Continuous examination				
corresponds to the credit score of the course)	Colloquium	1 (without written exam)	Seminar paper		Other				
	Class activity	0,5	Oral exam	1	Other				
3.3. Student workload	1. Attending	classes and exercises 4	credit is 30 hours in a seme 5 hours ough individual work 45 ho		as:				
4. GRADING SYSTEM									
4.1. Grading seminar papers	-								
	Unsa	tisfactory	Satisfacto	ry	Above average				
4.2. Grading colloquia/ written and oral exam	understanding. D basic terms and know how to a	nory, without a deeper oes not know or apply concepts. Does not apply or explain the ourse with examples.	Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples.		evaluation. Observes the thoroughly explains the conte	el of analysis, synthesis and principles, accurately and ent of the material, and logically ms and concepts supported with			



				examples. Finds solutions that w Notes correlations with related mate		
	Active course	70-75% of attendance	76-86% of attendance	87-100% of attendance	Maksimum bodova	
	attendance	3 points	7 points	20 points	20 bodova	
	Seminar paper					
4.3. Final grade according to evaluation elements		2	3	4	5	
evaluation elements	Colloquia/ Written exam	50-64,9%	65-79,9%	80-89,9%	90-100%	
	Cxam	25 points	30 points	35 points	40 bodova	
	Oral exam	2	3	4	5	
	Oral exam	25 points	30 points	35 points	40 bodova	
	-	d knowledge, skills and competences ching + final exam)	ECTS	grade		
4.3. Final grade according to		90 – 100%	5 (excellent)	` '		
absolute division		80 – 89,9%	4 (very good)		В	
absorate division		65 – 79,9%	3 (good)		<u> </u>	
		60 – 64,9%		2 (satisfactory)		
5. ADDITIONAL COURSE INI	FORMATION	50 – 59,9%	2 (satisfactory)		Е	
5.1. Compulsory literature		Title		Number of copies in the library	Availability via other media	
(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)			X	



5.2 Additional literature (at the moment of changes and/or amended of study programme)	Tamara Polić: "The English Langzage 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. 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	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 eattendance and student activity during classes and provided information on students` progress throu further guidance to students will be provided in order to increase the efficiency of their work. Students well as the methods of work and the required literature. Indicators of quality assurance systems. Croatian employment service on the annual state of student employment, surveys from employers an	gh short colloquiums and nts will be informed about Student survey, monitori	homework, information for their rights and obligations
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, a possible adjournment will be published in a timely manner on the e-learning site of the course and o teachers during the consultation period (at least one hour per week), while for short questions and expressible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be ans days after receiving the e-mail).	n the website of the Polyte planations they can be cont	chnic. Students can contact acted during class. It is also



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

1. GENERAL INFORMATION	I. 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	(30+0+15+0)						
1.3. Assistants and/or associates		+Practical exercises + Seminars + e learning)	(30+0+13+0)						
1.4. Study programme		1.11. Level of e- learning application (1st, 2nd, 3rd	1 st level – materials available on-line, 0%						
(specialist, undergraduate,	Undergraduate professional study of Traffic	level), percentage of on line course performance (max.	1 st level – materials available on-mie, 0/0						
graduate)		20%)							
1.5. Course status (obligatory,	Obligatory	1.12. Number of course revisions	1						
optional)	Congatory	1.12. Ivalided of course revisions	1						
1.6. Study year	2 nd	1.13. Modernization	□ yes X no						
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or	Less than 20% X						
1.7. Credit score (EC1S)		supplements	More than 20 % □						

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.							
	LO2: To organize and implement team work, and critically judge the opinions and attitudes of team members.							
2.3. Learning outcomes on the study programme level	LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions.							
study programme lever	LO5: To apply basic legal and economic principles in organization with socially responsible management in technical-technology	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	Learning outcomes towards Bloom's taxonomy: (up to two verbs per LO)	 LO Level: Recapture, Understanding, Application, Analysis, Evaluation, Synthesis 						
	 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. To critically evaluate cost components and connect them with the overall business of transport companies. To analyze business processes of transport companies. 								
	Constr	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 hour		
2.5. Course content according to detailed curriculum schedule	Characteristics of transport economics and transport market.	economics and transport	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 hours		
	2.	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 ideas, discuss issues.	In colloquium or written and oral e students can enumerate the main for criteria for the division of transport explain how transport affects division and specialization. They can use crithinking to explain the importance accessibility of transport services.	actors and t. They can ion of labor ritical	4 hours		
	3.	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	In colloquium or written and students can explain the role of tran circulation in macroeconomics. explain how traffic affects producti it functionally links factors of prod	They can ion and how	4 hours		



		1			,
			previously acquired knowledge and presenting adopted knowledge		
			and ideas, discuss issues.		
4.	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 hours
5.	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 trasport costs. They differentiate costs with respect to capacity utilization. They know how to calculate the selling price of a transport service.	4 hours
6.	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 previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	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 infrastructure. They know how to list and explain the main sources of revenue for road construction.	4 hours
7.	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	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 ormation of tariffs.	6 hours



			previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.		
8.	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 hours
9.	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 hours
10.	Transport Services Market	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 define supply / demand of transport services. They are able to explain specifics of the transport services market.	4 hours
11.	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	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 benefit maximization.	4 hours



	ī				1
			presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.		
12.	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 hours
13.	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 presenting adopted knowledge and ideas, discuss issues.	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 hours
14.	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 hours
15.	Concluding Considerations / Repeating and Preparing for Exam.		Concluding Considerations / Repeating and Preparing for Exam.		30 hours



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 colloquium seminar paper. Students who have during the course achieved: • 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. 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).								
	Attendance	ang the seminal paper, and	Written exam	2 (by submitting both colloquiums the student is relieved of an written examination)	Project				
3.2. Monitoring student work	Experimental work		Research		Practical work				
(enter the share of ECTS credits for each activity so that the total	Essay		Report		Continuous examination				
number of ECTS points corresponds to the credit score of the course)	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)						
		oad on all bases amounts to	1 ECTS point for 30 hours		is estimated as:				
3.3. Student workload	Commitm			Hours (estimate)					
	1. Attending 2. Creating	g classes and Presenting seminar pap	per	45					



	3. Preparat	3. Preparation for the Colloquium / exam through self-study 35							
4. GRADING									
	Valuation Element	t Poor			Satisfying		Above average		
4.1. Seminar paper grading	Organization	The paper is not organ order and its structure		clear distinctio	ne main part of th	h a disti	paper is well-structured with a clear nction between the introduction, the n part of the text and the conclusions are perfectly logically linked to one her		
	Terminology, writing style	harmonized with offici mg Writing style is not app sentences are too long,	Writing style is not appropriate, sentences are too long, modest vocabulary, and frequent and repeated		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.		ds and phrases are aligned with cial terminology and show an erstanding of their meaning. The ing style is excellent, the sentences clear and concise, the vocabulary is and there are no grammatical errors.		
	Quoting and referencing	Quoting and references do not match				show a cons	rces are accurate, complete and istent. The references are opriate, their list is "rich" and prehensive and shows a robust arch approach.		
		Poor		Satisfying			Above average		
4.2. Colloquium / exam grading	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 transfers new knowledge, understand matter, explains the terms and the number substantiate by examples.		erstands subject	and evaluation and thorough subject, and leterms and consolutions that	s at the level of analysis, synthesis on. It observes legitimacy, accurately ly explains the content of the ogically links and explains the neepts that it encapsulates. Find a are not originally given. There is a fith correlative subjects.		
4.3. Creating a final grade	Active	70-75% of attendance	76-86% of	attendance	87-100% of	attendance	Solved case study.		
according to evaluation	participation in the lessons	2 points	4 pc	oints	7 po	ints	3 points		
Cicinonia	Seminar paper	2	3	3	4		5		



		5 points	7 points	8 points	10 points
		2	3	4	5
	Colloquium / written exam	50-64,9%	65-79,9%	80-89,9%	90-100%
	written exam	25 points	30 points	35 points	40 points
	Oral exam	2	3	5	5
	Orar exam	25 points	30 points	35 points	40 points
	_	of adopted knowledge, skills and nces (teaching + final exam)	Numerous grade		ECTS grade
4.4. Cupating a final and da		90 – 100%	5 (excellent)		A
4.4. Creating a final grade according to absolute allocation		80 – 89,9%	4 (very good)		В
according to absolute anocation		65 – 79,9%	3 (good)		С
		60 – 64,9%	2 (sufficient)		D
		50 – 59,9%	2 (sufficient)		Е

5. ADDITIONAL INFORMATION ABOUT THE COURSE

	Title	Number of copies in the library	Availability via other media
5.1. Compulsory literature (available in the library and through other media)	 Bukljaš Skočibušić M., Radačić Ž., Jurčević M. (2011). "Ekonomika prometa." Fakultet prometnih znanosti Sveučilišta u Zagrebu, Zagreb. (selected chapters) 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).



PK-SP-2. Description of the new course or the course that has been supplemented and / or amended or updated.

1. GENERAL COURSE INFORMATION								
1.1. Course title	OPERATIONAL RESEARCH IN TRAFFIC	1.8. Course code in ISVU	140769					
1.2. Course lecturer	Ivana Beljo	1.9. Course code in MOZVAG						
1.3. Assistants and/or associates	Želimir Mikulić, Luca Olivari	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	1.13. 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	Getting acquainted with the various types of problems that arise in business decision making. Adopting knowledge and skills of the analytical way of hinking, 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 o 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	year secondary education completed; qualification level 4.2 according to the CROQF.				
	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.				
2.3. Learning outcomes on the	LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic.				
study programme level	LO7: To apply computer tools for analysis and comparison of data, and suggest an optimal solution in traffic process.				
	LO8: To solve problems in traffic by using analytical and / or graphical methods.				
2.4. Expected learning outcomes on the course level	Learning outcomes accroding 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
1. to formulate the problem from practice as a suitable mathematical model	4
2. to solve optimization problem with graphical method	4
3. to apply computer tools for solving linear programming problem and to recommend optimal solution,	3, 5
4. to choose the appropriate algorithm and to solve network problems,	3, 4
5. to apply critical path method in the project management.	3, 4

	Constructive allignement								
2.5. Course content according to detailed curriculum schedule	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time			
	1.	Introduction into the course and detailed plan.	-	Listen to lectures. Work independently on computer, get to know course content and elearning documents.	-	2 h			
	2.	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			
	3.	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			
	4.	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			



5.	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
6.	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
7.	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.	In colloquium or written and oral exams students know how to solve the transport problem and the assignment problem.	3 h
8.	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
9.	Network and Graph, Network optimization Models. The Shortest-Path Problem, The Minimum Spanning Tree 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 define and describe networks, graphs, and network resolution methods, and use the appropriate algorithm to solve the minimum spanning tree and shortest path problem.	4 h
10.	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
11.	Project menagement 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
12.	Dynamic Programming.	5	Listen to lectures and read literature. Work independently on a computer solve tasks. The exercises	In colloquium or written and oral exams students know how to describe the	2 h



				Solve exercises.	sorve tusks.	solve optimization problems.	illilling to	
	1 13 1	ochastic Dynamic ogramming.	5	Listen to lectures a Work independentl solve tasks. The ex demonstrate how to Solve exercises.	y on a computer ercises	In colloquium or written and or students know how to to descri application of stohastic dynami programming to solve optimization problems.	be the	2 h
	14. Se Mo	oproach to Problem nalysis, The Model election Criteria and ethod of Solving oblems. Revision for lloquium. Colloquium.	4, 5	Write the colloquiu	ım.	-		20 h
	15. Re	evision	-	Listen to lectures a	nd read literature.	-		20 h
3. EVALUATION OF STUDENT	rs` work						1	
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%. 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: • 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. 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).							
3.2. Monitoring student work	Attendance	0,5	Wri	tten exam	2 (without colloque	ia) Project		
(enter the share of ECTS credits for each activity so that the total	Experiment work	tal	Rese	earch		Practical work		
number of ECTS points	Essay		Rep	ort		Continuous examination	0,5	

demonstrate how to solve tasks.

application of dynamic programming to



Colloquium	2 (without written exam)	Seminar pape	ninar paper			Other			
Class activity	0,5	0,5 Oral exam		0,5		Other			
1. Attending	ndent workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 65 hours								
-									
1	Unsatisfactory		Sat	tisfactory			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.				
Active course	70-74,9% of attendance		79,9% of attendance 80-89,9% of		fattendance	90-	100% of attendance		
attendance	2 points		5 points 1		10 pc	oints		20 points	
Callaguia/	2		3		4	4		5	
Written exam	50-64,9%		65-79,9%		80-89	89,9%		90-100%	
	25 points		30 points		35 pc	oints		40 points	
Oral evam	2		3		5	i		5	
Oran exam	25 points		30 points		35 pc	oints		40 points	
_	tences (teaching + final example)		nd Numerical grade		e	ECTS grade			
			`			A			
	· · · · · · · · · · · · · · · · · · ·								
	Class activity Student workload 1. Attending 2. Preparing - U Responds by mer understanding. D terms and concep apply or explain examples. Active course attendance Colloquia/ Written exam Oral exam Percentage	Colloquium exam) Class activity 0,5 Student workload on all bases for 1 ECTS cred 1. Attending classes and exercises 45 hd 2. Preparing colloquia or exams through	Colloquium exam) Class activity 0,5 Student workload on all bases for 1 ECTS credit is 30 hours 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual workload 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. Active course attendance 70-74,9% of attendance 2 points Colloquia/ Written exam 25 points Oral exam 25 points Percentage of acquired knowledge, skills and competences (teaching + final exam) 90 - 100% 80 - 89,9%	Colloquium exam) Seminar paper Class activity 0,5 Oral exam Student workload on all bases for 1 ECTS credit is 30 hours in a semester 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 65 hours	Colloquium exam) Class activity 0,5 Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estinated and its exams. 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 65 hours	Colloquium exam) Class activity 0,5 Oral exam 0,5 Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 65 hours	Colloquium exam) Seminar paper Other Class activity 0,5 Oral exam 0,5 Other Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 65 hours	Colloquium exam) Seminar paper Other Class activity 0,5 Oral exam 0,5 Other Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 65 hours Unsatisfactory	



			1						
	60 – 64,9%	2 (satisfactory)		D					
	50 – 59,9%	2 (satisfactory)		Е					
5. ADDITIONAL COURSE INFORMATION									
5.1. Compulsory literature	Title			Number of copies in the library	Availability via other media				
(available in the library and via	Pašagić, H., Ivanković, B., Kapetanović, N., Matematičke m	etode u prometu, Zagreb, 2004.		3					
other media)	(selected chapters)								
	Lukač Z., Neralić L.: Operacijska istraživanja, Element 2013	3. (selected chapters)							
5.2. Additional literature (at the	Neralić, L., Uvod u matematičko programiranje 1, Zagreb, 2	012. (selected chapters)							
moment of changes and/or	Hillier F., Lieberman G.: Introduction to operations Research	ch, McGraw Hill 8th ed. 2005, 8	th Ed.						
amended of study programme)	(selected chapters)								
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	attendance and student activity during classes and provided further guidance to students will be provided in order to incr as well as the methods of work and the required literature.	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 or an amended and/or changed or modernized course.

1. GENERAL INFORMATION	ON		
1.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU	187603
1.2. Course title	ROAD TRAFFIC INFRASTRUCTURE	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e learning)	(45 + 15 + 30 + 0)
1.4. Study programme	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level),	1 st , course materials are on-line, 0%
(specialist, undergraduate,		percentage of on line course performance (max. 20%)	
graduate)			
1.5. Course status (obligatory,	Obligatory	1.12. Number of course revisions	4
optional)			
1.6. Year of study	3 rd	1.13. Modernization	Yes
1.7. Credit score (ECTS)	6	1.14. Percentage estimate of course changes and/or	Less than 20% X
		supplements	More than 20 % □
2. COURSE DESCRIPTION			
2.1. Course objectives	 get acquainted with the documentation ned distinguish and describe the elements and sort the road equipment, and road works o make a difference within city roads, road i 	iar with the division, classification, and categorization of roads, eded for road design, parts of the road (lower and upper structures) and road constructures and extraordinary maintenance,	
2.2. Terms of course entry and required competences	Enrolled 3 nd academic year		
2.3. Learning outcomes on the study programme level	LO1: Use and link professional terms in road trate Croatian and English.	ffic technology and organization in written and oral commun	ication with the professional public in
	LO4: Apply knowledge of natural and technical sci	ences to road transport problems.	
	LO7: Apply computer tools for data analysis and co	omparison, and propose an optimal solution in the traffic process	SS.
	LO8: Solve traffic problems using analytical and/or	graphical methods.	
	LO11: Identity, anticipate and propose a road trans	port technology and technique solution.	
	LO12: Design a smaller transport process and critic	cally evaluate it.	



	LO13: To track trends in the development of technique, technology and safety in traffic.							
	Lear	ning outcomes by Bloom: (maximum	2 werbs for	·LO)		Level of LO:		
2.4. Expected learning				1 - memory,				
outcomes on the course level (4-						2 - understanding,		
10 learning outcomes)						3 - application,		
						4 - analysis,		
						5 - evaluation,		
				6 – synthesis.				
	1. De	fine terms and categorize roads and roa	ad intersect	ions in the Republic of Croatia.		1, 3		
	2. Cal	culate and sketch the basic road eleme	ents require	d for design and construction.		2, 4		
		stinguish and compare the lower and ng lots and garages.	dside facilities,	2, 4				
	4. En	umerate and propose necessary road eq	uipment, r	oad maintenance works.		1, 6		
	5. Dis	stinguish and ranking the city roads, str	eets, and re	oad junctions.		4, 5		
	6. Us	e materials and tools for searching scie	ntific and t	echnical literature in the native and English language	ge.	3		
	7. Pre	sent the acquired knowledge, ideas, pr	oblems, an	d solutions independently and in a team.		6		
	8. Tel	l, summarize the history of road constr	ruction in the	he world and the Republic of Croatia.		1, 2		
	9. Sel	ect and evaluate the location for street	parking sp	aces, parking lot, and parking garage.		5		
2.5. Course content according to detailed curriculum schedule	Cons	tructive allignement						
	No	Thematic unit	LO of the	Content/teaching methods	Eva	luation	Time	
			course					
	1.	Introductory presentation		Listening to the lecture. In the course of				
		(introducing students to the course		seminars, they are introduced to the course			2.1	
		content and obligations)	-	content and documents on the e-learning page of		-	3 h	
				the course by working independently on a				
		Development of model court of		computer. They listen to a lecture and read literature. They At the colloquium or written and				
	2.	Development of road construction	(7 0	They listen to a lecture and read literature. They	-		(1	
		(the historical development of roads	6, 7, 8	use multimedia and network. At the seminar		idents know tell,	6 h	
				class, they individually explore the content of	summarize and	comment on road		



	in the Weald and the Density of		this tanks are a har as and in a this database and are	and atmosphism. Alaman alamat 1.1.4	
	in the World and the Republic of		this topic area by searching the database, and on	construction throughout history,	
	Croatia).		the basis of it and reading the literature, create a	isolate the most dangerous roads	
			seminar paper that presents the acquired	in the world, list the historical	
			knowledge and presents their own ideas, and	roads in the Republic of Croatia,	
			ways to solve problems. In group work at the	indicate the country with the	
			seminar class, the brainstorming method and the	longest road network in the	
			discussion method on the topic are applied.	world. Exercise created, seminar	
			During exercises, students are knowing with the	paper created and presented (by	
			general content of the transport project.	computer programs).	
3.	Road classification (classification		They listen to a lecture and read literature. They	At the colloquium or the written	
	based on the law of roads, the		use multimedia and network. At the seminar	and oral exam, students can	
	classification standards, types of		class, they individually explore the content of	define the concept of the road on	
	roads in the Republic of Croatia)		this topic area by searching the database, and on	the basis of the Roads Law of the	
			the basis of it and reading the literature, create a	Republic of Croatia, categorize	
			seminar paper that presents the acquired	roads, establish the difference	
		1, 6, 7	knowledge and presents their own ideas, and	between individual categories of	6 h
		_, -, -, -	ways to solve problems. In group work at the	roads, identify the most	<u> </u>
			seminar class, the brainstorming method and the	important roads in the Republic	
			discussion method on the topic are applied.	of Croatia. Exercise created,	
			During exercises, the topic is project	seminar paper created and	
			assignment.	presented (by computer	
			ussignment.	programs).	
4.	Road design I (project		They listen to a lecture and read literature. At the	At the colloquium or the written	
4.	£ 4 3		1	and oral exam, students can state	
			seminar class, they individually explore the	·	
	tracing, layout elements)		content of this topic area by searching the	and differentiate the study project	
			database, and on the basis of it and reading the	documentation, sort the order of	
		^ -	literature, create a seminar paper that presents	the road design, determine the	_,
		2, 6, 7	the acquired knowledge and presents their own	difference between the individual	7 h
			ideas, and ways to solve problems. In group	terrain paths that the road passes	
			work at the seminar class, the brainstorming	through, distinguish and explain	
			method and the discussion method on the topic	and calculate speeds, and analyze	
			are applied. During exercises, the topic is	the layout elements of the road.	
			routing of the road.	Exercise created, seminar paper	



						-
					created and presented (by computer programs).	
	5.	Road design II (elements of		They use multimedia and network. They use	At the colloquium or the written	
	3.	longitudinal sections, road cross-		multimedia and network. They use	and oral exam, students know	
		sections, drainage elements)		and read literature. At the seminar class, they	how to distinguish between the	
		sections, dramage elements)		individually explore the content of this topic	terrain and the level of the road,	
					, and the second	
				area by searching the database, and on the basis	analyze and describe the road	
			2 (7	of it and reading the literature, create a seminar	elements, enumerate and extract	7 1
			2, 6, 7	paper that presents the acquired knowledge and	hydro-meteorological data and	7 h
				presents their own ideas, and ways to solve	drainage elements. Exercise	
				problems. In group work at the seminar class, the	created, seminar paper created	
				brainstorming method and the discussion	and presented (by computer	
				method on the topic are applied. During	programs).	
				exercises, the topic is the calculation of elements		
				of the horizontal and vertical bend.		
	6.	Road design – guest lecture		They listen a guest lecture about topic. At the	At the colloquium or the written	
				seminar class, they individually explore the	and oral exam, students define	
				content of this topic area by searching the	the basic terms and concepts of	
				database, and on the basis of it and reading the	road and road intersection.	
				literature, create a seminar paper that presents	Specify and distinguish the study	
			2, 6, 7	the acquired knowledge and presents their own	design documentation, sort the	7 h
				ideas, and ways to solve problems. In group	order of road design. Analyze and	
				work at the seminar class, the brainstorming	describe the elements of the road.	
				method and the discussion method on the topic	Exercise created, seminar paper	
				are applied.	created and presented (by	
					computer programs).	
	7.	Road structure (lower and upper		They use multimedia and network. They listen	At the colloquium or the written	7 h
		part of road structure)		to a lecture and read literature. At the seminar	and oral exam, students can	
				class, they individually explore the content of	define the concept of the lower	
			3, 6, 7	this topic area by searching the database, and on	and upper road structure, list and	
				the basis of it and reading the literature, create a	describe the parts of the lower	
				seminar paper that presents the acquired	and upper road structure,	
				knowledge and presents their own ideas, and	distinguish road structures, draw	
			l	1 5 1	2,	



				ways to solve problems. In group work at the	the shapes of the hull, establish	
				seminar class, the brainstorming method and the	the difference in the mode of	
				discussion method on the topic are applied.	ventilation in tunnels, identify	
				During exercises, the topic is Creating a	factors for the choice of road	
				horizontal bend.	curtain Exercise created,	
					seminar paper created and	
					presented (by computer	
					programs).	
	8.	Road equipment (traffic signs and		They listen to a lecture and read literature. At the	At the colloquium or written and	7 h
		signaling)		seminar class, they individually explore the	oral exam, students can sort the	
				content of this topic area by searching the	road equipment, distinguish	
				database, and on the basis of it and reading the	between road equipment and	
			1 1 6	literature, create a seminar paper that presents	traffic equipment, describe road	
			1, 4, 6, 7	the acquired knowledge and presents their own	signs, vertical, horizontal and	
			,	ideas, and ways to solve problems. In group	light traffic signs. Exercise	
				work at the seminar class, the brainstorming	created, seminar paper created	
				method and the discussion method on the topic	and presented (by computer	
				are applied. During exercises, the topic is	programs).	
				Creating vertical bends.		
	9.	Road equipment (traffic signs and		They listen a guest lecture about topic. At the	At the colloquium or the written	7 h
		signaling) – guest lecture		seminar class, they individually explore the	and oral exam, students know	
				content of this topic area by searching the	how to sort traffic signs and	
				database, and on the basis of it and reading the	signaling. Make a difference	
			1, 4, 6,	literature, create a seminar paper that presents	between marking road signs,	
			7	the acquired knowledge and presents their own	describe road signs, vertical,	
				ideas, and ways to solve problems. In group	horizontal and light traffic signs.	
				work at the seminar class, the brainstorming	Exercise created, seminar paper	
				method and the discussion method on the topic	created and presented (by	
				are applied.	computer programs).	
	10.	Maintenance of the road (the main		They listen to a lecture and read literature. At the	At the colloquium or written and	7 h
		goals of maintenance, regular and	3, 4, 6,	seminar class, they individually explore the	oral exam, students can state the	
		periodic maintenance, machinery	7	content of this topic area by searching the	basic goals of road maintenance	
		for road maintenance)		database, and on the basis of it and reading the	and protection, identify the types	



			literature, create a seminar paper that presents	of road maintenance, distinguish	
			the acquired knowledge and presents their own	between regular and winter road	
			ideas, and ways to solve problems. In group	maintenance, enumerate and	
			work at the seminar class, the brainstorming	describe road maintenance	
			method and the discussion method on the topic	works, categorize road	
			are applied. During exercises, the topic is	maintenance machinery.	
			making of notches, cuts, and embankments.	Exercise created, seminar paper	
				created and presented (by	
				computer programs).	
11.	Urban roads and streets (division by		They listen to a lecture and read literature. They	At the colloquium or the written	7 h
	economic and traffic		use multimedia and network. At the seminar	and oral exam, students can	
	characteristics, elements of urban		class, they individually explore the content of	enumerate parts of the city street	
	roads and streets in the transversal		this topic area by searching the database, and on	network, choose the form of the	
	sense)		the basis of it and reading the literature, create a	city street network, enumerate	
			seminar paper that presents the acquired	and distinguish between primary,	
		5, 6, 7	knowledge and presents their own ideas, and	secondary and other city roads.	
			ways to solve problems. In group work at the	Comment on the city street	
			seminar class, the brainstorming method and the	network of individual	
			discussion method on the topic are applied.	settlements. Exercise created,	
			During exercises, the topic is the design of	seminar paper created and	
			traffic intersections.	presented (by computer	
				programs).	
12.	Road intersections (basic		They use multimedia and network. They listen	At the colloquium or the written	7 h
	construction criteria, traffic		to a lecture and read literature. At the seminar	and oral part, students can define	
	operations in intersections, division of road intersections, special forms of intersections)		class, they individually explore the content of	the terms of road intersections in	
			this topic area by searching the database, and on	and out of level, state and identify	
		1, 4, 5,	the basis of it and reading the literature, create a	traffic operations in the	
		6, 7	seminar paper that presents the acquired	intersection, distinguish	
		6, 7	knowledge and presents their own ideas, and	intersections by location, size,	
			ways to solve problems. In group work at the	number of traffic. Find out the	
			seminar class, the brainstorming method and the	difference between a road	
			discussion method on the topic are applied.	intersection and a hub. Exercise	
			During exercises, the topic is Budget bandwidth.	created, seminar paper created	



and presented	(by computer
	(by computer
programs).	
13. Parking place and garages (basic They listen to a lecture and read literature. At the At the colloquium	
terms of stationary traffic, modes of seminar class, they individually explore the and oral exam,	
on-street and off-street parking, content of this topic area by searching the define the basic t	
division of parking garages, database, and on the basis of it and reading the spaces, parking	-
equipment of parking garages) literature, create a seminar paper that presents parking garages.	=
the acquired knowledge and presents their own ways to park vel	hicles on-street
3, 4, 5, ideas, and ways to solve problems. In group and off-street sur	rfaces. List the 6 h
6,7 work at the seminar class, the brainstorming parts and equip	pment of the
method and the discussion method on the topic parking garage.	. Recommend
are applied. During exercises, the topic is location for build	ling parking lot
elaborate on the ideal and final design. and parking gar	rage. Exercise
created, seminar	paper created
and presented	
programs).	
14. Service facilities on the roads (bus They listen to a lecture and read literature. At the At the colloquing	um or in the
stops, stations, and terminals, rest seminar class, they individually explore the written and oral	exam, students
stations, gas stations) content of this topic area by searching the can enumerate ar	nd describe the
database, and on the basis of it and reading the accompanying ro	oadside service
literature, create a seminar paper that presents facilities. To distin	
3, 6, 7 the acquired knowledge and presents their own standpoint and	
ideas, and ways to solve problems. In group Evaluate the loca	- C
work at the seminar class, the brainstorming stations. Exerc	
	created and
are applied. During exercises, the topic is presented (by	
Control intersection elements and traffic signs. programs).	, r
15. Final considerations/Repeating and They listen to a course lecture and prepare	90 h
preparing for the exam. individuals for the exam.	
3. 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									
		wo ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing								
	· ·	e exam (written and oral part of the exam).								
3.2. Student work monitoring	Attending classes	1,5	Written exam	1 (without	Project					
(enter the share of ECTS credits				colloqiums)		2.5				
for each activity so that the total	Experimental work		Research		Practical work	0,5				
number of ECTS credits corresponds to the course credit	Esaay		Report		Continuous check					
value)	Colloquiums	1 (without written part of	Seminar paper	1	(other)					
	Teaching activities	exam)	The oral part of exam	1	(other)					
		1	-	1	` ′					
3.3. Student work-load			30 semester hours and is assessed							
	•	, attending exercises and mal	sing the final exercise (15 hours), preparation for the m	nidterm/exam through s	elf-study (90 hours).				
4. FORMATION OF STUDEN										
4.1. Evaluation of seminar paper	Elements of	Bad	Satisfying		Above average					
	evaluation									
	Organization	The paper is not	The paper is well structured w	ith a clear distinction	The paper is well s	structured with a clear l				
	8	1 1								
	C	organized in a logical	between the introduction, the		distinction between	the introduction, the				
		1 1			distinction between main body of the te	the introduction, the ext and the conclusion,				
	J	organized in a logical order and lacks structure.	between the introduction, the and the conclusion.	main body of the text	distinction between main body of the te which are logically in	the introduction, the xt and the conclusion, terconnected.				
	Terminolog, writing	organized in a logical order and lacks structure. Words and expressions	between the introduction, the and the conclusion. Words and expressions are	in line with official	distinction between main body of the te which are logically in Words and expressi	the introduction, the ext and the conclusion, eterconnected.				
	J	organized in a logical order and lacks structure. Words and expressions are not in line with	between the introduction, the and the conclusion. Words and expressions are terminology. The writing stylength of the stylen	in line with official le is appropriate, the	distinction between main body of the te which are logically in Words and expressi official terminolog	the introduction, the ext and the conclusion, exterconnected. tions are aligned with exy and show an				
	Terminolog, writing	organized in a logical order and lacks structure. Words and expressions are not in line with official terminology. The	between the introduction, the and the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear,	in line with official le is appropriate, the the vocabulary is	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei	the introduction, the ext and the conclusion, terconnected. It ions are aligned with the ext and show an remeaning. The writing				
	Terminolog, writing	organized in a logical order and lacks structure. Words and expressions are not in line with official terminology. The writing style is not	between the introduction, the and the conclusion. Words and expressions are terminology. The writing stylength of the stylen	in line with official le is appropriate, the the vocabulary is	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei style is excellent, the	the introduction, the ext and the conclusion, exterconnected. Sons are aligned with exy and show an remeaning. The writing sentences are clear and				
	Terminolog, writing	organized in a logical order and lacks structure. Words and expressions are not in line with official terminology. The writing style is not appropriate, the sentences	between the introduction, the and the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear,	in line with official le is appropriate, the the vocabulary is	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei style is excellent, the concise, the vocabula	the introduction, the ext and the conclusion, exterconnected. It is a realigned with ext and show an reaning. The writing sentences are clear and ext is rich and there are				
	Terminolog, writing	organized in a logical order and lacks structure. Words and expressions are not in line with official terminology. The writing style is not appropriate, the sentences are too long, of a modest	between the introduction, the and the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear,	in line with official le is appropriate, the the vocabulary is	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei style is excellent, the	the introduction, the ext and the conclusion, exterconnected. It is a realigned with ext and show an reaning. The writing sentences are clear and ext is rich and there are				
	Terminolog, writing	organized in a logical order and lacks structure. 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	between the introduction, the and the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear,	in line with official le is appropriate, the the vocabulary is	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei style is excellent, the concise, the vocabula	the introduction, the ext and the conclusion, exterconnected. It is a realigned with ext and show an reaning. The writing sentences are clear and ext is rich and there are				
	Terminolog, writing	organized in a logical order and lacks structure. 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	between the introduction, the and the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear,	in line with official le is appropriate, the the vocabulary is	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei style is excellent, the concise, the vocabula	the introduction, the ext and the conclusion, exterconnected. It is a realigned with ext and show an reaning. The writing sentences are clear and ext is rich and there are				
	Terminolog, writing style	organized in a logical order and lacks structure. 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.	between the introduction, the rand the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear, appropriate and there are few g	in line with official le is appropriate, the the vocabulary is grammatical errors.	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei style is excellent, the concise, the vocabula no grammatical errors	the introduction, the ext and the conclusion, terconnected. It ions are aligned with the ext and show an remeaning. The writing sentences are clear and the ext are sentences are sentences are sentences.				
	Terminolog, writing style Citing and	organized in a logical order and lacks structure. 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. The sources are not listed	between the introduction, the rand the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear, appropriate and there are few g	in line with official le is appropriate, the the vocabulary is grammatical errors.	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of theis style is excellent, the concise, the vocabula no grammatical errors. The sources are accumulated the sources are accumulated to the sources are accumulat	the introduction, the ext and the conclusion, terconnected. Ions are aligned with the sy and show an remeaning. The writing sentences are clear and the remaining is rich and there are st.				
	Terminolog, writing style	organized in a logical order and lacks structure. 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.	between the introduction, the rand the conclusion. Words and expressions are terminology. The writing styl sentence structure is clear, appropriate and there are few g	in line with official le is appropriate, the the vocabulary is grammatical errors.	distinction between main body of the te which are logically in Words and expressi official terminolog understanding of thei style is excellent, the concise, the vocabula no grammatical errors	the introduction, the ext and the conclusion, atterconnected. It is a realigned with any and show an remeaning. The writing sentences are clear and ary is rich and there are sentences.				



		a cursory approach to			-	I shows a detailed research	
	exploring the topic.				approach.		
4.2. Gradeing of the]	Bad	Satisfying	Satisfying		ve average	
colloquium/written and oral							
exam		nory, without a deeper	It reproduces the basic conce	•	_	the level of analysis,	
	_	not know or apply basic	difficulty imparts new knowledge			aluation. It observes the	
	_	loes not know how to apply	material, explains the terms and	d concepts that it		and thoroughly explains	
	_	ents of the course with	supports with examples.			e material, and logically	
	examples.				-	ins the terms and concepts	
						with examples. Finds	
						e not originally given. It	
				1	notes correlations	with related material.	
4.3. Forming the final grade according to the evaluation	Active attendance on class	70-75% attendance	76-86% attendance	87-100%	attendance	Mental map created, Case studies resolved	
elements		2 points	4 points	7 p	7 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%	
	Written part of exam	25 points	30 points	35]	points	40 points	
	Oral part of exam	2	3		5	5	
	Oral part of exam	25 points	30 points	35]	points	40 points	
4.4. Formation of the final grade		ed knowledge, skills and	Numerical grade	e	ECTS grade		
based on the absolute		aching + final exam)					
distribution	90 -	- 100%	5 (excellent)		A		
		- 89,9%	4 (very good)		В		
	65 -	- 79,9%	3 (good)			С	
	60 -	- 64,9%	2 (sufficient)			D	
	50 -	- 59,9%	2 (sufficient)			E	



5. ADDITIONAL INFORMATION ABOUT COURSE										
5.1. Compulsory literature	Title	Number of copies in the	Availability via other							
(available in the library and via		library	media							
other media)	Legac I.: Roads I, Faculty of Transportation and Traffic Sciences, University of Zagreb, Zagreb	4	-							
	2001. or in 2006.									
	Legac I.: Intersections of public Roads - Road II, Faculty of Transportation and Traffic	2	-							
	Sciences, University of Zagreb, Zagreb 2008. (selected chapters)									
	The Law on the Croatian roads https://zakon.hr/z/244/Zakon-o-cestama (selected chapters)	-	Internet website							
	Ministry of Maritime Affairs, Transport and Infrastructure, Rule book on traffic signs,	-	Internet website							
	signalization and equipment on the roads (the proposal), Zagreb 2015 (selected chapters)									
	Brčić D., Šoštarić M .: Parking and Garages, Faculty of Transportation and Traffic Sciences,	-	Internet website							
	University of Zagreb, Zagreb 2012. (selected chapters)									
5.2. Additional literature (at the	Teaching materials from lectures and seminars on the e-Learning system of the Polytechnic of		e-learning system							
moment of changes and/or	Sibenik for the mentioned course.		Internet website							
amended of study programme)	Traffic Zone https://www.prometna-zona.com/	-	Internet website							
	Traffic Signals https://www.prometna-signalizacija.com/		Internet website							
	Croatian Roads https://hrvatske-ceste.hr/		Internet website							
	First Blinker http://prvitreptac.hr/		Internet website							
7.2. O. IV.	Croatian Motorways http://hac.hr/hr									
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be	_								
that ensure the acquisition of	attendance and student activity during classes and provided information on students` progress through the state of the sta	-								
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Stud									
competences	as well as the methods of work and the required literature. Indicators of quality assurance system	·	g of annual data from the							
	Croatian employment service on the annual state of student employment, surveys from employers									
5.4. Informing about the course	It is the responsibility of each student to be regularly informed about the course, the coursework, an		-							
and contacting the course	adjournment will be published in a timely manner on the e-learning site of the course and on the w	•								
lecturer	during the consultation period (at least one hour per week), while for short questions and explanation									
	to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answer	ed as soon as possible (no late	er than five working days							
	after receiving the e-mail).									



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

1. GENERAL INFORMATION							
1.1. Course title	RESOURCES AND EXPLOITATION OF RESOURCES OF ROAD TRAFFIC	1.8. Course code at ISVU	142536				
1.2. Course lecturer	Srećko Đuranović, Ernest Bazijanac	1.9. Course code at MOZVAG					
1.3. Assistants and/or associates	Ana-Mari Poljičak	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(45+15+0+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 0%				
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4.				
1.6. Year of study	3 rd	1.13. Modernization	X Yes □ No				
1.7. Credit point (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %				

2. COURSE DESCRIPTION	
	The goal is to provide students with theoretical knowledge:
	Define basic concepts in the field of road vehicle exploitation;
2.1. Course objectives	• Differentiate the vehicle's performances, parts and assemblies;
2.1. Course objectives	• Learn how to review vehicle reliability changes, select and describe system diagnostics, and choose the optimal maintenance option for the given
	operating conditions;
	• 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.
	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in
2.3. Learning outcomes on the	Croatian and English.
study programme level	LO4: Apply knowledge of natural and technical sciences to problems in the field of road transport.
	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.	
		Level of LO:
		1 - memory,
	Learning outcomes according to Bloom's taxonomy:	2 - understanding,
	(maximum 2 werbs for LO)	3 - application,
	(maximum 2 werds for EO)	4 - analysis,
		5 - evaluation,
2.4. Expected learning outcomes		6 – synthesis.
on the course level	1. demonstrate knowledge and understanding of the content of the course by defining and describing basic concepts in the field	1, 1
	of road vehicle exploitation,	1, 1
	2. distinguish between the performance and analyze the vehicle components and assemblies,	2, 4
	3. review and analyze the reliability of the vehicle,	5, 4
	4. draw and comment on the impact of exploitation on the life of the vehicle,	4, 4
	5. to comment on the impact of the road profile and tires on driving safety,	4
	6. Present the acquired knowledge, ideas, problems and solutions independently and in a team.	6

	Constructive allignement						
	no Thematic unit		LO of the course	Content/teaching methods	Evaluation	Time	
2.5. Course content according to detailed curriculum schedule	1.	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	
		Division of road vehicles.	1	They listen to a lecture.	At the colloquium or written and oral exam define, recognize and different types of road vehicles. They know how to explain basic concepts, physical quantities and units of measure.	5 h	



7.	Stability and safe driving. Colloquium I.	4	They listen to a lecture and read literature.	At the colloquium or the written and oral examination, they can recognize the traffic	8 h
6.	Impact of exploitation on the life of the vehicle.	4, 6	They listen to a lecture and read literature. In the exercise classes sketch and explain the features of Otto and Diesel engines.	At the colloquium or written and oral exam know how to use and apply technical data obtained during the operation on the life of the vehicle. Give examples of interrelationships between different factors on the reliability and life of a vehicle. Repetition of the materials and preparation for the colloquium.	8 h
5.	Features of road vehicles.	1, 4	They listen to a lecture and read literature. In the exercise classes, they group motor vehicle parts.	At the colloquium or written and oral exam knows define fundamental features of vehicles. They know how to describe and relate individual factors and their importance in the operation of motor vehicles.	8 h
4.	Wear, friction (dry and liquid).	1, 4	They listen to a lecture and read literature. In the exercise classes, tasks in this field are solved with analytical methods.	At the colloquium or the written and oral exam they can define and describe the dry and liquid friction and explain the role of exploitation on the occurrence of wear and cause and effect relationships during the use of motor vehicles.	8 h
3.	Causes of technical condition change.	4	They listen to a lecture and read literature. In the exercise classes are shown and calculated on examples of different sizes of measurement units (ISO systems).	At the colloquium or the written and oral exam they know how to relate the causes and consequences of exploitation to changes in the technical condition of the vehicle as a whole and of elements, assemblies as parts of the vehicle.	8 h
2.	Changing the technical condition of the vehicle.	2	They listen to a lecture and read literature. In the exercise classes describe the physical quantities and compare examples of their relationships with each other.	At the colloquium or written and oral examination know enumerate, explain and give examples of changes in the technical condition of the elements of a motor vehicle during the operation.	8 h



					conditions and vehicle trajectories and draw conclusions about safe driving during operation based on the factors given.	
	8.	Stability in the curve. Driving mechanics.	1, 6	They listen to a lecture and read literature. In the exercise classes, they sketch and explain the forces on the vehicle as they move, and solve problems in this thematic area by analytical methods.	At the colloquium or the written and oral exam they know how to define, calculate and explain the effect of force systems on vehicles during movement and their influence on the driving mechanism.	8 h
	9.	Influence of roadway profile and vehicle elements on driving safety.	2, 4, 5	They listen to a lecture and read literature. In the exercise classes, tasks in this field are solved with analytical methods.	At the colloquium or the written and oral exam they can define the influencing factors of the elements, parts of the vehicle and to anticipate the effects and consequences of their technical condition on the safe driving of the motor vehicle during operation.	8 h
	10.	Maintenance of road vehicles.	1, 3, 4	They listen to a lecture and read literature. In the exercise classes, they sketch and explain the fault intensity curve.	At the colloquium or the written and oral exam they can define and describe the role of vehicle maintenance for a lifetime. They know how to distinguish and compare different types and types of maintenance and choose the optimal option for the given operating conditions.	8 h
	11.	Vehicle assemblies, engine, coupler.	1, 2, 6	They listen to a lecture and read literature. In the exercise classes, they sketch and explain the various designs of clutches used on motor vehicles.	At the colloquium or written and oral exam knows define, outline and describe the role and operation of the engine and clutch. They know how to choose and explain the choice of vehicle assembly in the contemporary context of the development of vehicle construction and its assemblies.	8 h
	12.	Transmission, differential and drive shaft.	1, 2, 6	They listen to a lecture and read literature. In the exercise classes, they sketch and explain the various designs of clutches used on motor vehicles.	At the colloquium or the written and oral exam they can define and describe the role and mode of operation of the transmission, differentials and drive shaft. They know	8 h



					how to choose and explain the choice of vehicle assembly in the contemporary context of the development of vehicle construction and its assemblies.		
	13.	Diagnostics and diagnostic methods.	1, 2, 6	They listen to a lecture and read literature. In the exercise classes, they sketch and apply the learned content in the choice of differential type for different types of motor vehicles.	At the colloquium or written and oral exam knows define and describe the role of diagnostic systems and components of vehicles. They are able to interpret the interrelations of structural and diagnostic parameters and to analyze on the basis of the diagnostic parameters the actual state of the vehicle element or assembly (ie structural parameters).	8 h	
	14.	Brake system.	1, 2, 6	They listen to a lecture and read literature. In the exercise classes, they sketch, explain the principle of operation and propose brake types for various types of motor vehicles.	At the colloquium or the written and oral exam they know how to define and describe the elements of the vehicle's braking system. They know how to choose individual brake system performance options and present them. Repetition and preparation for the colloquium.	8 h	
	15.	Braking system diagnosis. Colloquium II. Concluding considerations.Repeating and preparing for the exam.	1, 2	They listen to a lecture and read literature and prepare individually for the exam.	At the colloquium or the written and oral exam they can define and choose the options for diagnosing the correctness of the braking system. They know from the diagnostic parameters that they have obtained that the braking system can be used.	40 h	
3. EVALUATION OF STUDEN	T WORK						
3.1. Students` 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 paper. Students who have achieved during the course: • 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. 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 classes 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). 								
	Attendance		Written exam	3,5 (without colloquia)	Project				
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work				
for each activity so that the total number of ECTS points	Essay		Report		Continuous examination				
corresponds to the credit score of the course)	Colloquium	3,5 (without written exam)	Seminar paper		Other				
	Class activity	0,5	Oral exam	1 (without colloquia)	Other				
	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:								
3.3. Student workload	Obligation			Hours (estimated)					
		ass attendance g colloquia or exams through	individual work	60 90					
A FORMATION OF CRAPEC	2. Freparing	g conoquia or exams unough							
4. FORMATION OF GRADES									
4.1. Grading of seminar work	-								
		Bad	Sat	tisfying	Above	average			
4.2. Grading of the colloguium / written and oral exam	understanding. Do	mory, without a deeper ses not know or apply basic ss. Does not know how to ne contents of the course with	difficulty imparts new the material, explains	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 g related mat		orrelations with
	Active	70-75% of the presence	76-86% of	the presence	87-100% of t	he presence	Cas	e studies resolved
	attendance	2 points		points	7 poi	-		10 points
4.3. Forming the final grade	Examination /	2		3	4			5
according to the evaluation	Written	50-64,9%	65-	79,9%	80-89),9%		90-100%
elements	examination	25 points	30	points	35 pc	oints		40 points
	Oral part of the	2		3	4			5
	exam	25 points	30	points	35 pc	35 points		40 points
	Percentage of a	acquired knowledge, skills and co (teaching + final exam)	ompetences	Number rating		ECTS grade		
4.4. Formation of final grade	90 – 100% 80 – 89,9%				5 (excellent)			A
based on absolute distribution		4 (very good)				B C		
		65 – 79,9% 60 – 64,9%		3 (good)			D	
	60-64,9% 2 (sufficient) $50-59,9%$ 2 (sufficient)					,		
5. ADDITIONAL INFORMATI	ON ON THE SUBJ	,		2 ((sufficient)			
5.1. Required literature (available in the library and	Title						r of copies in e library	Availability via other media
through other media)	Zavada J.: Prijevozna sredstva, Fakultet prometnih znanosti, Zagreb, 2000. (selected chapters)						6	
5.2. Supplementary literature (at	1. Grupa autora: Tehnika motornih vozila, Pučko otvoreno učilište, Zagreb, 2006.						0	
the time of the submission of	2. Krpan D.: Motorna vozila, Sveučilište u Zagrebu, Zagreb, 1966.						0	
changes and / or additions to the study program)	3. Hillier, V. England,	A. W.: Fundamentals Motor Ve 1991.	hicle Tehnolog	y, Chelenham GL	53 ODN,		0	



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 or an amended and/or changed or modernized course

1. GENERAL INFORMATION	T Company					
1.1. Course title	TECHNOLOGY AND ORGANIZATION OF ROAD TRAFFIC	1 1 8 Course code at ISVII 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 □ No			
1.7. Credit point (ECTS)	7	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %			

2. COURSE DESCRIPTION						
	The aim is to provide students with theoretical knowledge and case studies to:					
	define elements of road transport technology;					
	• get to know the elements of road transport technology and their interdependence in planning the transport process;					
2.1. Course objectives	• understand the technical and technological characteristics of the elements;					
	adopt a critical way of concluding in organizing the modern transportation process;					
	• 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.					
	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in					
2.3. Learning outcomes on the	Croatian and English.					
study programme level	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team members.					



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: To assess and organize processes in the area of road traffic and/or traffic logistics.							
LO11: To identify, predict and propose solutions in road traffic technology and technique.							
LO12: Design a smaller transport process and critically evaluate it.							
LO13: Follow trends in technology, technique and traffic safety.							
Learning outcomes according to Bloom's taxonomy:							
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							

	Constructive allignement								
2.5. Course content according to detailed curriculum schedule		Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time			
	1.	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	-	1 h			



				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
				They listen to a lecture and read literature. In	In colloquium or the written and oral	
	2.	Transport devices.	1, 2, 3, 6, 7	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.	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
	3.	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
	4.	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 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 indicate the historical development of road vehicles, and define and specify the types and types of cargo handling equipment and their technical and technological characteristics important for establishing the optimal transportation process. The terms of reference are drafted in groups, with discussion and	5 h



					proposal of measures to optimize the given transportation process.	
	5.	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
	6.	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
	7.	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 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 maintenance of means of transport, enumerate and describe the types of maintenance and their influence on the process of transport. The terms of reference are drafted in groups, with discussion and suggestion of measures to optimize the given transportation process.	5 h



8.	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
9.	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
10.	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
11.	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 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 and its role in the process of transport. The terms of reference are drafted in groups, with discussion and proposal of measures to optimize the given transportation process.	5 h



12.	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
13.	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
14.	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
15.	Concluding considerations. Repeating and preparing for the exam.	6, 7	They listen to a lecture and prepare individually for the exam.	-	30 h



3. EVALUATION OF STUDENT WORK									
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 achieved during the course: • 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 of 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 regule extraordinary exam period; • More than 50% - students have the right to take the final exam. 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).									
	Attendance	1	Written exam	1 (without colloquia)	Project	1			
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Research		Practical work				
for each activity so that the total number of ECTS points	Essay		Report		Continuous examination				
corresponds to the credit score of the course)	Colloquium	1 (without written exam)	Seminar paper		Other				
	Class activity	1	Oral exam	1	Other				
3.3. Student workload	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as: 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									



	Element of evaluation	ation Ba	Bad		Satisfying		Above average	
4.1. Grading of seminar work	Organization	The paper is not orga	•	9		e text distinguishment concerns.	paper is well structured with a clear action between the introduction, the body of the text and the lusion, which are logically connected.	
	Terminology, writ	with official termino style is not appropria are too long, of a mo and with frequent an grammatical errors.	logy. The writing te, the sentences dest vocabulary	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.		style unde urre is te rors.	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. The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.	
	Citing and referen references	The sources are not lareferences do not fit show a cursory approache topic.	the topic and	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.		re and comp		
		Bad		Satisfying			Above average	
4.2. Grading of the colloguium / written and oral exam	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		difficulty impa	It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		and evaluation accurately and of the material explains the with example	is at the level of analysis, synthesis on. It observes the legality, and thoroughly explains the content ial, and logically connects and terms and concepts that it supports es. Finds solutions that were not eyen. It notes correlations with rial.	
42.5	Active attendance -	70-75% of the presence	76-86% of	the presence	87-100% of th	e presence	Case studies resolved	
4.3. Forming the final grade according to the evaluation	attendance	0 points	0 pc	oints	0 poir	nts	0 points	
elements	Seminar paper	2		3	4		5	
Cionionto	Semma paper	Made and handed over	Made and l	Made and handed over		nded over	Made and handed over	
		2		3	4		5	



			81-9	0%		91-100%			
	Written examination	25-32 points		33-40 points	41-45 1	points		46-50 points	
	Oral part of the	2		3	5	5		5	
	exam	25-32 points		33-40 points	41-45 1	ooints		46-50 points	
4.4. Formation of final grade based on absolute distribution5. ADDITIONAL INFORMATIONAL INFORMATI		quired knowledge, skills and com (teaching + final exam) 90 - 100% 80 - 89,9% 65 - 79,9% 60 - 64,9% 50 - 59,9% JECT	npetences	Number ratir 5 (excellent 4 (very good 3 (good) 2 (sufficient 2 (sufficient)])		A B C D E	de	
5.1. Required literature (available in the library and	Title Number of copies in the library media Number of copies in the library						Availability via other media		
through other media)	1. 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)	 Baričević, H.: Tehnologija kopnenog prometa, PFR, Rijeka, 2001. Ortuzar, J. de D., Willumsen, L.G.: Modelling Transport, John Wiley & Sons, United Sons, United O Yes Lectures 						• •		
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	attendance and act further guidance to and required litera	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 or an amended and/or changed or modernized course

1. GENERAL INFORMATION	ı		
1.1. Course title	TRAFFIC TECHNIQUES	1.8. Course code at ISVU	187605
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)	(45+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%)	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 □ No
1.7. Credit point (ECTS)	6	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %

2. COURSE DESCRIPTION				
	The aim is to provide students with theoretical knowledge and case studies to:			
	define road safety factors;			
2.1. Course objectives	• know the lawfulness of traffic management;			
2.1. Course objectives	• understand traffic supply and demand issues;			
	learn to identify traffic flow problems so that they can contribute independently to solving problems;			
	• 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.			
	LO1: Use and link professional terms in road traffic technology and organization in written and oral communication with the professional public in			
2.3. Learning outcomes on the	Croatian and English.			
study program level	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team members.			
	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.
	LO11: To identify, predict and propose solutions in road traffic technology and technique.
	LO12: To set up a minor traffic process and critically evaluate it.
	LO13: Follow trends in technology, technology and traffic safety.
	Learning outcomes according to Bloom's taxonomy:
2.4. Expected learning outcomes	1. to demonstrate knowledge and understanding of course content by defining and describing the basic principles of traffic flow 1, 1
on the course level	2. to enumerate and explain the factors of road safety, their role and significance in traffic flow 1, 2
	 3. to analyze and compare traffic supply and demand relationships and recommend problem solving methods 4, 2 4. to analyze the example of traffic conflict and propose measures to increase traffic safety 4, 5
	5. to comment on and critically evaluate the causes of conflicts in traffic flows 4, 5
	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

	Cons	tructive alignment				
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time
2.5. Course content according to detailed curriculum schedule	1.	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 elearning page of the course.	-	1 h
		Traffic safety factors.	1, 2, 7	Listen to lectures and read literature.	In colloquium or the written and oral exam they define the factors of traffic safety. They describe the role and importance of factors	3 h



				for the safe and undisturbed flow of traffic flows.	
2.	Human as a factor in traffic safety.	1, 2, 4, 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 enumerate and describe the characteristics, characteristics and behaviors of a person which are necessary for the safe operation of the vehicle and therefore the traffic flows.	4 h
3.	Human as a factor in traffic safety.	1, 2, 4, 5, 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 enumerate and describe the characteristics, characteristics and behaviors of a person which are necessary for the safe operation of the vehicle. In colloquium or written and oral exams they can state and describe the active and passive elements of vehicle safety.	4 h
4.	Vehicle as a factor in traffic safety.	1, 2, 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 enumerate, define and describe the role of technical and technological characteristics of vehicles in the traffic system	4 h
5.	Vehicle as a factor in traffic safety.	1, 2, 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,	In colloquium or written and oral exams they enumerate, define and describe the role of technical and technological characteristics of vehicles in the traffic system, as well as define what is the road and describe the elements of road safety, and analyze and	4 h



				come up with their own ideas, and ways to solve problems.	conclude how the proper maintenance of the road affects the traffic system.	
	6.	Road as a factor in traffic safety.	1, 2, 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 can enumerate, define and describe the role of technical and technological characteristics of vehicles in the traffic system, define what is the road and describe the elements of road safety, and analyze and conclude how the proper maintenance of the road affects the traffic system.	4 h
	7.	Road traffic and Incident factor.	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 and describe conflict situations in road traffic, and analyze the impact of improper traffic management on the safety of all participants. They know how to list incident factors and explain their impact on traffic.	4 h
	8.	Road design elements. 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 define and describe the elements of road design and their role in guiding the flow.	34 h
	9.	Traffic counting and planning (fieldwork).	1, 3, 4, 5, 6, 7	AT the fieldwork in group work, they investigate and solve a case study.	In colloquium or written and oral exams they define and describe traffic counting methods and their role in traffic flow planning. Seminar work is organized in groups, discussing and proposing measures to calm traffic, resolve conflict situations and improve traffic flows.	9 h
	10.	Parking lots and garages. Road and tunnel lighting.	1, 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	In colloquium or written and oral exams they define and describe the importance of stationary traffic in the transport system of populated areas. They know how to define	4 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.	and describe the types and ways of installing lighting on traffic structures, and compare the characteristics and express the advantages and disadvantages of different types of traffic lighting. Seminar work is organized in groups, discussing and proposing measures to calm traffic, resolve conflict situations and improve traffic flows.	
11.	Adherence coefficient. Vehicle stability. Horizontal and vertical transparency.	1, 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 and describe the characteristics of vehicles and roads that influence the best adhesion of the vehicle to the ground in order to maximize the stability of the vehicle when moving, and define and explain what factors reduce and increase visibility for road users. Seminar work is organized in groups, discussing and proposing measures to calm traffic, resolve conflict situations and improve traffic flows.	4 h
12.	Safety clearance between vehicles in motion. Braking path. The way to react.	1, 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 and describe the elements of the safety gap between different modes of traffic on the roads, and define and describe the basic concepts and elements necessary to determine the length of the braking and response times and propose measures for improvement. Seminar work is organized in groups, discussing and proposing measures to calm traffic, resolve conflict situations and improve traffic	4 h
13.	Traffic signalization.	1, 2, 3, 4, 5, 6, 7	They listen to a lecture and read literature. In the course of the	In colloquium or written and oral exams they define and list types of traffic signs and	4 h



					seminar they ind	ividually explore	describ	be their characteristics. Se	minar work	
					the content of thi	• •		nized in groups, discussir		
						abase, and on the	_	ing measures to calm traf	-	
					basis of it and the			et situations and improve t		
						ir own ideas, and		v savouvions uno mipro vo v	110 110	
					ways to solve pro	· ·				
	14.	Traffic lightin management. Pedestrian sign 2nd Colloquiu	nals.	1,2, 3,4, 5, 6, 7, 8, 9 They listen to a lecture and prepare individually for the colloquium.		they de light si	oquium or written and ora escribe and specify ways a gnaling, define the types t signaling for pedestrians es.	to control the and cycles	34 h	
	15.	Concluding co Repeating and exam.	onsiderations. I preparing for the	6, 7	They listen to a lindividually for t	ecture and prepare he exam.	-			34 h
3. EVALUATION OF STUDEN	T WO	RK								
3.1. Students` obligations	Part-t have	ime students are achieved during • From 0 - 24 • From 25-49 extraordinary • More than	e required to attend the course: 4.9% of ECTS credi 9.9% - are assessed y exam period; 50% - students have	a class of at lets - they are reby FX (insuffice the right to to for obtaining of students (ac	least 50%. All stude ated F (unsuccessfusicient) and must parake the final exam. a signature. Studen	ents must create, pre l) and cannot earn E ss and pass the writte ts can take the final of	esent and CCTS cre en exam	for all full-time students and positively colloquy semulated and must re-enroll in (test). Written exam (test) the course in two ways: a during class (active particular positions) and the course in two ways: a during class (active particular).	the next acade) can be held in a) during the co	emic year; n regular or
3.2. Monitoring student work	Atten	dance	1	Writte	n exam	1 (without colloqui	ia) l	Project		
(enter the share of ECTS credits for each activity so that the total	Exper work	rimental		Resear	rch			Practical work		
number of ECTS points	Essay	7		Repor	t			Continuous examination		



corresponds to the credit score of the course)	Colloquium	1 (without written exam)	Seminar paper	1	Other				
	Class activity	1	Oral exam	1	Other				
	Student workload or	all bases is 1 ECTS credit	30 semester hours and is e	estimated as:					
3.3. Student workload 1. Attendance 45 h									
3.3. Student workload	2. Design of seminar work and presentation 15 h								
	3. Preparation for th	Preparation for the mid-term / midterm exam 90 h							
			_		_				

4. FORMATION OF GRADES

	Element of evaluation	Bad		Satisfying		Above average	
4.1. Grading of seminar work	Organization	The paper is not organi order and lacks structure	The paper is well structured with clear distinction between the introduction, the main body of the and the conclusion.		tween the ain body of the text and the conclusion, which are logical		
	Words and expressions with official terminology style is not appropriate are too long, of a mode and with frequent and a grammatical errors.		gy. The writing , the sentences est vocabulary	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 incomple 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.	
	Ba	d		Satisfying		Above average	
4.2. Grading of the colloguium / written and oral exam	it responds by memory, w		difficulty impar	he basic concepts and without its new knowledge, understands plains the terms and concepts that examples.	and eva	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	



	apply or explain t examples.	he contents of the course with			explains the terms and concepts that it supports with examples. Finds solutions that were not originally given. It notes correlations with related material.		
	Active			87-100% of th	e presence C	ase studies resolved	
	attendance	0 points	0 points	0 poir	nts	0 points	
	a .	2	3	4		5	
4.3. Forming the final grade	Seminar paper	Made and handed over	Made and handed over	Made and har	nded over Ma	ade and handed over	
according to the evaluation	Examination /	2	3	4		5	
elements	Written	50-64%	65-80%	81-90	%	91-100%	
	examination	25-32 points	33-40 points	41-45 pc	oints	46-50 points	
	Oral part of the	2	3	5		5	
	exam	25-32 points	33-40 points	41-45 pc	oints	46-50 points	
		of acquired knowledge, skills and ences (teaching + final exam)	Number rating		ECTS grade		
4.4. Formation of final grade		90 – 100%	5 (excellent)		A		
based on absolute distribution		80 – 89,9%	4 (very good)		В		
oused on assorate distribution		65 – 79,9%	3 (good)	С			
		60 – 64,9%	2 (sufficient)	D			
		50 – 59,9%	2 (sufficient)		Е		
5. ADDITIONAL INFORMAT	ION ON THE SUB	IECT					
5.1. Required literature		Title			Number of copies in the library	Availability via other media	
(available in the library and	1. Cerovac,	1. Cerovac, V.: Tehnika i sigurnost prometa; FPZ, Zagreb, 2001. (selected chapters)				Yes	
through other media)	2. Zakon o s					Available on-line	
5.2. Supplementary literature (at the time of the submission of	 McShane, W.R. Roess, R.P., Prassas, E.S.: Traffic engineering, Prentice Hall, 1998. Suvremeni promet; časopis Hrvatskog znanstvenog društva za promet, Zagreb. 					Yes	



changes and / or additions to the	3. Lectures		Yes		
study program)					
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 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 working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employme 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 classe 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 conteachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. 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 working days after receiving the e-mail).				



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

1.1. Course lecturer	Danijel Mileta	1.8. Course code in ISVU	142540			
1.2. Course title	INFORMATION SYSTEMS IN ROAD TRAFFIC	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+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 , course materials are on- line, 0%			
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	6			
1.6. Year of study	3 rd	1.13. Modernization	Yes			
1.7. Credit score (ECTS)	3	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 main objective of the course is to acquaint students with information systems as well as telecommunication and information infrastructure in the function of road traffic, and the benefits they provide.					
2.2. Terms of course entry and required competences	Enrolled 3 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	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: To organize and implement team work, and critically judge the opinions and attitudes of team members.					
	LO3: Independently and responsibly search, interpret and integrate relevant literature needed to reach conclusions.					
	LO4: Apply knowledge of natural and technical sciences to road transport problems.					
	LO6: Analyze and interpret relevant road transport facts needed to reach conclusions.					
	LO11: Identify, anticipate and propose a road transport technology and technique solution.					
	LO13: Follow trends in technology, technology and traffic safety.					



	Learn	ning outcomes by Bloom: (maximu	m 2 werbs f	or LO)		Level of LO:	
2.4. Expected learning						1 - memory,	
outcomes on the course level (4-						2 - understanding,	
10 learning outcomes)			3 - application,				
						4 - analysis,	
						5 - evaluation,	
						6 – synthesis.	
	1. Cat	tegorize intelligent transport system	s and techno	ologies that use them and analyze their benefits.		4	
	2. Co	mpare different information and inte	elligent trans	sport systems.		5	
	3. Cri	tically evaluate and evaluate the bes	st system to	use.			
	4. Pro	ppose and properly present a solution	n for a probl	ematic location or purpose		6	
2.5. Course content according to	Const	tructive allignement				'	
detailed curriculum schedule							
	No	Thematic unit	LO of	Content/teaching methods	Eval	uation	Time
			the				
			course				
	1.	Introduction to the course and a		Students listen to a lecture. On the computer,			
		detailed teaching plan.	-	they are introduced to the course content and	-		2 h
				documents on the e-learning course page.			
	2.	Basics		Students listen to a lecture and read literature.	*	ritten and oral exam	
			1			scribe and categorize	2 h
			1		-	f information systems	211
					in road transport and set an example.		
	3.	ITS		Students listen to a lecture and read literature.	•	e, distinguish and give	
			1,2,3,4		an example of	intelligent transport	3 h
			1,2,5,4		systems at the midt	erm, written and oral	311
					exam.		
	4.	Internet and intranet		Students listen to a lecture and read literature.		written and oral exam	
						scribe and enumerate	
			2,4		basic terms in the	domain of Internet,	3 h
					intranet and extr	anet, and give an	
					example.		



5.	Wireless data transmission	1,2,3,4	Students listen to a lecture and read literature.	At the midterm, written and oral exam they can define, describe and enumerate wireless data transfer for different technologies, and critically evaluate and evaluate the best technology to use.	4 h
6.	ERP	1,2	Students listen to a lecture and read literature.	At the colloquium, written and oral exam they can define and describe the information system in business and the concepts related to it.	3 h
7.	Repetition of materials / colloquium	1,2,3,4	Students listen to a lecture and read literature.	They know the matter from thematic units 2-6. At the colloquium, the written and the oral exam they know how to define parking payment systems.	2 h
8.	Parking Billing Systems	1,2,3,4	Students listen to a lecture and read literature.	At the colloquium, written and oral exam they can define, describe, categorize, compare, judge and evaluate parking charging systems in open and rampregulated parking lots.	3 h
9.	Highway billing systems	1,2,3,4	Students listen to a lecture and read literature.	At the midterm, written and oral exam they know how to define, describe, categorize, compare, judge and evaluate highway billing systems.	1 h
10.	Autopilot	1,2,3	Students listen to a lecture and read literature.	At the colloquium or the written and oral exam they can define and describe the features of autopilot in cars and the technologies used in it.	2 h
11.	Fleet management	1,2,3,4	Students listen to a lecture and read literature.	At the colloquium or the written and oral exam they can define and describe the basic elements of fleet management and critically evaluate, evaluate and propose the right solution for a particular need.	2 h



	12.	Speedometers on roads	1,2,3,4	Students listen to a lecture and read literature.	They can define, describe and categorize road speed measuring devices at the midterm or the written and oral exam.	1 h
	13.	Seminars	1,2,3,4	Students listen to a lecture and read literature. They use multimedia and networking. At the seminar teaching, 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 the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	In defense of seminar paper, they are able to define and describe basic concepts in the topic of seminar paper, to distinguish and compare similar technologies, to give an example, to critically judge, evaluate and propose the use of technology in question.	6 h
	14.	Seminars	1,2,3,4	Students 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 reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	In defense of seminar paper, they are able to define and describe basic concepts in the topic of seminar paper, to distinguish and compare similar technologies, to give an example, to critically judge, evaluate and propose the use of the technology in question.	9 h
	15.	Repetition of materials / 2. colloquium	1,2,3,4		They know the subject matter from topics 8-12. and domain of seminar papers.	2 h
4. EVALUATION OF STU	J DEN	-				
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	Attending classes	1	Written exam	1 (without colloqiums)	Project	
for each activity so that the total number of ECTS credits	Experimental work		Research	• '	Practical work	
corresponds to the course credit value)	Esaay Colloquiums	1 (without written part of	Report Seminar paper	0,5	Continuous check (other)	
	Teaching activities	exam)	The oral part of exam	0,5	(other)	
3.3. Student work-load	(16 hours), preparation	all bases is 1 ECTS credit for 30 on for the midterm/exam through		ed as attendance (60 hours	s), preparation of seminar work and presentation	
4. FORMATION OF STUDENT						
4.1. Evaluation of seminar paper	Elements of	Bad	Satisf	ying	Above average	
	evaluation					
	Organization	The paper is not organized in	The paper is well structure	ed with a clear distinction	The paper is well structured with a clear	
		a logical order and lacks	between the introduction,	the main body of the text	distinction between the introduction, the	
	structure. and the conclusion.				main body of the text and the conclusion, which are logically interconnected.	
	Terminolog, writing	Words and expressions are	Words and expressions	are in line with official	Words and expressions are aligned with	
	style	not in line with official	terminology. The writing	style is appropriate, the	official terminology and show an	
		terminology. The writing	sentence structure is cl	ear, the vocabulary is	understanding of their meaning. The writing	
		style is not appropriate, the	appropriate and there are	few grammatical errors.	style is excellent, the sentences are clear and	
		sentences are too long, of a			concise, the vocabulary is rich and there are	
		modest vocabulary and with			no grammatical errors.	
		frequent and repeated				
		grammatical errors.				
	Citing and	The sources are not listed at	The sources are listed by	<u> </u>	The sources are accurately, completely and	
	referencing	all. The references do not fit	errors. The references are	1	consistently listed. The references are	
	references	the topic and show a cursory	show a satisfactory resear	ch attitude.	appropriate, their list is "rich" and	
		approach to exploring the			comprehensive and shows a detailed research	
		topic.			approach.	



4.2. Gradeing of the		Bad	Satisfying		Above average	
colloquium/written and oral exam	understanding. It does and concepts. It doe	nemory, without a deeper not know or apply basic terms is not know how to apply or of the course with examples.	difficulty imparts new knowledge, understands the synthesis, and evaluation. It observes the			and thoroughly explains e material, and logically ins the terms and concepts with examples. Finds e not originally given. It
4.3. Forming the final grade	Active attendance	0-69,9% attendance	70-79,9% attendance	80-89,9%	attendance	90-100% attendance
according to the evaluation elements	on class	0 points	5 points	7 p	oints	10 points
CIONICIA	Seminar paper	2	3		4	5
	Бенина рарег	15 points	20 points	25 1	points	30 points
	Colloquiums/	2	3		4	5
	Written part of	50 - 64,9%	65 - 79,9%	80 -	89,9%	90 - 100%
	exam	15 points	20 points	25 1	points	30 points
	0-1	2	3		4	5
	Oral part of exam	15 points	20 points	25 1	points	30 points
4.4. Formation of the final grade based on the absolute		uired knowledge, skills and (teaching + final exam)	Numerical grad	le	EC	TS grade
distribution	9	0 – 100%	5 (excellent)			A
	8	0 – 89,9%	4 (very good)			В
	6	5 – 79,9%	3 (good)			С
	6	0 – 64,9%	2 (sufficient)			D
	5	0 – 59,9%	2 (sufficient)			Е
5. ADDITIONAL INFORMATI	ON ABOUT COURS	Е				



5.1. Compulsory literature	Title	Number of copies in the	Availability via other					
(available in the library and via		library	media					
other media)	1. Bošnjak I.: Inteligentni transportni sustavi (odabrana poglavlja)	3						
	1. Mileta D.: Elektroničko poslovanje (odabrana poglavlja)		on-line					
5.2. Additional literature (at the								
moment of changes and/or								
amended of study programme)								
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be	e ensured through interactive v	vork. By keeping track of					
that ensure the acquisition of	attendance and student activity during classes and provided information on students` progress thro							
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Students	lents will be informed about the	neir rights and obligations					
competences	as well as the methods of work and the required literature. Indicators of quality assurance system	n: Student survey, monitoring	g 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	It is the responsibility of each student to be regularly informed about the course, the coursework, ar	nd classroom activities. All not	ices of classes or possible					
and contacting the course	adjournment will be published in a timely manner on the e-learning site of the course and on the w	be ebsite of the Polytechnic. Stud	lents can contact teachers					
lecturer	during the consultation period (at least one hour per week), while for short questions and explanation	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 answer	red as soon as possible (no late	er than five working days					
	after receiving the e-mail).							



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

1. GENERAL INFORMATI	ON					
1.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU				
1.2. Course title	TRANSPORT GEOGRAPHY	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+15+0)			
1.4. Study programme	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level),	1 st , course materials are on-			
(specialist, undergraduate,		percentage of on line course performance (max. 20%)	line, 0%			
graduate)						
1.5. Course status (obligatory,	Optional	1.12. Number of course revisions	4			
optional)						
1.6. Year of study	3 rd	1.13. Modernization	Yes			
1.7. Credit score (ECTS)	3	1.14. Percentage estimate of course changes and/or	Less than 20% X			
		supplements	More than 20 % □			
2. COURSE DESCRIPTION						
2.1. Course objectives	The goal is that students on the basis of theoretical knowledge.	ě .				
	 become familiar with the creation and development 	•				
	 analyze and comment on the progress of common 	•				
	 distinguish main transport corridors in Europe, N 					
2.2. Terms of course entry and	• •	orridors and merchandise flows", 4 year secondary education cor	npleted; qualification level 4.2			
required competences	according to the CROQF.					
2.3. Learning outcomes on the	•	logy and organization in written and oral communication with the	professional public in Croatian			
study programme level	and English.					
	LO2: To organize and implement team work, and criticall	y judge the opinions and attitudes of team members.				
	LO3: Independently and responsibly search, interpret and	integrate relevant literature for decision making.				
	LO6: Analyze and present relevant facts from the traffic area required to reach conclusions.					
	LO10: Compare and select technical and technological solutions for traffic and/or goods flows.					
	LO12: Design a smaller transport process and critically ev	valuate it.				
	Learning outcomes by Bloom: (maximum 2 werbs for L	0)	Level of LO:			
			1 - memory,			



2.4. Expected learning						2 - understand	ling,
outcomes on the course level (4-						3 - application	ı,
10 learning outcomes)						4 - analysis,	
_						5 - evaluation,	
						6 – synthesis.	
	1. Prese	ent and comment on the historical de	evelopment	of the traffic branches.		6, 3	
	2. List a	and explain the main factors for the	creation an	d development of commodity flows.		1, 2	
	3. Anal	yze and evaluate world trade in good	ds.			4, 5	
	4. Prese	ent and comment on the traffic conne	ections of t	he countries in Western, Central and Eastern Europ	pe.	6, 4	
	5. List a	and compare major transport corrido	ors in Asia,	North America, and Europe.		1, 2	,
	6. Com	ment on the objective and strategy of	of the Marc	o Polo Program and the current EU Transport Whit	te Paper.	4	
	7. Use 1	materials and tools to search scientif	ic and prof	essional literature in native and English languages.		3	
	8. Prese	ent the acquired knowledge, ideas, p	roblems, a	nd solutions independently and in a team.		6	
2.5. Course content according to	Constr	uctive allignement				l	
detailed curriculum schedule		G					
	No	Thematic unit	LO of	Content/teaching methods	Evaluation	on	Time
	No	Thematic unit	LO of the	Content/teaching methods	Evaluation	on	Time
	No	Thematic unit		Content/teaching methods	Evaluation	on	Time
	No 1.	Thematic unit Introductory presentation	the	Content/teaching methods Listening to the lecture. In the course of	Evaluation	on	Time
			the		Evaluation	on	Time
		Introductory presentation	the	Listening to the lecture. In the course of	Evaluation -	on	Time
		Introductory presentation (introducing students to the	the	Listening to the lecture. In the course of seminars, they are introduced to the course	Evaluation -	on	
		Introductory presentation (introducing students to the	the	Listening to the lecture. In the course of seminars, they are introduced to the course content and documents on the e-learning page of	Evaluation -	on	
		Introductory presentation (introducing students to the	the	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	Evaluation - At the colloquium of		
	1.	Introductory presentation (introducing students to the course content and obligations)	the	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.	-	or written and	
	1.	Introductory presentation (introducing students to the course content and obligations) Development of transport	the	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. They listen to a course lecture and read	- At the colloquium of	or written and can present,	
	1.	Introductory presentation (introducing students to the course content and obligations) Development of transport branches throughout history	the course	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. They listen to a course lecture and read literature. At the seminar lectures, they	At the colloquium oral exam students	or written and can present, e the historical	2 h
	1.	Introductory presentation (introducing students to the course content and obligations) Development of transport branches throughout history	the	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. They listen to a course lecture and read literature. At the seminar lectures, they individually explore the content of this topic	At the colloquium oral exam students comment and evaluat	or written and can present, e the historical pad, rail and	
	1.	Introductory presentation (introducing students to the course content and obligations) Development of transport branches throughout history	the course	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. They listen to a course lecture and read literature. At the seminar lectures, they individually explore the content of this topic area by searching the database, and on the basis	At the colloquium oral exam students comment and evaluat development of ro	or written and can present, the historical pad, rail and per created and	2 h
	1.	Introductory presentation (introducing students to the course content and obligations) Development of transport branches throughout history	the course	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. They listen to a course lecture and read literature. At the seminar lectures, 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	At the colloquium of oral exam students comment and evaluat development of ropipelines. Seminar page	or written and can present, the historical pad, rail and per created and	2 h



				teaching, the brainstorming method and the		
				discussion method on the topic are applied.		
	3.	Development of transport branches throughout history (water, air, postal and telecommunication)	1, 7, 8	They listen to a course lecture and read literature. At the seminar lectures, 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 written and oral exam students can present, comment and evaluate the historical development of water, air and postal and telecommunications traffic. Seminar paper created and presented (by computer programs).	3 h
				teaching, the brainstorming method and the discussion method on the topic are applied.		
	4.	Development of transport branches throughout history (video films)	1, 7, 8	They use multimedia and network. At the seminar lectures, 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 teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam students can present maritime and airports in the world. Analyze and evaluate the role of rail transport. Describe the course of highway construction. Seminar paper created and presented (by computer programs).	3 h
	5.	Factors for the formation of traffic flows (general, natural, social, economic)	1, 2, 7, 8,	They listen to a course lecture and read literature. At the seminar lectures, 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 teaching, 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, enumerate and distinguish the main factors for the formation and development of commodity flows (general, natural and socioeconomic factors). Identify the abbreviations of economic groups of the world. Seminar paper created and presented (by computer programs).	4 h



6.	Geographical location of transport corridors in Western Europe	4, 5, 7,	They listen to a course lecture and read literature. At the seminar lectures, 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	At the colloquium or the written and oral exam, students can define the term traffic corridor. List and compare major transport corridors in Western Europe (Germany, UK,	3 h
		8	presents their own ideas, and ways to solve problems. In group work at the seminar teaching, the brainstorming method and the discussion method on the topic are applied.	Benelux, France, Spain) of all branches of transport. List the countries through which each transport corridor passes. Seminar paper created and presented (by computer programs).	
7.	Geographical location of transport corridors in Central and Eastern Europe	4, 5, 7,	They listen to a course lecture and read literature. At the seminar lectures, 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 teaching, 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 term traffic corridor. List and compare major transport corridors in Poland, Czech Republic, Slovakia, Hungary, Croatia, Bulgaria, Romania, Serbia, Greece, and Russia of all branches of transport. List the countries through which each transport corridor passes. Seminar paper created and presented (by computer programs).	3 h
8.	Geographical location of North American transport corridors	4, 5, 7,	They listen to a course lecture and read literature. At the seminar lectures, 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 teaching, 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 term traffic corridor. List and compare major traffic corridors of Canada and the United States of all branches of transport. Seminar paper created and presented (by computer programs).	3 h



9.	Geographic location of traffic		They listen to a course lecture and read	At the colloquium or the written and	3 h
	corridors in Asia		literature. At the seminar lectures, they	oral exam, students can define the	
			individually explore the content of this topic	term traffic corridor. List and	
			area by searching the database, and on the basis	compare major transport corridors in	
		4, 5, 7,	of it and reading the literature, create a seminar	East and South Asia (China, Japan,	
		8	paper that presents the acquired knowledge and	South Korea, Singapore) of all	
		O	presents their own ideas, and ways to solve	branches of transport. List the	
			problems. In group work at the seminar	countries through which each	
			teaching, the brainstorming method and the	transport corridor passes. Seminar	
			discussion method on the topic are applied.	paper created and presented (by	
				computer programs).	
10.	Spatial distribution of food flows		They listen to a course lecture and read	At the colloquium or the written and	4 h
	(meat, fruits and vegetables,		literature. At the seminar lectures, they	oral exam, students know how to	
	cereals)		individually explore the content of this topic	define the concept of traffic flow.	
			area by searching the database, and on the basis	Categorize, analyze and evaluate the	
		2 2 7	of it and reading the literature, create a seminar	trade in fruits and vegetables, milk	
		2, 3, 7,	paper that presents the acquired knowledge and	and dairy products, meat, fish in the	
		O	presents their own ideas, and ways to solve	World. List the countries with the	
			problems. In group work at the seminar	largest importers and exporters of all	
			teaching, the brainstorming method and the	types of food. Seminar paper created	
			discussion method on the topic are applied.	and presented (by computer	
				programs).	
11.	Spatial distribution of natural		They listen to a course lecture and read	At the colloquium or the written and	4 h
	raw material flows (oil, natural		literature. At the seminar lectures, they	oral exam, students know how to	
	gas, cotton, bauxite, iron ore)		individually explore the content of this topic	define the concept of goods traffic.	
			area by searching the database, and on the basis	Categorize, analyze and evaluate the	
		2, 3, 7,	of it and reading the literature, create a seminar	world trade of oil, petroleum	
1		8	paper that presents the acquired knowledge and	products, cotton, bauxite, iron ore,	
			presents their own ideas, and ways to solve	and natural gas. List the countries	
			problems. In group work at the seminar	with the largest importers and	
			teaching, the brainstorming method and the	exporters of all types of raw	
			discussion method on the topic are applied.	materials. Seminar paper created	



12.	Spatial distribution of industrial product flows (cars, machines, electronics, ships)	2, 3, 7,	They listen to a course lecture and read literature. At the seminar lectures, 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	and presented (by computer programs). At the colloquium or the written and oral exam, students know how to define the concept of goods traffic. Categorize, analyze and evaluate the progress of trade in cars, electronic products, ships, machines in the World. List the countries with the largest importers and exporters of	4 h
13.	Marco Polo Program (program objective, program activities, program projects)	6, 7, 8	teaching, the brainstorming method and the discussion method on the topic are applied. They listen to a course lecture and read literature. They use multimedia and networkAt the seminar lectures, 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 teaching, the brainstorming method and the discussion method on the topic	industrial products. Seminar paper created and presented (by computer programs). 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).	3 h
14.	European Union White Paper on Transport (White Paper titles, key 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)	6, 7, 8	are applied. They listen to a course lecture and read literature. At the seminar lectures, 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 written and oral exem, students know how to define the 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).	3 h



			teaching, the brainstormin	O .			
	15. Final consid	lerations/Repeating	They listen to a course				45 h
		g for the exam.	individuals for the exam.	recture and prepare	-		43 11
3. EVALUATION OF STUD		dor the exam.	iliuividuais foi die exam.				
		Dulah asla an Chadra and the Dul	alanda on Cturdant Assassana	nt and Erralmation, for a	II full time attendants att	dom 1.	200/
3.1. Student obligations		Rulebook on Study and the Rul					
		required to attend a class of at I the course: from 0 - 24,9% ECT		• •	• • •		
	_	the course: from 0 - 24,9% ECT 25 - 49,9% - are assessed by FX					
	I -	ry exam period; more than 50%	· · · · · · · · · · · · · · · · · · ·	•			
	_	e course of teaching through con	_				
		oral part of the exam).	itiliaous momtoring or stude	ints (active participation	i in classes and un ough	two exams), t)) passing
3.2. Student work monitoring	Attending classes	0,5	Written exam	1 (without	Project		
(enter the share of ECTS credits	Tittenamy classes	,5	VVIIII OAUII	colloqiums)	110,000		
for each activity so that the total	Experimental work		Research	consquams)	Practical work		
number of ECTS credits					Continuous check		
corresponds to the course credit	Esaay		Report				
value)	Colloquiums	1 (without written part of	Seminar paper	0,5	(other)		
		exam)		0.5			
	Teaching activities	0,5	The oral part of exam	0,5	(other)		
3.3. Student work-load		ll bases is 1 ECTS credit for 30 se		as attendance (30 hours	s), preparation of semina	ar work and pre	esentation
		n for the midterm/exam through	self-study (45 hours).				
4. FORMATION OF STUDEN							
4.1. Evaluation of seminar paper	Elements of	Bad	Sati	sfying	Above	average	
	evaluation						
	Organization	The paper is not organized		tructured with a clear	The paper is well s		
		logical order and lacks structu		the introduction, the	distinction between th		•
			main body of the tex	t and the conclusion.	body of the text and the		which are
	m 1 1 1.1	***			logically interconnec		1 1.1
	Terminolog, writing	Words and expressions are n	-	ions are in line with	Words and express official terminolog		
	style	line with official terminology.		. The writing style is			now an
		writing style is not appropriate sentences are too long, of a mo		ence structure is clear,	understanding of the style is excellent, the		
		sentences are too long, of a mo	Juest		style is excellent, the	semences are	clear and



	vocabulary and with frequent and		the vocabulary is appropr	riate and there are	concise, the vocabulary is rich and there are	
		repeated grammatical errors.	few grammatical errors.		no grammatical erro	
	Citing and	The sources are not listed at all.	The sources are listed by	at incomplete and	The sources are ac	curately, completely and
	referencing	The references do not fit the topic	with errors. The reference	es are relevant to	consistently listed	I. The references are
	references	and show a cursory approach to	the topic and show a sat	isfactory research	appropriate, their	
		exploring the topic.	attitude.		•	shows a detailed research
					approach.	
4.2. Gradeing of the		Bad	Satisfyin	ıg	Abo	ve average
colloquium/written and oral						
exam		, without a deeper understanding. It	It reproduces the basis	-	_	the level of analysis,
		y basic terms and concepts. It does	without difficulty imparts	•	*	luation. It observes the
		or explain the contents of the course	understands the material,	•		and thoroughly explains
	with examples.		and concepts that it suppo	rts with examples.		material, and logically
					-	ns the terms and concepts
						with examples. Finds
						e not originally given. It
42.5	A				notes correlations w	vith related material.
4.3. Forming the final grade	Active attendance on	70-75% attendance	76-86% attendance	87-100%	attendance	Mental map created,
according to the evaluation elements	class					Case studies resolved
elements		2 points	4 points	7 p	oints	3 points
	Seminar paper	2	3		4	5
	Semmar paper	5 points	7 points	8 p	oints	10 points
		2	3		4	5
	Colloquiums/ Written part of exam	50 - 64,9%	65 - 79,9%	80 -	89,9%	90 - 100%
	William Part of Citation	25 points	30 points	35]	points	40 points
	Oral most of axom	2	3		5	5
	Oral part of exam	25 points	30 points	35]	points	40 points
4.4. Formation of the final grade	Percentage of ac	quired knowledge, skills and	Numerical g	grade	ECTS grade	
based on the absolute	competencie	s (teaching + final exam)				
distribution		90 – 100%	5 (excelle	nt)		A



	80 – 89,9%		В					
	65 – 79,9%	65 – 79,9% 3 (good)		С				
	60 – 64,9%	2 (sufficient)		D				
	50 – 59,9%	2 (sufficient)		Е				
5. ADDITIONAL INFORMAT	ION ABOUT COURSE							
5.1. Compulsory literature	Title		Number of copies in the	Availability via other				
(available in the library and via			library	media				
other media)	Sego Darijo: Traffic corridors and merchandise flows, Scr	ript for internal use, Polytechnic of		e-learning system				
	Sibenik, Sibenik 2016.							
	World trade organization http://www.wto.org/ (selected chap	pters)	-	Internet website				
	Transport in EU http://ec.europa.eu/transport/index_en.htm (selected chapters) - Internet we							
5.2. Additional literature (at the	Teaching materials from lectures and seminars on the e-Le	=	e-learning system					
moment of changes and/or	Sibenik for the mentioned course.							
amended of study programme)	International trade statistics https://www.trademap.org/Index	<u>x.aspx</u>		Internet website				
	UN agency for food http://www.fao.org/home/en/			Internet website				
5.3. Quality assurance methods	The control of students' work quality and the acquisition of r	necessary knowledge and skills will be	ensured through interactive v	work. By keeping track of				
that ensure the acquisition of	attendance and student activity during classes and provided	information on students' progress thro	ough short colloquiums and ho	omework, information for				
knowledge, skills and	further guidance to students will be provided in order to incr	ease the efficiency of their work. Stud	ents will be informed about the	neir rights and obligations				
competences	as well as the methods of work and the required literature.	Indicators of quality assurance system	n: Student survey, monitoring	g of annual data from the				
	Croatian employment service on the annual state of student of	employment, surveys from employers	and Alumni association.					
5.4. Informing about the course	It is the responsibility of each student to be regularly informe	ed about the course, the coursework, an	d classroom activities. All not	ices of classes or possible				
and contacting the course	adjournment will be published in a timely manner on the e-le	earning site of the course and on the w	ebsite of the Polytechnic. Stud	dents can contact teachers				
lecturer	during the consultation period (at least one hour per week), w	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 answer	ed as soon as possible (no late	er than five working days				
	after receiving the e-mail).							



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

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	Martina Ljubić Hinić	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%)	1st- 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 □ No
1.7. Credit point (ECTS)	3	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %

2. COURSE DESCRIPTION	2. COURSE DESCRIPTION							
2.1. Course objectives	The goal is to provide students with theoretical knowledge: • 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	ourse entry and Four-year secondary education completed: qualification level 4.2 according to the HKO							
	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.							
2.3. Learning outcomes on the	LO2: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.							
study programme level	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.							



		Level of LO:
		1 - memory,
	Learning outcomes according to Bloom's taxonomy:	2 - understanding,
	(maximum 2 werbs for LO)	3 - application,
	(maximum 2 weros for LO)	4 - analysis,
2.4 E		5 - evaluation,
2.4. Expected learning outcomes		6 – synthesis.
on the course level	1. demonstrate knowledge and understanding of the content of the course by defining and describing the basic concepts	1 1
	in transport and tourism,	1, 1
	2. to analyze and compare the transport sectors in the tourism industry,	4, 2
	3. choose the form of tourist transport as part of a tourism product,	5
	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

	Constr	structive allignement									
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time					
2.5. Course content according to detailed curriculum schedule	1.	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					
	2.	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	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	6 h					



				the literature read, create a seminar	transport. Define transport service and tourism	
				paper that presents the acquired	product. Explain the transport service as a	
				knowledge. In the group work on	tourism product and give an example of the	
				seminar teaching, the brainstorming	absence of a transport service in a tourism	
				method and the discussion method on	product. List and explain the categories of users	
				the topic are applied.	of tourist trips and motives for traveling. Define	
					and explain tourism as a system.	
				They listen to a lecture and read		
				literature. At the seminar teaching,		
				they individually explore the content		
				of this topic area by searching the	At the colloquium or the written and oral exam	
		Transport branches in the		database, and on the basis of it and	they can explain the emissive and receptive	
	3.	connection of emitting and	1, 2	the literature read, create a seminar	tourist countries and give an example. Explain	6 h
		receptive areas.		paper that presents the acquired	the characteristics of traffic branches in the	
				knowledge. In the group work on	interconnection of emissive and receptive areas.	
				seminar teaching, the brainstorming		
				method and the discussion method on		
				the topic are applied.		
				They listen to a lecture and read		
				literature. At the seminar teaching,	At the colloquium or the written and oral exam	
				they individually explore the content	they can define trips and multi-day bus trips.	
				of this topic area by searching the	Explain panoramic and shuttle transportation.	
		Traffic as part of a tourist		database, and on the basis of it and	Give an example of local tourist lines. Define the	
	4.	=	1, 2, 3, 4, 5	the literature read, create a seminar	rental of road vehicles in a tourist destination.	6 h
		product.		paper that presents the acquired	List ways to use your bike while on vacation.	
				knowledge. In the group work on	'	
				seminar teaching, the brainstorming	Seminar paper created and presented (using computer programs independently).	
				method and the discussion method on	computer programs independentry).	
				the topic are applied.		
				They listen to a lecture and read	At the colloquium or the written and oral exam	
	5	Traffic as part of a tourist	1, 2, 3, 4, 5	literature. At the seminar teaching,	they can explain the panoramic transport by rail	6 h
	5. product.		1, 2, 3, 4, 3	they individually explore the content	in a limited area of the tourist destination. Define	0 11
				of this topic area by searching the	cable cars and funiculars and give an example of	



			database, and on the basis of it and	their use in tourist destinations. Explain nautical		
			the literature read, create a seminar	tourism and list its parts. Give an example of		
			paper that presents the acquired	river-lake-canal round-trip cruises. Seminar paper		
			knowledge. In the group work on	created and presented (using computer programs		
			seminar teaching, the brainstorming	independently).		
			method and the discussion method on			
			the topic are applied.			
			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		
			of this topic area by searching the	they can explain the excursions and multi-day bus		
	Field teaching - travel		database, and on the basis of it and	trips, explain the rental of road vehicles in the		
6.	agency Pražen putovanja	3, 4, 5	the literature read, create a seminar	tourist destination and give an example of	5 h	
	d.o.o.		paper that presents the acquired	panoramic and shuttle transportation. Seminar		
			knowledge. In the group work on	paper created and presented (using computer		
			seminar teaching, the brainstorming	programs independently).		
			method and the discussion method on			
			the topic are applied.			
			They listen to a lecture and read			
			literature. At the seminar teaching,			
	Guest lecture in English:		they individually explore the content	At the colloquium or the written and oral exam		
	Tourism and Railways		of this topic area by searching the	they can describe the first rail trip in the World.		
	(Basic knowledge), Glacier		database, and on the basis of it and	Give an example of rail transport as part of a		
7.	Express - the slowest	1, 3, 4, 5	the literature read, create a seminar	tourism product and describe it. Define high-	9 h	
	express Train in the World,		paper that presents the acquired	speed rail and give examples. Seminar paper		
	the Trans-Siberian Railway		knowledge. In the group work on	created and presented (using computer programs		
	(Russian tourism offer).		seminar teaching, the brainstorming	independently).		
			method and the discussion method on			
			the topic are applied.			
	Air traffic as part of a		They listen to a lecture and read	At the colloquium or the written and oral exam		
Q	_	1, 3, 4, 5	literature. At the seminar teaching,	they can explain the history of air traffic and	5 h	
8. tourist product, charter travel. Colloquium I.		1, 3, 4, 3	they individually explore the content	define tourist services based on air traffic.	J 11	
	uavoi. Conoquium i.		of this topic area by searching the	Comment on the role of air transport in tourism in		



			database, and on the basis of it and	the Republic of Croatia. Find out the difference		
			the literature read, create a seminar	between regular and charter air traffic.		
			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.			
			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		
			of this topic area by searching the	they can explain regular and charter air traffic.		
	Field tooching Aimout		database, and on the basis of it and	Explain the features of low-cost companies. Give		
9.	Field teaching - Airport	1, 3, 4, 5	the literature read, create a seminar	examples of low cost airlines. Explain pick-up	3 h	
	Zadar/Split		paper that presents the acquired	and departure technology for airport passengers.		
			knowledge. In the group work on	Give an example of air traffic services to tourists		
			seminar teaching, the brainstorming	with special requirements.		
			method and the discussion method on			
			the topic are applied.			
			They listen to a lecture and read			
			literature. At the seminar teaching,			
			they individually explore the content			
			of this topic area by searching the	A . d . 11 . 1 . d . 20 . 1 . 1		
	Field teaching - Dogus		database, and on the basis of it and	At the colloquium or the written and oral exam		
10.	Marine in Šibenik	1, 4, 5	the literature read, create a seminar	they can explain the purpose of marinas and rent	5 h	
	(Mandalina)		paper that presents the acquired	a boat. Seminar paper created and presented		
			knowledge. In the group work on	(using computer programs independently).		
			seminar teaching, the brainstorming			
			method and the discussion method on			
			the topic are applied.			
			They listen to a lecture and read	At the colloquium or the written and oral exam		
1.1	T	1 4 5	literature. At the seminar teaching,	they can enumerate the elements of the logistics		
11. Logistics in tourism	1, 4, 5	1, 4, 5	1, 4, 5	they individually explore the content	system and distinguish between the logistics	6 h
			of this topic area by searching the	models. Comment on the role of logistics		
	l	1		<u> </u>		



				database, and on the basis of it and	processes in supplying a tourist destination.	
				the literature read, create a seminar	Seminar paper created and presented (using	
				paper that presents the acquired	computer programs independently).	
				knowledge. In the group work on		
				seminar teaching, the brainstorming		
				method and the discussion method on		
				the topic are applied.		
				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	
				of this topic area by searching the	they can state the determinants of the quality of	
		Economics of Exploitation		database, and on the basis of it and	the transport service in tourism. Define the fare	
	12.	of Traffic Vehicles and	1, 2, 4, 5	the literature read, create a seminar	and explain the specificities of costs and fares in	5 h
		Traffic Infrastructure.		paper that presents the acquired	individual traffic branches. Seminar paper created	
				knowledge. In the group work on	and presented (using computer programs	
				seminar teaching, the brainstorming	independently).	
				method and the discussion method on		
				the topic are applied.		
				They listen to a lecture and read		
				literature. At the seminar teaching,		
				they individually explore the content		
				of this topic area by searching the	At the colloquium or the written and oral exam	
		Economics of Exploitation		database, and on the basis of it and	they can define and list the types of oscillations.	
	13.	of Traffic Vehicles and	1, 2, 4, 5	the literature read, create a seminar	Explain measures to mitigate the effects of	5 h
		Traffic Infrastructure.		paper that presents the acquired	oscillations. Seminar paper created and presented	
				knowledge. In the group work on	(using computer programs independently).	
				seminar teaching, the brainstorming		
				method and the discussion method on		
				the topic are applied.		
		Parking in tourist		They listen to a lecture and read	At the colloquium or written and oral exam	
	14	_	1 4 5	literature. At the seminar teaching,	knows define basic terms of parking and	3 h
	14. destinations. Colloquium II.		1, 4, 5	they individually explore the content	differentiate ways of parking in tourist	311
		11.		of this topic area by searching the	destinations.	



		_	considerations.	database, and on the the literature read, or paper that presents the knowledge. In the grammar teaching, the method and the discuthe topic are applied. They listen to a lecture of the topic are applied.	eate a seminar ne acquired oup work on e brainstorming assion method on re and prepare			17h
		for the exam		individually for the e	exam.			1/11
3. EVALUATION OF STUDEN	T WOR	K						
3.1. Students` 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 paper. Students who have achieved during the course: • 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. 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).							
	Attenda			Written exam	1,5 (without colloquia) Project		
3.2. Monitoring student work (enter the share of ECTS credits	Experim work	nental		Research		Practical work		
for each activity so that the total number of ECTS points	Essay			Report		Continuous examination		
corresponds to the credit score of the course)	Colloqu	ium	1,5 (without written exam)	Seminar paper	0,5	Other		
	Class ac	ctivity	0,5	Oral exam	0,5	Other		



1							
	Student workload on all ba	ases is 1 ECTS credit 30	semester hours an				
	Obligation				Hours (estimated)		
3.3. Student workload	Active class atte				45		
		ninar paper and presentat			10		
	3. Preparing colloc	quia or exams through in	dividual work		35		
4. FORMATION OF GRADES							
	Element of evaluation	Bad			Satisfying		Above average
	Organization	The paper is not organiorder and lacks structu	_	clear dis	e paper is well structured with a ar distinction between the roduction, the main body of the text d 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.
4.1. Evaluation of a of seminar work	Terminology, writing style	Words and expressions with official terminolo style is not appropriate are too long, of a mode and with frequent and grammatical errors.	gy. The writing t, the sentences est vocabulary	official is appro-	of al terminology. The writing style propriate, the sentence structure is the vocabulary is appropriate 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	references do not fit th	references do not fit the topic and show a cursory approach to exploring references.		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.
	Ba	nd		Satisfy	ying		Above average
4.2. Grading of the colloguium / written and oral exam	It responds by memory, vunderstanding. Does not terms and concepts. Does apply or explain the contexamples.	It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		and ev accura of the explain	ledge is at the level of analysis, synthesis aluation. It observes the legality, tely and thoroughly explains the content material, and logically connects and his the terms and concepts that it supports examples. Finds solutions that were not		



					originally given. It notes related material.	correlations with	
	Active	70-75% of the presence	76-86% of the presence	87-100% of th	e presence Ca	se studies resolved	
	attendance	2 points	4 points	7 poin	•	10 points	
	G	2	3	4		5	
4.3. Forming the final grade	Seminar paper	5 points	7 points	8 poin	nts	10 points	
according to the evaluation	Examination /	2	3	4		5	
elements	Written	50-64,9%	65-79,9%	80-89,9	9%	90-100%	
	examination	25 points	30 points	35 poi	nts	40 points	
	Oral part of the	2	3	4		5	
	exam	25 points	30 points	35 poi	nts	40 points	
		f acquired knowledge, skills and nces (teaching + final exam)	Number rating		ECTS grade		
445		90 - 100%	5 (excellent)	5 (excellent)			
4.4. Formation of final grade based on absolute distribution		80 – 89,9%	4 (very good)		В		
based on absolute distribution		65 – 79,9%	3 (good)		С		
		60 – 64,9%	2 (sufficient)	2 (sufficient)		D	
		50 – 59,9%	2 (sufficient)	2 (sufficient)		E	
5. ADDITIONAL INFORMAT	ION ON THE SUBJ	ЕСТ					
5.1. Required literature		Tit	Number of copies in the library	Availability via other media			
(available in the library and through other media)	Mrnjavac (selected c		a turistički i hotelski menadžmen	t, Opatija, 2006.	5		
	2. Maršanić	R.: Parkiranje u turističkim desti	nacijama, IQPLUS d.o.o., Rijeka	2008.	5		
5.2. Supplementary literature (at the time of the submission of	1. Baričević	H.: Promet u turizmu, Visoka šk	ola za turizam, Šibenik, 2003.		11 0	Available online	



changes and / or additions to the	2. Lumsdon L. M., Page S. J.: Tourism and Transport, Issues and Agenda for the New
study program)	Millennium, Routledge, 2003.
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 or an amended and/or changed or modernized course

1. GENERAL INFORMATION								
1.1. Course title	SAFETY AND PROTECTION OF TRANSPORT PROCESSES	1.8. Course code at ISVU 187604						
1.2. Course lecturer	Ana-Mari Poljičak	1.9. Course code at MOZVAG						
1.3. Assistants and/or associates	Martina Ljubić Hinić	1.10. Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	(30L+30S)					
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%)	1st - materials available on-line, 0%					
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 □ No					
1.7. Credit point (ECTS)	5	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %					

2. COURSE DESCRIPTION						
	The aim is to provide students with theoretical knowledge and case studies to:					
	• Define the basic concepts of safety and protection of transport processes;					
2.1. Course objectives	• Understand the function of safety and protection of transport processes;					
2.1. Course objectives	• Understand the technology of transport of dangerous goods in various transport branches,					
	• Apply the learned content of this course in business practice					
	• Learn and adopt the ability to adapt the characteristics of transport requirements to market requirements.					
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the HKO.					
	LO1: Use and connect professional terms from technology and organization of road traffic in written and oral communication with the professional					
2.3. Learning outcomes on the	public in Croatian and English.					
study programme level	LO2: Organize and conduct teamwork, and critically judge the opinions and attitudes of team members.					
	LO3: Independently and responsibly search, interpret and integrate the relevant literature needed for decision making.					



	LO5: To apply basic legal and economic principles in organization with socially responsible management in technical-technolog LO6: To analyze and present relevant facts from the field of traffic needed to reach conclusions. LO9: To assess and organize processes in the area of road traffic and/or traffic logistics. LO10: To compare and choose technical and technological solutions in traffic and/or goods flows.	gical subjects.
	LO11: To identify, predict and propose solutions in road traffic technology and technique. LO12: To set up a minor traffic process and critically evaluate it.	
	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 according to Bloom's taxonomy:	LO level: 1- recollection, 2-understanding, 3- application, 4-analysis, 5-evaluation, 6-synthesis
outcomes on the course level	 demonstrate knowledge and understanding of the course content by defining and describing basic concepts related to safety and protection of transport processes, distinguish and comment on the basic characteristics of hazardous substances in the transport system, connect and critically evaluate technological procedures related to traffic safety and protection, select appropriate packaging and accompanying documentation for the transport of dangerous goods, present the acquired knowledge independently and in a team. 	

		Constr	Constructive allignement								
2.5. Course content according to detailed curriculum schedule	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time					
	detailed currentum schedule	1.	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	-	2 h				



2.	Legislation.	1	documents on the e-learning page of the course. They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of	At the colloquium or written and oral exam, they can state and explain what the regulations of protection and safety in traffic refer to with regard to traffic branches.	2 h
3.	Ergonomic factors and anthropotechnical characteristics.	1	discussion on the presented topic are applied. They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	They know how to state and explain ergonomic factors and anthropotechnical features at a colloquium or written and oral exam.	4 h
4.	Noise.	1, 3	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they know how to define the concept of noise and explain the impact of noise on humans. List and explain noise protection measures.	7 h



				•		
	5.	Traffic accidents.	1, 3, 5	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they can state and explain the procedures in case of traffic accidents. State and explain the role of intervention services in the Republic of Croatia. Prepared and presented seminar paper (independent use of computer programs).	7 h
	6.	Traffic accidents.	1, 2, 3, 4, 5, 6, 7	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they can state and explain the procedures in case of traffic accidents. State and explain the role of intervention services in the Republic of Croatia. Prepared and presented seminar paper (independent use of computer programs).	5 h
	7.	Hazardous substances.	1, 2, 3, 5	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they know how to define dangerous substances and state the division of dangerous substances according to ADR. and describe their features. Prepared and presented seminar paper (independent use of computer programs).	10 h
	8.	Repetition and preparation for the colloquium. 1st Colloquium	1, 2, 3, 5	They listen to a lecture and prepare individually for the colloquium.	-	23 h



9.	Static electricity. Measures and rules for handling and transport of dangerous goods.	1, 3, 5	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they can explain how static electricity is generated and how to prevent it. Explain static electricity protection according to ADR. State and explain the obligations of all participants in the transport process of dangerous goods and their storage. Prepared and presented seminar paper (independent use of computer programs).	7 h
10.	Packaging of hazardous substances.	3, 4, 5	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they know how to define the function of packaging and state the characteristics of packaging for the packaging of hazardous substances. List and describe the packaging methods for hazardous substances. List the packing groups and explain the codes (labels) on the package. Prepared and presented seminar paper (independent use of computer programs).	4 h
11.	Labeling of packaging and vehicles for the transport of dangerous goods.	1, 3, 4, 5	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they know how to define and distinguish danger sheets on packaging and means of transport. Describe the danger plates. Prepared and presented seminar paper (independent use of computer programs).	8 h



	12.	Documentation.	4, 5	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they can state and explain the necessary documentation for the transport of dangerous goods in the branches of transport. Prepared and presented seminar paper (independent use of computer programs).	6 h			
	13.	Transport of dangerous goods in transport branches.	3, 5	They listen to lectures and read literature. At the seminar classes, they individually research the content of this thematic area by searching the database, and on the basis of it and the read literature, they prepare a seminar paper which presents the acquired knowledge. In the seminar classes, the brainstorming method and the method of discussion on the presented topic are applied.	At the colloquium or written and oral exam, they know how to explain the rules for the transport of dangerous goods in traffic. Prepared and presented seminar paper (independent use of computer programs).	12 h			
	14.	Repetition and preparation for the colloquium. 2nd Colloquium.	1, 3, 4, 5	They listen to a lecture and prepare individually for the colloquium.	-	23 h			
	15.	Concluding considerations. Repeating and preparing for the exam.	-	They listen to a lecture and prepare individually for the exam.	-	26 h			
3. EVALUATION OF STUDEN	T WOR	3. EVALUATION OF STUDENT WORK							

3.1. Students` 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 paper. Students who have achieved during the course:

• 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. 								
	and the preparation and	Students can pass the final exam in the course in two ways: a) during classes through continuous monitoring of students (active participation in classes and the preparation and presentation of a seminar paper and two colloquia); b) during classes (active participation in classes and, preparation and presentation of seminar work) and taking exams (written and oral part of the exam).							
	Attendance		Written exam	3 (without colloquia)	Project		1		
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)	Experimental work		Research		Practical v	work			
	Essay		Report		Continuou examinati				
	l Colloquium	(without written xam)	Seminar paper	0,5	Other				
	Class activity 0	,5	Oral exam	1 (without Colloquium)	Other				
3.3. Student workload	Attendance 60 h Design of seminar w	ll bases is 1 ECTS credit ork and presentation 20 nid-term / midterm exan) h	nd is estimated as:					
4. FORMATION OF GRADES									
	Element of evaluation	on B	ad	Satisfying		Abo	ve average		
4.1. Grading of seminar work	Organization	The paper is not or order and lacks stru	ganized in a logical ucture.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.					



	Terminology, writing style	are too long, of a modest vocabulary		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.		e with g style sture is ate arors.	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 list references do not fit the show a cursory approach the topic.	e topic and	and with errors.	e listed but incom The references a opic and show a earch attitude.	plete are	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.	
	Ba	ad		Satisfying			Above average	
4.2. Grading of the colloguium / written and oral exam	It responds by memory, understanding. Does not terms and concepts. Doe apply or explain the con examples.	know or apply basic s not know how to	difficulty impa	the basic concep rts new knowled, plains the terms an examples.	ge, understands	and evaluaccurate of the mexplains with exaccurate original	adge is at the level of analysis, synthesis luation. It observes the legality, ely and thoroughly explains the content naterial, and logically connects and is the terms and concepts that it supports amples. Finds solutions that were not ly given. It notes correlations with material.	
	Active 70	0-75% of the presence	76-80% of	the presence	81-90% of the	he presen	ce 91-100% of the presence	
	attendance	2 points		oints	7 po	ints	10 points	
	Seminar paper	2		3	4	-	5	
4.3. Forming the final grade	Semmar paper	5 points	7 p	oints	8 po	ints	10 points	
according to the evaluation	Examination /	2		3	4		5	
elements	Written	50-64,9%		79,9%	81-89	<u> </u>	90-100%	
	examination	25 points		points	35 pc		40 points	
	Oral part of the	2		3	5		5	
	exam	25points	30 1	points	35 pc	oints	40 points	



	Percentage of acquired knowledge, skills and competences (teaching + final exam)	Number rating		ECTS grade	
	90 – 100%	5 (excellent)		A	
4.4. Formation of final grade	80 – 89,9%	4 (very good)		В	
based on absolute distribution	65 – 79,9%	3 (good)		С	
	60 - 64,9%	2 (sufficient)		D	
	50 – 59,9%	2 (sufficient)		Е	
5. ADDITIONAL INFORMATI	ON ON THE SUBJECT				
5.1. Required literature	Title			Number of copies in the library	Availability via other media
(available in the library and through other media)	 Bukljaš Skočibušić M., Bukljaš Z.: Zaštita u prom 2015. Aurer Jezerčić I., Žunić M.: Prijevoz opasnih tvar istraživanje i razvoj sigurnosti d.o.o., Zagreb, 202 	3 3	No No		
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	 Ministarstvo pomorstva, prometa i infrastrukture: uvjetima i načinu obavljanja prijevoza u pomorsk opasnih tvari, rasutog i ostalog tereta u lukama, te lukama (NN 51/05, 127/10, 34/13, 88/13, 79/15), Perić T., Ivaković Č.: Zaštita u prometnom proces 1996. Hrvatski sabor: Zakon o prijevozu opasnih tvari, Z 	Pravilnik o rukovanju opasnin om prometu, ukrcavanja i iskro načinu sprječavanja širenja ist Zagreb, 2005. su, Fakultet prometnih znanost	cavanja teklih ulja u	0	Yes 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 n students' attendance and activity in the classroom and inf needed for further guidance to students in order to increase working methods and required literature. Quality assurance status of students, employer survey and Alumni Association	ecessary knowledge and skills formation obtained about stude se their work efficiency. Stude ce system indicators: Student	ent progress the	rough the midterm will structed in their rights an	provide the information d obligations as well as

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 or an amended and/or changed or modernized course.

1. GENERAL INFORMATI	ON					
1.1. Course lecturer	Darijo Šego	1.8. Course code in ISVU	214577			
1.2. Course title	PROFESSIONAL PRACTICE	1.9. Course code in MOZVAG				
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing +Practical exercises + Seminars + e learning)	-			
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	3 rd	1.13. Modernization	Yes			
1.7. Credit score (ECTS)	15	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 % □			
2. COURSE DESCRIPTION						
2.1. Course objectives		practical work of legal entities that perform transport activities work. Thanks to the previously acquired theoretical knowled ransport.				
2.2. Terms of course entry and required competences	Enrolled VI. semester					
	LO1: To apply and link professional terms from technology public in Croatian and English.	and organization of road traffic in written and oral communic	ation with the professional			
	LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions.					
2.3. Learning outcomes on the	LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic.					
study programme level	LO6: To analyze and present relevant facts from the field of traffic needed to reach conclusions.					
	LO9: To assess and organize processes in the area of road tr	affic and/or traffic logistics.				
	LO11: To identify, predict and propose solutions in road train	ffic technology and technique.				



	LO12	2: To set up a minor traffic process and	d critically	evaluate it.			
	Lear	ning outcomes by Bloom: (maximum	ı 2 werbs fo	or LO)		Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation, 6 - synthesis.	
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	1	in transport.		from the course and practical knowledge from a co	ompany engaged	3, 4	
learning outcomes)	2	2. Enumerate and explain the affairs	of a compa	any engaged in transport.		4	
	3	3. Analyze and critically evaluate the	e existing b	usiness situation of a transport company.		4, 5	
	4	Present the company and the acqu	6				
	5. Use materials and tools to search scientific and professional literature in native and English languages.						
	6. To propose and choose the best solution for improving the business processes of a transport company.					6, 5	
2.5. Course content according to detailed curriculum schedule	Cons	tructive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	Eva	valuation Tim	
	1.	Execution of the Professional practice	1, 2, 3, 4, 5, 6	Students are introduced to the company's general information and construction facilities. Perform tasks related to vehicle fleet, vehicle and road maintenance, transport organization, business processes, basic and additional services provided by the company, administration.	Professional Pra and presented.	ctice Diary prepared	450 h
3. EVALUATION OF STUD	ENT V	WORK					
3.1. Student obligations	in pro	ofessional studies of the Polytechnic	of Šibenik	ng professional practice as well as the conditions an are prescribed by the Ordinance on professional fessional practice. The student performs professional	practice. At this p	point, the same is des	cribed in



	be admitted to a profess on professional practice conscientiously and hor internship, adhere to th practice and takes care internship (Appendix 4 the practice, the authori internship (Annex 5 of practice and the Certifi professional practice, a Practice Diary, he/she e accept the Professional	ermined by the holder of the course sional internship, the course leader is performed and internship. Professional practice is performed the estly perform the tasks entrusted to be prescribed measures of safety at that his behavior or actions do not he of the Ordinance on professional practicate of completed professional practicate of completed professional practicate of completed professional practicate of the currenters "satisfied" in the Certificate of Practice Diary, he enters "not satisfied in the next academic year. Professional practice in the next academic year.	signs the Instruction for perform dunder the mentorship of an are him and is obliged to respect work, work obligations, and arm the legal entity and the Poractice). Upon completion of the chitestice in his part of the certification of the correct academic year. If the hold of Professional Practice and the officed" in the Certificate of Professional Practice and the office of Professional Practice of Professional Practice of Professional Practice of Professional Practice and the office of Professional Practice of Professional Practice of Professional Practice and the office of Professional Practice of Professional Practice of Professional Practice and the office of Professional Practice and P	rming the professional internship authorized person. During the inter the legal regulations of the legal esafety measures. legal entity in wolytechnic. During the internship, the internship, the mentor signs it. rnship signs and certifies the stude cate. The student is obliged to su urse Professional practice immed der of the Professional Practice ce index. If the holder of the Professional Practice, and the student to the professional Practice, and the student the professional Practice the professional Practice, and the student the professional Practice	(Appendix 2 of the Ordinance inship, the student is obliged to entity in which he performs the hich he performs professional the student prepares a Diary of After successfully completing into the Certificate of completed bmit the diary of professional intelly after the completion of ourse accepts the Professional sional Practice course does not it is obliged to re-enroll in the						
	cease to exist. The student or mentor informs about the existence or termination of the existence of the same lecturers immediately after their occurrence or after learning about the existence of such reasons. A student may be recognized for the Professional Practice course if he/she works or has worked on jobs that correspond to the intended practice in terms of content and complexity. In order for the course to be recognized, the student should, in the semester in which he is obliged to do the internship, submit a written application for recognition of the internship (Appendix 3 of the Ordinance on professional practice) and a certificate of the legal entity where he works or has worked. The certificate must contain the title of the job, a detailed description of the job, and the start date as well as the end date in case the employment is terminated. The holder of the course decides on the recognition of professional										
	practice. Attending classes		Written exam	Project							
3.2. Student work monitoring (enter the share of ECTS credits	Experimental work		Research	Practical work							
for each activity so that the total	Esaay		Report	Continuous check							
number of ECTS credits corresponds to the course credit	Colloquiums		Seminar paper	Execution of professional practice	12						
value)	Teaching activities		The oral part of exam	Professional practice diary	3						
3.3. Student work-load	The student's workload on all bases amounts to 1 ECTS credit of 30 hours of work per semester and is assessed as: attending a Professional Practice (360 hours), writing a diary of professional practice (90 hours).										
4. FORMATION OF STUDENT	Γ GRADE										

Stranica 3 od 4



4.1. Forming the final grade
according to the evaluation
elements

No grading. Professional practice is evaluated descriptively ("satisfied" or "not satisfied"). The same is explained under point 3.1.

5. ADDITIONAL INFORMATION ABOUT COURSE

5.1. Compulsory literature	Title	Number of copies in the library	Availability via other media
(available in the library and via	The literature of the Undergraduate Professional Study of Traffic.		
other media)	Internet websites of the legal entity where the students completed the Professional practice.		
	Materials obtained from the legal entity where they performed the Professional Practice.		
5.2. Additional literature (at the	The literature of the Undergraduate Professional Study of Traffic.		
moment of changes and/or	Professional Internet websites, and materials in the domestic and foreign language from the field		Internet website
amended of study programme)	of transport activity where the Professional Practice was performed.		
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 attendance and student activity during classes and provided information on students` progress through further guidance to students will be provided in order to increase the efficiency of their work. Students well as the methods of work and the required literature. Indicators of quality assurance system Croatian employment service on the annual state of student employment, surveys from employers	ough short colloquiums a dents will be informed ab m: Student survey, monit	nd homework, information for out their rights and obligations foring of annual data from the
	It is the responsibility of each student to be regularly informed about the course, the coursework, ar		-
5.4. Informing about the course	adjournment will be published in a timely manner on the e-learning site of the course and on the w	· · · · · · · · · · · · · · · · · · ·	
and contacting the course	during the consultation period (at least one hour per week), while for short questions and explanation	•	•
lecturer	to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answer after receiving the e-mail).	ed as soon as possible (n	o later than five working days



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

1. GENERAL INFORMATION			
1.1. Course title	BATCHELOR THESIS	1.8. Course code at ISVU	142621
1.2. Course lecturer	-	1.9. Course code at MOZVAG	-
1.3. Assistants and/or associates	_	1.10. Forms of teaching (number of hours Lecturing	_
1.5. Hisbistants and of associates		+Practical exercises + Seminars + e learning)	
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)	Obligatory	1.12. Number of course revisions	4.
1.6. Year of study	3 nd	1.13. Modernization	X Yes □ No
1.7. Credit point (ECTS)	10	1.14. Percentage estimate of course changes and/or supplements	Less than 20% X More than 20 %

2. COURSE DESCRIPTION								
2.1. Course objectives	ne aim of the course is that the student within the given topic successfully applies the acquired knowledge in solving tasks related to the profession, thus repening the theoretical knowledge acquired through the study program at the level of the profession he acquires. Also, the aim of the course is for udents to develop the ability of an independent approach in processing and solving complex and practical problems in the profession. Students develop the ability to independently analyze research results as well as the skills of writing and presenting independent work.							
2.2. Terms of course entry and required competences	Enrolled VI semester							
2.3. Learning outcomes on the study programme level	Learning outcomes of the Batchelor thesis depends on the topic and the course is chosen by the student.							
2.4. Expected learning outcomes on the course level	Learning outcomes according to Bloom's taxonomy: (maximum 2 werbs for LO)	Level of LO: 1 - memory, 2 - understanding, 3 - application, 4 - analysis, 5 - evaluation,						



	6 – synthesis.
1. Choose a topic and analyze the problem	4
2. Analyze and sublimate relevant data from the literature and other data sources	3
3. Formulate and analyze the context of the research	6, 4
4. Select and apply the research methodology and write the Batchelor thesis	5
5. Evaluate and present the results of the research or solution to the problem	6

2.5. Course content according to detailed curriculum schedule											
3. EVALUATION OF STUDENT	WORK										
3.1. Students` obligations	_	rudents are required to write a Batchelor Thesis under the guidance of a selected or assigned mentor. Consult with the mentor about the given topic and the Batchelor thesis. The student is obliged to present and defend the Batchelor Thesis in front of the Committee for evaluation and defense of the Batchelor thesis.									
	Attendance	Written exam	4 (without colloquia)	Project							
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work	Research		Practical work							
for each activity so that the total number of ECTS points	Essay	Report		Continuous examination							
corresponds to the credit score of the course)	Colloquium	Seminar paper		The written part of the Batchelor thesis	7						
	Class activity	Oral exam		Oral defense of the Batchelor thesis	3						
	Student workload on all b	pases is 1 ECTS credit 30 semester hours and	d is estimated as:	•							
3.3. Student workload	Obligation		Hours (estimated)	Hours (estimated)							
5.5. Student Workload		rt of the Batchelor thesis	210	210							
	2. Oral defense of	f the Batchelor thesis	90	90							
4. FORMATION OF GRADES											



	Element of evaluation	Bad			Satisfying		Above average			
4.1. Evaluation of the Batchelor thesis	Organization	The paper is not organ order and lacks structu		clear distinction	The paper is well structured with a clear distinction between the introduction, the main body of the te and the conclusion.			ll structured with a between the e main body of the text on, which are logically		
	Terminology, writing style	Words and expression with official terminolo style is not appropriate are too long, of a mod and with frequent and grammatical errors.	ogy. The writing e, the sentences est vocabulary	official term is appropriat clear, the vo	Words and expressions are in line official terminology. The writing s is appropriate, the sentence structuclear, the vocabulary is appropriat and there are few grammatical errors.		understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is			
	Citing and referencing references	The sources are not list references do not fit the show a cursory approach the topic.	and with error	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.			
42.5	The written part of the	2		3		4	5			
4.3. Forming the final grade according to the evaluation	Batchelor thesis	5 points	10	points	ints 15 pc			20 points		
elements	The written part of the	2		3	5			5		
Cicinents	Batchelor thesis	5 points		points	ints 15 point		points 15 points			
	Percentage of acquired k	nowledge, skills and co	mpetences	Number rat	Number rating		ECTS grade			
		90 – 100%		,	5 (excellent)		A			
4.4. Formation of final grade		80 – 89,9%			4 (very good)		В			
based on absolute distribution		55 – 79,9%		3 (good)			C			
		60 – 64,9%		2 (sufficien	· ·		D			
	[]	50 – 59,9%		2 (sufficien	nt)		Е			
5. ADDITIONAL INFORMATIO	N ON THE SUBJECT									
Stranica 2 ad 4		Ti			per of copies in the library	Availability via other media				



	Rulebook on the Batchelor thesis	-								
5.1. Required literature (available	Instructions for writing a seminar paper and Batchelor thesis									
in the library and through other media)	Books and professional literature in the field of writing the Batchelor thesis									
media)	Internet websites in the field of the topic of writing the Batchelor thesis	-								
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	-	-	-							
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	students' attendance and activity in the classroom and information obtained about student progress needed for further guidance to students in order to increase their work efficiency. Students will be in	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	possible adjournment will be published in a timely manner on the e-learning site of the course and on the teachers during the consultation period (at least one hour per week), while for short questions and expectations are supported by the consultation period (at least one hour per week).	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								

10. MATRIX OF LEARNING OUTCOMES OF THE STUDY PROGRAMME OF THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC FOR THE ACADEMIC YEAR 2020./2021.

LEARNING OUTCOMES (LO)	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12	LO13
COURSE NAME													
Mathematics		+	+	+		+		+					
Physics				+				+					
Graphic communications	 			+			+	+					
Basics of computer science		+	+	+		+	+	+					
Knowledge of goods	+	+	+			+				+			+
English language I	+	+	+										
Modern traffic systems	+	+	+	+									
Basics of electrical engineering and electronics	·			+				+					
Traffic logistics	+	+	+		+	+			+		+	+	+
English language II	+	+	+										
Tehnical mechanics				+				+					
Traffic and ecology	+		+	+		+					+		+
Basics of mechanical engineering	+			+				+					
Statistics in traffic	+					+		+					
Internal transport and storage	+						+	+	+	+	+	+	+
Logistics and supply chains	+	+	+		+	+			+		+	+	+
English language III	+	+	+										
Traffic corridors and merchandise flows	+	+	+			+				+		+	
Traffic law	+	+	+		+	+							
Transshipment resources	+	+	+	+		+				+			+
Theory of vehicle movement	+			+				+					+
Freight-Distributional centres and terminals	+	+	+			+				+			+
Technology and organization of public city transport	+	+	+		+	+			+		+	+	+
English language IV	+	+	+										

Economics of traffic		+	+		+								
Operational research in traffic	+			+			+	+					
Infrastructures of road traffic	+			+			+	+			+	+	+
Resources and exploitation of resources of road	+			+				+					+
traffic													
Technology and organization of road traffic	+	+	+	+	+	+		+	+		+	+	+
Traffic techniques	+	+	+	+		+	+			+	+	+	+
Information systems in road traffic	+	+	+	+		+					+		+
Transport geography	+	+	+			+				+		+	
Traffic in tourism	+	+	+			+							
Safety and protection of transport processes	+	+	+		+	+			+	+	+	+	+
Professional practice	+		+	+		+			+		+	+	
Batchelor thesis													
TOTAL NUMBER OF COURSES BY LEARNING OUTCOMES	29	22	24	18	7	19	6	14	7	8	11	11	15

Curriculum for the Undergraduate Professional Study of Traffic at the Polytechnic of Šibenik, for the academic year 2020./2021. was adopted at the 6th session of the Traffic Department Council, which was held on Thursday, September 24 2020..

Curriculum for the Undergraduate Professional Study of the Traffic at the Polytechnic of Šibenik, for the academic year 2020./2021. was confirmed at the 16th session of the Expert Council of the Polytechnic of Šibenik, which was held on Wednesday, September 30 2020..

Curriculum for the Undergraduate Professional Study of Traffic at the Polytechnic of Šibenik for the academic year 2020./2021. will be published on the official website of the Polytechnic of Šibenik, under the link: http://www.vus.hr/?stranice=traffic&id=167&lang=en

CLASS: 003-08/20-03/13

REGISTRY NUMBER: 2182/1-12/3-1-20-09

Šibenik, 30.09.2020.

Head of Undergraduate professional study of Traffic

Darijo Šego, univ. spec. traff., senior lecturer

Dean of Polytechnic of Šibenik

Ph.D. Lubo Runjić, senior lecturer