POLYTECHNIC OF ŠIBENIK Undergraduate professional study of Traffic

Trg Andrije Hebranga 11, 22000 Šibenik Republic of Croatia



Šibenik, September 2022.

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THE CURRICULUM OF THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC

DIRECTIONS: ROAD TRAFFIC, POSTAL TRAFFIC

Academic year 2022./2023.

Dean of Polytechnic of Šibenik

phD. Ljubo Runjić, collegue professor

Head of Undergraduate professional study of Traffic

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

Šibenik, September 2022.

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 30 ECTS credits by semester, that is 60 ECTS credits per year, in accordance with the Study Regulations 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.

Completion of studies

The undergraduate professional study ends with the passing of all exams of enrolled subjects, the fulfillment of other obligations, and the preparation and defense of the Batchelor Thesis. Before submitting the Batchelor Thesis for assessment and defense, the student must pass all courses and achieve a minimum of 170 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 2022./2023. 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, grad. eng. inf., lecturer	Basics of computer science	jerko@vus.hr	Cabinet 7
Darijo ŠEGO, univ. spec. traff., senior lecturer	Information systems in postal traffic Graphic communications Logistic and supply chains Postal and money circulation Postal technology and organization Professional practice Infrastructures of road traffic Traffic corridors and merchandise flows Traffic logistics Traffic techniques Transport geography	<u>darijo@vus.hr</u>	Cabinet 21
phD. Ana-Mari POLJIČAK, senior lecturer	Freight-distributional centres and terminals Infrastructure of postal-telecomunications traffic Internal transport and storage Planning of postal network Resources and exploitation of resources of road traffic Safety and protection of transport processes Technical means of postal-telecomunications traffic Traffic in tourism Transshipment resources	jankovic@vus.hr	Cabinet 21

MSc. Martina LJUBIĆ HINIĆ, senior lecturer	Infrastructures of road traffic Modern traffic systems Safety and protection of transport processes Technology and organization of public city transport Technology and organization of road traffic Traffic techniques	ljubicvus@gmail.com	Cabinet 21
Nikolina GAĆINA, mag. eng., senior lecturer	Knowledge of goods	nikolina@vus.hr	Cabinet 2
phD. Ivana KARDUM GOLEŠ, senior lecturer	English language I English language II English language III English language IV	ivanakg@vus.hr	Cabinet 22
Ivana BELJO, grad. eng. math., univ. spec. oecc., senior lecturer	Mathematics Operational research in traffic Statistics in traffic	ibeljo@vus.hr	Cabinet 24, Office of the Vice Dean for Education
PhD. Ana PERIŠIĆ, senior lecturer	Statistics in traffic	sisak@vus.hr	Cabinet 24
Želimir MIKULIĆ, grad. eng., senior lecturer.	Operational research in traffic	zmikulic@vus.hr	Cabinet 19
MSc. Tanja RADIĆ LAKOŠ, senior lecturer	Traffic and ecology	tanja@vus.hr	Cabinet 11
phD. Dijana MEČEV, college professor	Economics of traffic Logistic and supply chains	dijana@vus.hr	Cabinet 3
Luka OLIVARI, mag. eng. mech., lecturer	Basics of mechanical engineering Graphic communications Technical mechanics Theory of vehicle movement	<u>lolivari@vus.hr</u>	Cabinet 18

Associates of the Polytechnic of Šibenik wh	ho teach		
MSc. Krešimir NIMAC, lecturer	Traffic law	kresonimac@gmail.com	According to the schedule of lectures
phD. Nikola MANDIĆ, associate collegue professor	Traffic law	nikola.mandic@pfst.hr	According to the schedule of lectures
phD. Ernest BAZIJANAC, regular collegue professor	Resources and exploitation of resources of road traffic	ebazijanac@fpz.hr	According to the schedule of lectures
MSc. Ivo JURIĆ, senior lecturer	Resources and exploitation of resources of road traffic	ijuric@fpz.hr	According to the schedule of lectures
MSc. Danijel MILETA, senior lecturer	Basics of electrical engineering and electronics Information systems in road traffic	danijel.mileta@gmail.com	Cabinet 2
MSc. Josip PAIĆ, senior lecturer	Physics	josip.paic1@gmail.com	Cabinet 21
MSc. Srećko ĐURANOVIĆ, senior lecturer	Basics of mechanical engineering	sduranovic@fpz.hr	According to the schedule of lectures
Izidor ALFIREVIĆ, grad. eng., lecturer	Basics of mechanical engineering	ialfirevic@fpz.hr	According to the schedule of lectures
Luca OLIVARI, mag. math., assistant	Mathematics Operational research in traffic	lolivari25@outlook.com	According to the schedule of lectures
phD. Dino PERAN, postdoctoral	Statistics in traffic	dino.peran@pmfst.hr	According to the schedule of lectures
phD. Luka VUKIĆ, assistant collegue professor	Traffic corridors and merchandise flows	luka.vukic@pfst.hr	According to the schedule of lectures

phD. Jadran Berbić, assistant	Graphic communications	jberbic@hotmail.com	According to the schedule of lectures
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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 15 lecture halls with a total area of 1320 m².

The lecture halls in which the teaching process takes place, provide optimal conditions in view of the enrolled students. 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	LECTURER		COURSE SCHEDLUE					
				L	S	S Number	E	Number	ECTS
Head of course	Name	Lecturer	Seminars/	Hours	Hours	of groups	Hours	of groups	credit
iicad of course	T (diffe	Beeturer	Exercises	per	per		per		02 0022
				week	week		week		
I. semester									
Beljo Ivana	Mathematics	Beljo I./	Olivari Luca	3	-	_	3	1	8
		Olivari Luca							
Paić Josip	Physics	Paić J.	Paić J.	2	-	-	2	1	5
Olivari Luka	Graphic communications	Šego D./Berbić J.	Berbić J.	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
		1	<u> </u>		<u>I</u>				
II. semester									
Ljubić Hinić Martina	Modern traffic systems	Ljubić Hinić M.	Ljubić Hinić M.	3	1	1	-	-	6
Mileta Danijel	Basics of electrical	Mileta D.	Mileta D.	2	-	_	2	1	5
Ų.	engineering and electronics								
Šego Darijo	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	LECTU			1				
	Tourses	DDC I UNDA		COURSE SCHEDLUE					4
Head of course	Name	Name Lecturer	Seminars/	L Hours	S Hours	Number of groups	E Hours	Number of groups	ECTS Credits
			Exercises	per week	per week		per week		
III. semester									
Olivari Luka	Basics of mechanical	Đuranović S.	Đuranović S./	3	-	-	3	1	6
	engineering		Alfirević I.						
Perišić Ana	Statistics in traffic	Beljo I./Peran D.	Peran D.	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./Mečev 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./Vukić L.	Šego D.	2	2	1	-	-	4
Nimac Krešimir	Traffic law	Nimac K./Mandić N.	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 Luka	Olivari Luka	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 Luca	2	-	-	1	1	4

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

	Undergraduate professional study of Traffic (direction: Road traffic) – III. Study year								
(COURSES	COURSES		COURSES					
				L	S	Number	E	Number	ECTS
Head of course	Name	Lecturer	Seminars/	Hours	Hours	of groups	Hours	of groups	Credits
Head of Course	Name	Lecturer	Exercises	per	per		per		Cicuits
				week	week		week		
V. semester									
Šego Darijo	Infrastructures of road traffic	Šego D./	Šego D.	3	2	1	1	1	6
		Ljubić Hinić M.							
Bazijanac Ernest	Resources and exploitation of	Bazijanac E./	Poljičak A-M.	3	-	-	1	1	5
	resources of road traffic	Jurić I.							
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

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	-	-	ı	ı	1	ı	-	10

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

6. ACADEMIC CALENDAR POLYTECHNIC OF ŠIBENIK

The academic calendar of the Polytechnic of Šibenik for the academic year 2022./2023. was adopted at the 44th session of the Expert Council of the Polytechnic of Šibenik, which was held in May 2022.

WINTER SEMESTER:

- lectures in the winter semester runs from October 3. to December 23. 2022., and from January 9. to January 28. 2023.,
- winter holidays run from December 24. 2022. to January 7. 2023., 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 2022./2023.,
- the winter regular exam period runs from January 30. to February 25. 2023...

SUMMER SEMESTER:

- summer semester lectures run from February 27. to June 10. 2023.,
- **summer holidays** run from July 24. to August 19. 2023.,
- 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 2022./2023.,
- the summer regular exam period runs from June 12. to July 08. 2023..

AUTUMN EXAM TIME PERIOD:

• the autumn regular exam period runs from August 21. to September 16. 2023...

SEMESTER TESTING:

- winter semester testing and summer semester enrollment will run from February 13. to February 17. 2023.,
- summer semester testing and enrollment in academic year 2023./2024. will run from July 10. to July 14., and from September 18. to September 29. 2023..

7. NATIONAL PUBLIC HOLIDAYS AND NON-WORKING DAYS IN THE REPUBLIC OF CROATIA, IN ACADEMIC YEAR 2022./2023.

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 1st	New Year's Day
January 6 th	Holly three kings
April 09 th	Easter
April 10 th	Easter Monday
May 1 st	International Workers' Day
May 30 th	Croatian National day
June 08 th	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 ON UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC, FOR ACADEMIC YEAR 2022./2023.

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					
	January / February		February	June	/ July	August / September	
I. STUDY YEAR (I. sen	nester).						
Beljo Ivana	Mathematics	10.02.	24.02.	20.06.	04.07.	29.08.	12.09.
Paić Josip	Physics	08.02.	22.02.	14.06.	28.06.	23.08.	06.09.
Olivari Luka	Graphic communications	06.02.	20.02.	12.06.	26.06.	21.08.	04.09.
Acalin Jerko	Basics of computer science	02.02.	16.02.	17.06.	01.07.	26.08.	09.09.
Gaćina Nikolina	Knowledge of goods	02.02.	16.02.	19.06.	03.07.	22.08.	05.09.
Kardum Goleš Ivana	English language I	10.02.	24.02.	20.06.	04.07.	29.08.	12.09.
I. STUDY YEAR (II. se	_ _					_	
Ljubić Hinić Martina	Modern traffic systems	02.02.	16.02.	23.06.	07.07.	24.08.	07.09.
Mileta Danijel	Basics of electrical engineering and electronics	30.01.	13.02.	12.06.	26.06.	21.08.	04.09.
Šego Darijo	Traffic logistic	03.02.	17.02.	20.06.	04.07.	25.08.	08.09.
Kardum Goleš Ivana	English language II	10.02.	24.02.	20.06.	04.07.	29.08.	12.09.
Olivari Luka	Tehnical mechanics	06.02.	20.02.	12.06.	26.06.	21.08.	04.09.
Radić Lakoš Tanja	Traffic and ecology	31.01.	14.01.	20.06.	04.07.	22.08.	05.09.
II. STUDY YEAR (III. s	semester)						
Olivari Luka	Basics of mechanical engineering	06.02.	20.02.	12.06.	26.06.	21.08.	04.09.

Perišić Ana	Statistics in traffic	10.02.	24.02.	20.06.	04.07.	29.08.	12.09.
Poljičak Ana-Mari	Internal transport and storage	01.02.	15.02.	14.06.	28.06.	24.08.	07.09.
Šego Darijo	Logistics and supply chains	07.02.	21.02.	13.06.	27.06.	29.08.	12.09.
Kardum Goleš Ivana	English language III	10.02.	24.02.	20.06.	04.07.	29.08.	12.09.
Šego Darijo	Traffic corridors and merchandise flows	03.02.	17.02.	20.06.	04.07.	25.08.	08.09.
Nimac Krešimir	Traffic law	30.01.	13.02.	13.06.	27.06.	21.08.	04.09.
II. STUDY YEAR (IV.	semester)						
Poljičak Ana-Mari	Transshipment resources	03.02.	17.02.	14.06.	28.06.	23.08.	06.09.
Olivari Luka	Theory of vehicle movement	08.02.	22.02.	14.06.	28.06.	23.08.	06.09.
Poljičak Ana-Mari	Freight-distributional centres and terminals	04.02.	18.02.	15.06.	29.06.	24.08.	07.09.
Ljubić Hinić Martina	Technology and organization of public city transport	02.02.	16.02.	23.06.	07.07.	24.08.	07.09.
Kardum Goleš Ivana	English language IV	10.02.	24.02.	20.06.	04.07.	29.08.	12.09.
Mečev Dijana	Economics of traffic	06.02.	20.02.	15.06.	29.06.	25.08.	08.09.
Beljo Ivana	Operational research in traffic	10.02.	24.02.	20.06.	04.07.	29.08.	12.09.
III. STUDY YEAR (V.	semester)						
Šego Darijo	Infrastructures of road traffic	07.02.	21.02.	13.06.	27.06.	29.08.	12.09.
Bazijanac Ernest	Resources and exploitation of resources of road traffic	08.02.	22.02.	14.06.	28.06.	23.08.	06.09.
Ljubić Hinić Martina	Technology and organization of road traffic	02.02.	16.02.	23.06.	07.07.	24.08.	07.09.
Ljubić Hinić Martina	Traffic techniques	02.02.	16.02.	23.06.	07.07.	24.08.	07.09.
Mileta Danijel	Information systems in road traffic	30.01.	13.02.	12.06.	26.06.	21.08.	04.09.
Šego Darijo	Transport geography	03.02.	17.02.	20.06.	04.07.	25.08.	08.09.
Poljičak Ana-Mari	Traffic in tourism	01.02.	15.02.	14.06.	28.06.	26.08.	09.09.
III. STUDY YEAR (VI			1.7.00				
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 IN			
1.1. Course title	MATHEMATICS	1.8. Course code in ISVU	201133
1.2. Course lecturer	Ivana Beljo, grad. eng. math., univ. spec. oecc., senior lecturer	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	Luca Olivari, mag. math., assistant	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	X yes □ no
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	The goal is to provide students with theoretical knowledge: to adopt knowledge and skills of the analytical way of thinking, 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	Four-year secondary education completed; qualification level 4.2 according to the CROQF						
2.3 Learning outcomes on the study programme level	LO2: To organize and implement team work, and critically judge the opinions and attitudes of team members. LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions. 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.	LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions. LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic.					
	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
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

		Const	tructive allignement				
		no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed
		1.	Introduction into the course and detailed plan.	on computer, get to know course content and elearning documents.		3 h	
	2.5. Course content according to detailed curriculum schedule	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 linear equations and solve a system and apply it to problems.	9 h



1			T		
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 Integrals. Definite Integrals.	6, 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 solve an indefinite and definite integral.	6 h
12.	Substitution Rule and Integration By Parts	6,7	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 an indefinite integral using the method of substitution and partial integration.	6 h



	14. Re	pplications of Integration. pplications of Integration. evision for colloquium. olloquium.	4, 6, 7 6, 7			In colloquium or wristudents know how to graph of functions, and s	analyze and sketch a	6 h 40 h	
		evision		Listen to lectures a	nd read literature.	-		40 h	
3. EVALUATION OF STUDENT	rs` wori	K							
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 three colloquia); b) by passing the exam (written and oral part of the exam).								
	Attendan	ce 1	Writ	tten exam	4 (without colloquia) Project			
3.2. Monitoring student work (enter the share of ECTS credits	Experime work	ental	Rese	earch		Practical work			
for each activity so that the total number of ECTS points	Essay		Rep	ort		Continuous examination	1		
corresponds to the credit score of the course))	Colloqui	um 4 (without written exam)	Sem	inar paper		Other			
	Class act	ivity 1	Oral	exam	1	Other			
3.3 Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 90 hours 2. Preparing colloquia or exams through individual work 150 hours								



4. GRADING SYSTEM								
4.1. Grading seminar papers	-							
	1	Unsatisfactory	Satisfactory			Above averag	ge	
4.2. Grading colloquia/ written and oral exam	terms and concepts. Does not know how to		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.		the principles, lains the content of nects and explains ted with examples. t originally given.	
	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	5 points 10 poin		20	points	
	Colloquia/ Written exam	2	3	3 4			5	
4.3. Final grade according to evaluation elements		50-64,9%	65-79,9%	80-89	,9%	90)-100%	
evaluation elements		25 points	30 points	35 pc	oints	40	points	
	01	2	3	5		5		
	Oral exam	25 points	30 points 35 points		oints	40 points		
		f acquired knowledge, skills and nces (teaching + final exam)	Numerical grade		ECTS grade			
4.4. Final grade according to		90 – 100%	5 (excellent)	5 (excellent)		A		
absolute division		80 – 89,9%	4 (very good)		В			
		65 – 79,9%	3 (good)		С			
		60 – 64,9% 50 – 59,9%	2 (satisfactory) 2 (satisfactory)			D E		
5. ADDITIONAL COURSE INFO	ORMATION	30 - 37,770	2 (satisfactory)			L		
			Title			mber of copies n the library	Availability via other media	



5.1. Compulsory literature (available in the library and via other media)	Marušić, S., Mathematics I - book with solved examples, 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.: Business Mathematics, Faculty of economics University of Split, 2003 (selected chapters) Babić Z., Tomić N., Aljinović Z.: Matemathics for economists, Faculty of economics University of 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 ensured thr attendance and student activity during classes and provided information on students` progress through short co 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 s Croatian employment service on the annual state of student employment, surveys from employers and Alumni	olloquiums and homewoinformed about their rigurvey, monitoring of an	ork, information for ghts 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 clapossible adjournment will be published in a timely manner on the e-learning site of the course and on the webs teachers during the consultation period (at least one hour per week), while for short questions and explanation also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answer working days after receiving the e-mail).	ite of the Polytechnic. Sons they can be contacted	Students can contact d during class. It is



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

1. GENERAL INFORMATI	1. GENERAL INFORMATION								
1.1. Course title	PHYSICS	1.8. Course code in ISVU	187585						
1.2 Course lecturer	MSc. Josip Paić, senior lecturer	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+30+0+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic 1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%) 1 st , course mate 0%		1 st , course materials are on-line, 0%						
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4						
1.6. Year of study	1 st	1.13. Modernization	X yes □ no						
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 wh	nich 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 and technical sciences to problems in road traffic.								
study programme level	LO8: To solve problems in traffic by using analytical and / or graphical methods.								
			Level of LO:						
			1- memory,						
2.4. Expected learning outcomes			2- understanding,						
on the course level (4-10	Learning outcomes by Bloom: (maximum 2 werbs f	3- application,							
learning outcomes)			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	3				
	4	. Compare the basic laws of more example.	4, 4				
	5	. Distinguish Newton's laws, eq of motion, and choose appropr	4, 5				
	6	Analyze the movement of the acceleration as a function of time	4				
	7	. Identify the causes of motion solid.	of a particle of	or solid, and evaluate the effects of the force of	on the particle or	4, 5	
	8	law, Archimedes law, continuisolve a given problem.	4, 5				
	9	Synthesize the adopted laws to	solve comple	ex problems.		6	
2.5. Course content according to detailed curriculum schedule	Cons	tructive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods	E	valuation	Time needed
	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.	mean and curre acceleration, to a At the colloquiu exam they defin concepts, define	n, shift speed and istinguish between the ent values of worry and analyze body movements. In or the written and oral ne and explain the basic explain and calculate the less and units of measure.	4 h
	2.	Free fall. Vertical shot. Curved track motion (horizontal and	1, 4, 5	The lecture is performed with prepared presentations, recorded experiments and		ree fall. Investigate and ex movements. Analyze	4 h



				examples.The exercises demonstrate how	motion. At the colloquium or the written	
				to solve tasks. Independent task solving.	and oral exam they know: to define,	
					explain, identify and compare types of	
					motion; solve numerical tasks from the	
					specified area.	
		Forces and laws of motion		The lecture is performed with prepared	Describe the interaction of body and types	
		(force and mass, Newton's		presentations, recorded experiments and	of forces. Draw a force diagram. Add up	
		laws of mechanics, body		independently solving simple examples.	force vectors. Apply Newton's Laws.	
		weight and density). The		The exercises demonstrate how to solve	Relate force impulse and amount of	
		amount of motion and the law		tasks. Independent task solving.	motion. Apply the law of conservation of	
		of conservation of the amount			the amount of motion. At the colloquium	
	3.	of motion.	1, 3, 4, 5, 6		or the written and oral exam they know:	4 h
					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.	
		Friction. Centripetal force.		The lecture is performed with prepared	Relate friction to centripetal force and	
		Elastic force. Motion of a rigid		presentations, recorded experiments and	elastic force. Explain the concept of	
		body (rigid body, force		independently solving simple examples.	centripetal force and centripetal	
		moment, rotation of a rigid		The exercises demonstrate how to solve	acceleration. Distinguish the motion of a	
		body about a fixed axis,		tasks. Independent task solving.	material point and a rigid body and make	
		moment of inertia)			an analogy.	
	4.		1, 3, 4, 5, 6		At the colloquium or the written and oral	4 h
					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.	
	5.	Rotation work and power.	1, 4, 5, 7	The lecture is performed with prepared	Relate work and power to work and	4 h
	٥.	Rotational kinetic energy.	1, 7, 5, 7	presentations, recorded experiments and	power when rotating. Solve and comment	711



		Moment of amount of motion.		independently solving simple examples.	on examples. At the colloquium or the	
		An analogy between the laws		The exercises demonstrate how to solve	written and oral exam they can define and	
		of translation and rotation.		tasks. Independent task solving.	explain work, strength, energy and other	
					phenomena during rotation; solve	
					numerical tasks from the specified area.	
		Statics (force action on a rigid		The lecture is performed with prepared	Relate the action of force to a material	
		body, equilibrium of a rigid		presentations, recorded experiments and	point and to a rigid body. Apply and	
		body affected by more forces).		independently solving simple examples	analyze equilibrium equations for a solid	
		The action of parallel forces on	1 2 7 0	The exercises demonstrate how to solve	body, written and oral examination,	4.
	6.	a rigid body. The emphasis.	1, 3, 5, 9	tasks. Independent task solving.	evaluate the consequences of the action of	4 h
					a system of forces and / or static moment	
					using graphical and analytical methods;	
					solve numerical tasks from the given area.	
		A pair of forces. Solid-state		The lecture is performed with prepared	Determine the equilibrium conditions of a	
		equilibrium conditions		presentations, recorded experiments and	=	
		(examples). Types of balance.		independently solving simple examples.	analyze equilibrium equations for a solid	
	_	Motion relativity and inertial		The exercises demonstrate how to solve	body, written and oral examination,	
	7.	forces (the principle of	1, 3, 5	tasks. Independent task solving. Individual	evaluate the consequences of the action of	4 h
		relativity, inertial forces in a		preparation for the colloquium.	a system of forces and / or static moment	
		straight and circularly			using graphical and analytical methods;	
		accelerated system).			solve numerical tasks from the given area.	
		Work and force (work of		The lecture is performed with prepared	Link energy change and work done. Link	
		constant force, work of		presentations, recorded experiments and	the concept of work and strength. At the	
		variable force).		independently solving simple examples.	colloquium or the written and oral exam	
	8.	,	1, 6, 7, 9	The exercises demonstrate how to solve	they can define and explain work and	4 h
			, -, -, -	tasks. Independent task solving.	strength, identify the type of motion of a	
					particle or solid, solve numerical	
					problems in the field of kinematics.	
		The work of the resultant force.		The lecture is performed with prepared	Describe examples of conversion of	
		Energy (kinetic energy,		presentations, recorded experiments and	different forms of energy. Apply the law	
	9.	potential energy, energy	1, 6, 7	independently solving simple examples.	of conservation of energy. Express utility.	4 h
		conservation law.	, ,	The exercises demonstrate how to solve	At the colloquium or the written and oral	
				tasks. Independent task solving.	exam they can define and explain the	
ı				1 2	, i	



				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.	
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.	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 mechanics; solve numerical problems in the field of fluid mechanics.	4 h
13.	The buoyancy. Archimedes' Law. Fluids in motion (fluid	1, 8, 9	The lecture is performed with prepared presentations, recorded experiments and	Describe basic terms in hydrostatics. Apply expressions to examples. At the	4 h



			-		I	1			
	flow and velocity equation)		, continuity		independently solving The exercises demon tasks. Independent task	strate how to solve	colloquium or the written as they can define, explain are basic concepts in fluid mec numerical problems in the mechanics.	nd distinguish chanics; solve	
	14.	Bernoulli (applications of equation). Force in (shape of free surfa dissipative forces in	real liquids ace of fluid,	1, 8, 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.		d hydrodynamics. Apply Bernoulli's equation to examples. At the colloquium		4 h
	Resistance of the ager 15. Flow and Chaos Physic consideration.		_	1, 8	The lecture is performed with prepared presentations, recorded experiments and independently solving simple examples. They prepare individually for the exam.		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.		4 h
3. EVALUATION OF STUD	ENT V	WOR							
3.1. Student obligations	atten	d classes at least 70%	, which is als	o a requireme		urer`s signature. Studer	dent Performance: Full-time ats can take the final exam in I part of the exam.	-	
3.2. Student work monitoring		iding classes	2		Written exam	2 (without colloquiums)	Project		
(enter the share of ECTS credits					Research		Practical work		
for each activity so that the total					Report		Continuous check		
number of ECTS credits corresponds to the course credit		oquiums	2 (without w exam)	ritten	Seminar paper		Field works or Study trips		
value)	Teacl	ning activities			The oral part of exam	1	(other)		



		Student workload on all bases is 1 ECTS credit for 30 hours of work per semester and is estimated as going to fieldwork or study trips (30 hours),					
		preparation of seminar work and presentation (30 hours).					
		Obligation	Hours (estimated)				
		1. Attending classes	60				
		2. Colloquiums and written exam individual p	2. Colloquiums and written exam individual preparation	60			
		3. Oral exam individual preparation	30				

4. GRADING SYSTEM

	Elements of evaluation	Bad	Satisfying	Above average
	Physical quantities and	Nonstandard physical units have not	Nonstandard units have been converted to	Nonstandard units have been converted
	their units of	been converted to basic or have been	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, complete,
	legibility and orderliness	is not traceable, and it is not readable.	traceable and readable. The diagrams and	very neat and legible. The diagrams are
	of the procedure,	Diagrams and sketches are non-	sketches are meaningful, neat with minor	completely accurate, clear and very
4.1. Evaluation of written exam	diagrams and sketches	existent, inaccurate, messy, unclear	errors.	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, the
		included in the expression. The end	expression with smaller numbers, 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
4.2. Evaluation of oral exam		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	them with examples. Knows the expert	the material, and logically connects and
		examples.	terminology.	explains the terms and concepts and
				supports them with examples. Finds
				solutions that were not originally given.



					mat	notes correlations with related terial. Fluent in professional minology.	
4.3. Forming the final grade according to the evaluation	Colloquiums/ 2		3 65-79,9% 65-79,9 points	4 80-89,9% 80-89,9 points		5 90-100% 90-100 points	
elements	The oral part of exem	2 50-64,9 points	3 65-79,9 points	4 80-89,9		5 90-100 points	
		d knowledge, skills and aching + final exam)	Numerical grade		points	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 INFORMATI							

5.1. Compulsory literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	Paić Josip: PHYSICS, Polytechnic of Šibenik, Šibenik, 2017.	-	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 Introduction to Mechanical Engineering. Kulišić, P.: Mechanics and Heat, School book, Zagreb, 2005. Kulišić, P.: Solved problems in Mechanic and Heat, School book, Zagreb, 2005 Mikuličić, Varićak, Vernić,: Physics – collection of numerical tasks 1-4, School book, Zagreb,	- - -	on-line (e-learning) city library city library city library
	2012 Halliday, Resnick, Walker: Fundamentals of phisics, Sixth Edition	-	city library



after receiving the e-mail).

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
•	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
<i>O</i> ,	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



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

1. GENERAL INFORMATION							
1.1. Course title	GRAPHIC COMMUNICATIONS 1.8. Course code in ISVU		201132				
1.2. Course lecturer	Luka Olivari, mag. eng. mech., lecturer 1.9. Course code in MOZVAG						
1.3. Assistants and/or associates	Darijo Šego, univ. spec. traff., senior lecturer phD. Jadran Berbić, assistant	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 , percentage of on line course performance (man		1 st , course materials are on-line, 0%				
1.5. Course status (obligatory, optional)	Obligatory 1.12. Number of course revisions		4				
1.6. Year of study	1 st	1.13. Modernization	X yes □ no				
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	to read, understand and produce technical drawings,	retical knowledge, acquired skills and practical examples to: Gain to use and understand the standards of drawing in technical drawing. Auto-CAD computer program) when creating technical documen	gs, orthogonal projections, spatial				
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the CROQF.						
	LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic.						
2.3. Learning outcomes on the study programme level	LO7: To apply computer tools for analysis and comparison of data, and suggest an optimal solution in traffic process.						
study programmic iever	LO8: To solve problems in traffic by using analytical and / or graphical method.						
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Learning outcomes by Bloom: (maximum 2 werbs f	Level of LO: 1- memory, 2- understanding, 3- application,					



						4- analysis, 5- evaluation, 6- synthesis. 1, 2 5, 4 4 4, 3	
2.5. Course content according to detailed curriculum schedule		uctive allignement	LO of the		77		Time
	No	Thematic unit	course	Content/teaching methods		aluation	needed
	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.	exam they define concepts.	or the written and oral and explain the basic	4 h
	2.	Technical letter, line types and widths, paper formats, scale and components of the technical drawing.	1, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical display. Independent exercise.	exam: define ar concepts; distingu the technical layou technical drawing		4 h
	3.	Fundamentals of geometric structures.	1, 2, 4	Listen to a lecture and read literature. The exercises demonstrate the rules of technical presentation. Independent exercise.	exam: define ar concepts; draw of based on a gi distinguish between	n or the written and oral and explain the basic orthogonal projections iven isometric view; een the rules of the and apply them to the ;	4 h



	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	4 h



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



							the technical layout and appl technical drawing; draw drawing in an AutoCAl program.	a technical D computer	
	14.	AutoCAD, workshop drawin	self-made	1, 4, 5		ad read literature. The ethe rules of technical dent exercise.	At the colloquium or the wrexam: define and explain concepts; distinguish between the technical layout and application drawing; draw drawing in an AutoCAl program.	n the basic on the rules of y them to the a technical	asic s of the 4 h ical ater 4 h
	15.	Final correpetition and protection and protection and protection and protection are consistent as a second constant as a second constan	onsideration, eparation for	-	Listen to a lecture and prepare individually f	d read literature. They for the exam.	-		4 h
3. EVALUATION OF STUD	ENT W	ORK	<u>.</u>						
3.1. Student obligations	In accordance with the Rulebook on Study and the Rulebook on Assessment and Evaluation of Student Performance: Full-time students are required 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 was 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		ing classes	2		Written exam	2 (without colloquiums)	Project		
(enter the share of ECTS credits	Experi	nental work			Research		Practical work		
for each activity so that the total	Essay				Report		Continuous check		4 h Idents are required to e course in two ways:
number of ECTS credits corresponds to the course credit	Colloqu	iiums	2 (without w exam)	ritten	Seminar paper		Field works or Study trips		
value)	Teachi	ng activities			The oral part of exam	1	(other)		
		t workload on all tion of seminar wo			=	semester and is estimate	ated as going to fieldwork or	study trips (3	0 hours),
3.3. Student work-load		Obligation		-		Hours (estimated)			
	1	. Attending class				60			
	2	. Colloquiums ar	id written exar	m ındividual j	preparation (drawing)	30			



Colloquiums and written exam individual preparation (AutoCAD)	30
4. Oral exam individual preparation	30

4. GRADING SYSTEM

	Elements of evaluation	Bad	Satisfying	Above average
	Technical drawing	Drawing incomplete, imprecise and	Drawing neatly crafted with a small	Drawing very neatly made without
		sloppy. Made on inadequate paper	number of imprecise errors, a clear	errors.
		size.	distinction between types of lines.	
	Distinguish and apply the	Does not know the rules, does not	Knows most of the rules of the technical	Knows the rules of the technical view,
	rules of technical drawing	apply or misapplies the elements of	view, correctly applies the basic, and with	and correctly applies the elements of the
4.1. Evaluation of written exam		the technical representation.	minor mistakes, the other elements of the	technical view.
			technical view.	
	AutoCAD computer	Does not knows interface or basic	Knows basic and some advanced	Knows basic and advanced commands
	program	commands. It is not capable of	commands in a computer program, uses	in a computer program, uses them
		drawing in a computer program.	them with minor errors. He is able to	without errors. Able to fully draw a
			create a technical drawing in a computer	technical drawing in a computer
			program with a little help and	program.
			suggestions.	
	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 with	them with examples. Knows the expert	the material, and logically connects and
4.2. Evaluation of oral exam		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.
				terminology.



	Colloquiums/	2	3	4	5	
	Written exam	10-12 points	13-15 points	16-17 points	18-20 points	
4.3. Forming the final grade	Colloquiums/	2	3	4	5	
according to the evaluation elements	AutoCAD	10-12 points	13-15 points	16-17 points	18-20 points	
cicinonis	The oral part of exem	2	3	4	5	
		10-12 points	13-15 points	16-17 points	18-20 points	
		ired knowledge, skills and Numerical grade ECTS grade				
4.4 Formation of the final grade	90 -	- 100%	5 (excellent)		A	
4.4. Formation of the final grade 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)		E	

5. ADDITIONAL INFORMATION ABOUT COURSE

5.1. Compulsory literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
other media)	Koludrović, Ć.: Technical drawing in the image with computer applications, Rijeka, 2009. George O.: Basics of AutoCAD software 2008, MIŠ d.o.o. Zagreb, 2007.	-	City library City library
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 Opalić, M., Kljajin, M., Sebastijanović, S.: Technical drawing, Zrinski d.d., Čakovec/Slavonski Brod, 2007. Klem N., Koški Ž., Otković I.: Technical drawing and CAD, Faculty of civil engineering, University of Osijek, Osijek 2006. Galeta T., Glazina V., Kljajin M.: AutoCAD Fundamentals of Technical Drawing, Faculty of mechanical engineering, University of Osijek, Slavonski brod, 2005.	-	on-line (e-learning) On-line On-line



	Herold Z .: Computer and Engineering Graphics, Faculty of mechanical and naval engineering,				
	University of Zagreb, Zagreb 2003.				
	Budimir D .: Exercises from AutoCAD, Faculty of transport and traffic sciences, University of				
	Zagreb, Zagreb 2010.				
5.2 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				
5.3. Quality assurance methods 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 the new course or the course that has been supplemented and / or amended or updated.

1. GENERAL COURSE I	NFORMATION		
1.1. Course title	BASICS OF COMPUTER SCIENCE	1.8. Course code in ISVU	201129
1.2. Course lecturer	Jerko Acalin, grad. eng. inf., lecturer	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+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	X yes □ no
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 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	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.
22 1	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 programmie iever	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.	
	Learning outcomes accroding to the Bloom's taxonomy: (up to two verbs per LO)	Level of LO: 1- remembering, 2- understanding, 3- application,
2.4. Expected learning outcomes on the course level		4- analysis, 5- evaluation, 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

	Cons	Constructive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed		
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 e-learning 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		
	3.	Historical development of computing Exercises: MS Windows file management	1	Students listen to lectures and read literature. Get acquainted with the basics of MS Windows Explorer on computers.	They know how to use the MS Windows Explorer at a colloquium or a written and oral exam	6 h		



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.	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 – making presentation with ready-made templates	6	Listen to lectures and read literature. Work on computers.	At the colloquium or written and oral exam, they know how to make a presentation using ready-made forms.	6 h
14.	Power Point – making presentation by editing slide matrix	6	Listen to lectures and read literature. Work on computers.	At the colloquium or written and oral exam, they know how to make a	6 h



							presentation by creating the matrix	ir own slide	
	15.		sions/Revision and for the colloquium 2.	4, 5, 6		etures and prepare the test. Write the test	They work on the coll computer and send the resul	-	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@Edu password. Students who have during the course achieved: from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, a 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 (te 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 the colloquia); b) by passing the exam (written and oral part of the exam).						<u>@EduHr</u> edits, and am (test) nal exam		
	Atten	dance	1	Writt	en exam	3 (without colloquia)	Project		
3.2. Monitoring student work (enter the share of ECTS credits	Exper work	rimental		Resea	arch		Practical work		
for each activity so that the total number of ECTS points	Essay	7		Repo	rt		Continuous examination	1	
corresponds to the credit score of the course))	Collo	quium	3 (without written exam)	Semi	nar paper		Other		
	Class	activity		Oral	exam	1	Other		
3.3 Student workload	Stude 1. 2.	Attending of	n all bases for 1 ECTS classes and exercises olloquia or exams thr	60 hours		and is estimated as:			
4. GRADING SYSTEM									
4.1. Grading seminar papers	-								
4.2. Grading colloquia/ written and oral exam		Uı	nsatisfactory		Sat	isfactory	Above	average	



	understanding. It	memory, without a deeper Does not know or apply basic tts. Does not know how to apply contents of the course with	Reproduces the basic concept difficulty imparts new knowled the material, explains the term supported with examples.	lge, understands	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	75-79,9% of attendance	80-89,9% of	attendance	90-100% of attendance	
	attendance	2 points	5 points	10 po	ints	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	Written exam	25 points	30 points 35 poi		ints	40 points	
	0.1	2	3			5	
	Oral exam	25 points	30 points 35		ints	40 points	
		acquired knowledge, skills and es (teaching + final exam)	Numerical grade		ECTS grad	le	
4.4 Final anada according to		90 – 100%	5 (excellent)		A		
4.4. Final grade according to absolute division		80 – 89,9%	4 (very good)		В		
absolute division		65 – 79,9%	3 (good)		С		
		60 – 64,9%	2 (satisfactory)		D		
		50 – 59,9%	2 (satisfactory)		Е		
5. ADDITIONAL COURSE IN	FORMATION						
5.1. Compulsory literature		Ti	itle		Number of copies the library	in Availability via other media	
(available in the library and via other media)	Jerko Acalin: Info Šibenik, 2017	rmation systems and technologi	es - textbook with PP-presentation	on, Polytechnic of	5	Avaialble on the e- learning page of the	
	Jerko Acalin: Basi	cs of Informatics (Windows, Wor	5 course				



5.2. Additional literature (at the	Milan Korać: EXCEL 2013 EXCELL 2010	5			
moment of changes and/or	Wayne l. Winston: Excel 2010 Data analiysis and Business Modeling	2			
amended of study programme)	Word 2010 Microsoft Press, A Division of Microsoft Corporation	2	-		
amended of study programme)	Marko Russo, Alberto Ferari: Power Pivot for Excell 2010	2			
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	aftendance and student activity during classes and provided information on students, progress through short colloquiums and homework, information to				
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).	website of the Polytechn anations they can be con-	ic. Students can contact tacted 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. Course title	KNOWLEDGE OF GOODS	1.8. ISVU course code	187586				
1.2. Course lecturer	Nikolina Gaćina, grad. eng., senior lecturer	1.9. MOZVAG course code					
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+0+15+0)				
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st – materials available On-line, 0%				
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	2.				
1.6. Study year	1 st	1.13. Modernization	X yes □ 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 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 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 profesional 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 technological 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: 1- Recapture, 2- Understanding, 3- Application, 4- Analysis, 5- Evaluation, 6- Synthesis
2.4. Expected learning outcomes	 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
	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
	Analyze and evaluate the specific characteristics and reasons for the application of particular packaging materials for different products.	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.	5, 6
	 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

	Const	tructive alignment				
	No.	Thematic ensemble / Lecture Topic	LO of the course	Content / Teaching Method	Evaluation	Time needed
2.5. Course content according to detailed curriculum schedule		Introduction to the course and detailed curriculum. Introduction to writing a seminar paper.	-	Listen to the lecture.	-	2 h
	1.	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,	6 h



				and evaluate the appropriate type of storage and transport depending on the type of product.	
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	6 h



						_	us substances, to analyze of the same.	the possible	
	Transport and substances.	-	1, 2, 3, 4, 5, 6, 7, 8	-	lecture, present r, followed by a l read literature	At the co	olloquium or the written as ow: to define and classify dous substances during the disposal and labeling	the labeling transport, to	6 h
	14. Strategic Good	s. 2. Colloquium.	1, 2, 3, 5, 6, 7, 8	a seminar pape	lecture, present r, followed by a l read literature	they kno	olloquium or the written and outegon or the define and categon or explain their importance	rize strategic	4 h
	15. Concluding Repetition and	Considerations / Exam Preparation.		-	a lecture and dually for the				20 h
3. EVALUATION OF STUDEN	NT WORK								
3.1. Students` obligations	Part-time students have who have during the constraints and part of the constraints and part of the constraints are students can pass the studies, making and part of the constraints are constraints.	e the obligation to attend ourse achieved: 9% ECTS credits - is rated 9,9% ECTS credits - is rated ary exam period; % ECTS credits - student final exam in two ways: a	at least 50% IF (unsucce ed FX (inad as have the ri) during the per and proje	of lectures. All ssful) and canno lequate) and has ight to access the course through cect, passing two	t get ECTS credit to come out and p e final exam of th continuous studen colloquia); b) d	eate, presents and must pass the te e subject.	all regular students attend nt and positively colloquy st re-enrol the subject in the st (exam). A written examine ce (active participation in course (active participation oral exam).	y seminar pape he next acaden n can be held i	er. Students nic year; in a regular olving case
3.2. Monitoring student work	Attendance	0,25	Written	exam	2 (without colloquiums)		Project		
(enter the share of ECTS credits for each activity so that the total	Experimental work		Research	h			Practical work		
number of ECTS points	Essay		Report				Continuous examination		



corresponds to the credit score of the course)	Colloquium	3 (without the written and oral exams)	Seminar paper		0,75	Othe	r (inscribe)	
	Class activities		Oral exam		1 (without colloquiums)	Othe	r (inscribe)	
	The student's workload o	n all bases amounts to 1	ECTS point for 30) hours o	of work per semester and	is estim	ated as:	
	Commitment				Hours (estimate)			
3.3. Student workload	1. Attending clas	ses			45			
		resenting seminar paper			10			
	3. Preparation for	the Colloquium / exam	through self-study	V	65			
4. GRADING SYSTEM								
	Valuation Element	Poor	•		Satisfying		Abo	ve average
	Organization The paper is not organi order and its structure in		•	The paper is well structured of clear distinction between introduction, the main part of the and the conclusion.		the	distinction betwe	l-structured with a clear en the introduction, the text and the conclusions logically linked to one
4.1. Seminar paper grading	Terminology, writing style	Words and phra harmonized with office Writing style is resentences are too vocabulary, and freque grammatical mistakes	cial terminology. not appropriate, long, modest nent and repeated	Words and phrases are aligned wit official terminology. The writing styl is appropriate, the sentence structure i clear, the vocabulary is appropriat and has little grammatical errors.		ng style cture is copriate	official termino understanding o writing style is ex clear and concise	ases are aligned with ology and show an f their meaning. The cellent, the sentences are e, the vocabulary is rich grammatical errors.
	Quoting and referencing	Sources are not spec references do not mat show a superficial a research topic.	ecified at all. The Sour atch the topic and with approach to the appr		es are listed, but incomples are listed, but incomple errors. The reference oriate for the subject and ctory research attitude.	es are	consistent. The re	ferences are appropriate, and comprehensive and search approach.
	Po	or		Satisf	fying		Above a	verage
4.2. Colloquium / exam grading Give answer by memory, no deepe understanding. Does not know and does not apply the basic terms and concepts. Cannot			transfers new k	nowledg	ms, without difficulty ge, understands subject ms and the notions that	evaluat	tion. It observes leg	of analysis, synthesis and gitimacy, accurately and ontent of the subject, and

substantiate by examples.

logically links and explains the terms and concepts

apply or explain the contents of the course.



				orig	it encapsulates. Find s finally given. There is relative subjects.			
	Active participation	70 of attendance	71-80% of attendance	71-80% of attendance 81-90% of a		91-100%		
	in the lessons	2 points	3 points	4 poin	ts	5 points		
	December	2	3	4		5		
4.3. Creating a final grade	Research paper	8 points	10 points	12 poir	nts	15 points		
according to evaluation		2	3	4		5		
elements	Colloquium / written exam	50-64,9%	65-79,9%	80-89,9	9%	90-100%		
	CAMII	25 points	35 points	40 poir	nts	50 points		
	0.1	2	3	5		5		
	Oral exam	15 points	20 points	25 poir	nts	30 points		
	_	opted knowledge, skills and (teaching + final exam)	Numerous grade		ECTS gra	de		
4.4. Creating a final grade		90 – 100%	5 (excellent)		A			
according to absolute allocation		80 – 89,9%	4 (very good)		В			
		65 – 79,9%	3 (good)	.0		C D		
		60 – 64,9%	,	2 (sufficient)				
		50 – 59,9%	2 (sufficient)		Е			
5. ADDITIONAL INFORMAT	ION ABOUT THE CO	URSE						
5.1. Compulsory literature		Tit			Number of copies in the library	Availability via other media		
(available in the library and through other media)	Gacina, N. (2012). Knowledge of goods. Internal script of the Polytechnic of Šibenik, Šibenik.				e-learning			
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Andrijanić, I., Balen, N (Chapters selected)	1., Lazibat, T. (2001). Knowled	Mikrorad, Zagreb.	4				



	Štrumberger, N. (2000). Handling of materials in traffic. Faculty of transport and traffic sciences,	4	
	University of Zagreb, Zagreb. (Chapters selected)		
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 will as well as the methods of work and the required literature. Indicators of quality assurance system: Students are croatian employment service on the annual state of student employment, surveys from employers and Alexander and the required literature.	ort colloquiums and hon ll be informed about the ent survey, monitoring of	nework, information for ir 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 le to ask questions by e-



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

1. GENERAL INFORMATION	ON					
1.1. Course title	ENGLISH LANGUAGE I	1.8. Course code in ISVU	129833			
1.2. Course lecturer	phD. Ivana Kardum Goleš, senior lecturer	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 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	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 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	Four-year secondary education completed; qualifi	cation level 4.2 according to the CROQF.				
2.3. Learning outcomes on the	LO1: To apply and link professional terms from to in Croatian and English.	echnology and organization of road traffic in written and oral	communication with the professional public			
study programme level	LO2: To organize and implement team work, and	critically judge the opinions and attitudes of team members.				
	LO3: To individually and responsibly search, inte	rpret and integrate the relevant literature needed to make dec	cisions.			



	Lear	Level of LO: 1- remembering, 2- understanding 3- application, 4- analysis, 5- evaluation, 6- synthesis	<i>;</i> ,					
	to understand, apply and link basic terms from the professional terminology of English road traffic and use them in written and oral communication.							
		2. to apply grammatical structures		=		3		
		3. to interpret and use tenses in re				3, 4		
		to develop a shorter essay with		of the course.		3		
		to reproduce an email in English		the subjects of the course to suppose	one own oninions	3		
	6. to communicate in a foreign language within the subjects of the course, to express one own opinions.						5	
	7. to compare and evaluate different traffic solutions.8. to analyse medium complex texts and solve tasks.						4	
		o. to use part of the general langua				6		
	Cons	tructive allignement	<u> </u>	·		l		
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time needed	
2.5. Course content according to	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	
detailed curriculum schedule	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, applied from the professional termine road traffic and use them in communication verb tenses are real linguistic context, use part competences at B1 level.	on texts and tasks ly and link terms blogy of English written and oral e interpreted in a	4 h	



	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 (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
	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 the development of transport solutions to develop a longer essay within course topics, comparing and evaluating different solutions in the traffic of	4 h



Eq.							
					other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.		
	6.	Keeping Drunken Drivers Off The Road – Past And Perfect Tenses	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Use multimedia and internet. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing 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 colloquium	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	10 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	
			Fitness To Drive – Relative Pronouns And Possessivess	1 1 2 3 5 1	Listen to lectures and read literature. Solve exercises.	linguistic context, can communicate in foreign	
						languages within the course topic, express their	6 h
						own opinions, present their own ideas related to	
		9.				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	
		1.0	Travelling By Tube – Personal	1, 2, 3, 5,	Listen to lectures and read	own opinions, present their own ideas related to	
		10.	And Reflexive Pronouns	6, 9	literature. Solve exercises.	the development of transport solutions to develop	6 h
					Discuss.	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.	
			The Engine Of A Car – Future		Listen to lectures and read	In colloquium or written and oral exams the	
		11.	Tenses – Will And Going To	1, 2, 3, 5,	literature. Use multimedia and	applied grammatical structures on texts and tasks	10 h
			And Present Continuous	6, 9	internet. Solve exercises.	are evaluated, verb tenses are interpreted in a real	
L		L				, r	



					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	
	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.	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 other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	4 h



14.	"Jam Yesterday - Jam Tomorrow"; Passenger Transportation - Tenses Revision, Only Stricker Traffic Rules Can Prevent Accidents - Articles	1, 2, 3, 6, 9	Listen to lectures and read literature. During lectures individually research the content of this thematic field by searching data bases, presentt acquired knowledge, express their own ideas and ways of problem solving. Brainstorming, discussion. Solve exercises.	In colloquium or written and oral exams the applied grammatical structures on texts and tasks are evaluated, verb tenses are interpreted in a real linguistic context, can communicate in foreign languages within the course topic, express their own opinions, present their own ideas related to the development of transport solutions to develop a longer essay within course topics, comparing 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 colloquium	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



						ng will be published on the web s te teaching materials and the list of			
	Attendance (Writter	n exam	1 (without colloqui	a) Project				
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work		Researc	ch		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 ex	am) Semina	ar paper		Other			
,	Class activity (),5	Oral ex	kam	1	Other			
3.3. Student workload	1. Attending cl	dent 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 45 hours							
4. GRADING SYSTEM									
4.1. Grading seminar papers									
	Unsatis	factory	Satisfactory Abo			4.7			
					y	Above a	verage		
4.2. Grading colloquia/ written and oral exam	Responds by memoral understanding. Doe basic terms and contents of the court	s not know or apply concepts. Does not oly or explain the	difficulty in	e basic conomparts no e material, o	cepts and without ew knowledge, explains the terms	Knowledge is at the level evaluation. Observes the principal explains the content of the mand explains the terms and concerning solutions that were correlations with related material	of analysis, synthesis and ples, accurately and thoroughly aterial, and logically connects cepts supported with examples. not originally given. Notes		
• •	understanding. Doe basic terms and c know how to app	s not know or apply concepts. Does not oly or explain the	difficulty in understands th and concepts st	e basic conomparts no material, of upported with	cepts and without ew knowledge, explains the terms	Knowledge is at the level evaluation. Observes the princip explains the content of the ma and explains the terms and conditions that were	of analysis, synthesis and ples, accurately and thoroughly aterial, and logically connects cepts supported with examples. not originally given. Notes		
• •	understanding. Doe basic terms and c know how to appropriate to the court of the co	s not know or apply oncepts. Does not oly or explain the se with examples. 70-75% of	difficulty in understands th and concepts st	e basic conomparts no e material, o upported with	cepts and without ew knowledge, explains the terms h examples.	Knowledge is at the level evaluation. Observes the princip explains the content of the mand explains the terms and concerning solutions that were correlations with related material	of analysis, synthesis and ples, accurately and thoroughly aterial, and logically connects cepts supported with examples. not originally given. Notes al.		
• •	understanding. Doe basic terms and c know how to appropriate contents of the course	s not know or apply oncepts. Does not oly or explain the se with examples. 70-75% of	difficulty in understands th and concepts su attendance	e basic conomparts no e material, o upported with	cepts and without we knowledge, explains the terms h examples.	Knowledge is at the level evaluation. Observes the princip explains the content of the mand explains the terms and concerns solutions that were correlations with related material 87-100% of attendance	of analysis, synthesis and ples, accurately and thoroughly aterial, and logically connects cepts supported with examples. not originally given. Notes al. Maksimum bodova		
and oral exam 4.3. Final grade according to	understanding. Doe basic terms and c know how to approntents of the cour Active course attendance	s not know or apply oncepts. Does not oly or explain the se with examples. 70-75% of 3 pc	difficulty in understands th and concepts su attendance	e basic conomparts no e material, o upported with	cepts and without we knowledge, explains the terms h examples.	Knowledge is at the level evaluation. Observes the princip explains the content of the mand explains the terms and concerns solutions that were correlations with related material 87-100% of attendance	of analysis, synthesis and ples, accurately and thoroughly aterial, and logically connects cepts supported with examples. not originally given. Notes al. Maksimum bodova		



		25 points	30 points	35 points	40 bodova
	Oral exam	2	3	4	5
	Orar exam	25 points	30 points	35 points	40 bodova
		uired knowledge, skills and (teaching + final exam)	Numerical grade ECTS grade		ECTS grade
4.2 Final anada accordina to	Ç	90 – 100%	5 (excellent)		A
4.3. Final grade according to absolute division	8	80 – 89,9%	4 (very good)		В
absolute division	6	55 – 79,9%	3 (good)		С
	6	60 – 64,9%	2 (satisfactory)		D
	5	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)	Katja Bošković Gazdović: "English textbook of Transport I", Faculty of transport and traffic sciences, University of Zagreb, 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", Department for traffic, Polytechnic of Rijeka, 2007. Adrian Pilbeam, Nina O'Driscoll: "Logistics Management", Market Leader, Pearson Longman, 2010 A.J. Thomson, A. V. Martinet: "A practical English Grammar Exercises", Oxford University A.J. Thomson, A.V. Martinet: "A Practical English Grammar Exercises", Oxford University	10	X (elearning, handouts)			
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	A.J. Thomson, A.V. Martinat: "A Practical English Grammar exercises II", Oxford University 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	201134					
1.2. Course lecturer	MSc. Martina Ljubić Hinić, senior lecturer	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 program (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	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 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; understand the technical and technological characteristics of the traffic branches; acquire knowledge about the organizational features of the traffic branches and the complexity of the transport system; get to know the interdisciplinary approach to the transport system and transport processes; apply the learned content of this course to practice.				
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification level 4.2 according to the 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 study program level	LO2: To organize and implement team work, and critically judge the opinions and attitudes of team members.				
	LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions.				
	LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic.				



		Level of LO:
		1- remembering,
		2- understanding,
	Learning outcomes according to Bloom's taxonomy:	3- application,
		4- analysis,
		5- evaluation,
245		6- synthesis
2.4. Expected learning outcomes on the course level	 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	1, 2
	approach to the transport system.	1, 2
	3. to describe, compare and relate the technical and technological characteristics of the branches of transport and modern	2, 4
	transportation technologies.	2, ¬
	4. to identify and evaluate the interdependence of the elements of the transport system.	5, 6
	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 needed			
2.5. Course content according to detailed curriculum schedule	1. Elements of system.	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			
		Historical development of	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 topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or the written and oral exam they identify and explain the elements and technologies of maritime transport, and define and describe the role of technical and technological characteristics of maritime transport in the transport system.	4 h	
		3.	Inland waterways.	1, 2, 3, 5	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they specify and explain the elements and technologies of inland waterway transport, and define and describe the role of technical and technological characteristics of maritime transport in the transport system.	4 h
		4.	Seaports. Transportation technologies.	1, 2, 3, 4, 5, 6	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or written and oral exams they identify and explain the types and operation of seaports, and define, list and describe transportation technologies and explain the interdependence of all branches of transport. Seminar work is done in groups with discussion.	4 h
		5.	Study trip (Rijeka port).	1, 2, 3, 4, 5, 6	They listen to a lecture.	In colloquium or written and oral exams they identify and explain seaports, and define and describe the role of seaports as collection points into which traffic flows from all traffic routes and means of transport of different branches of traffic.	8 h
		6.	Road 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	In colloquium or written and oral exams they specify and explain the elements and technologies of road transport, and define and describe the role of technical and technological characteristics of road	4 h



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



11.	Postal 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 postal traffic, and define and describe the role of technical and technological characteristics of postal traffic in the transport system. Seminar work is done in groups with discussion.	4 h
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, 6	They listen to a lecture and prepare individually for the colloquium.	In colloquium or written and oral exams they identify and explain the elements and technologies of urban transport, and define and describe the role of urban transport in the transport system.	42 h
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										
In accordance with the Rulebook on Study and the Rulebook on Student Assessment and Evaluation: for all full-time students' attendance of at lear Part-time students are required to attend a class of at least 50%. All students must create, present and positively colloquy seminar paper. Students 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 • 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 regent 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 conteaching through continuous monitoring of students (active participation in classes and two exams); b) during class (active participation in classing exams (written and oral part of the exam).										
3.2. Monitoring student work		Attendance 1		1 (without colloquia)	Project					
(enter the share of ECTS credits	work		Research		Practical	work				
for each activity so that the total number of ECTS points	Essay		Report		Continuo examina		1			
corresponds to the credit score of the course)	Colloquium	(without written exam)	Seminar paper	1	Other					
	Class activity 1		Oral exam	1 Othe						
3.3. Student workload	Student workload on a Preparation for the mid		it 30 semester hours a	nd is estimated as: Attendanc	e 45 h, Desi	gn of seminar wo	ork and presentation 15 h,			
4. GRADING SYSTEM										
	Element of evaluation	on I	Bad	Satisfying	Satisfying		ove average			
4.1. Grading of seminar work	Organization	The paper is not order and lacks str	organized in a logical ructure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.		the main body of the text and the				



	Terminology, writing style	Words and expressions official terminology. T is not appropriate, the slong, of a modest voca frequent and repeate errors.	The writing style sentences are too abulary and with	official termin is appropriate, clear, the voca there are few g	oressions are in ology. The writ the sentence str bulary is approp trammatical erro	ructure is priate and prs.	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
	Citing and referencing references	The sources are not li references do not fit the a cursory approach to topic.	e topic and show	and with errorelevant to t	re listed but in ors. The refere topic and search attitude.	nces are	and consistently listed. The references are appropriate, their list is "rich" and comprehensive and shows a detailed research approach.
	В	ad		Satisfying			Above average
4.2. Grading of the colloguium / written and oral exam	or explain the conten	ot know or apply basic s not know how to apply ts of the course with	difficulty impa the material, ex it supports with		ge, understands nd concepts that	and evacurate of the explains with exoriginal related in	dge is at the level of analysis, synthesis valuation. It observes the legality, ely and thoroughly explains the content material, 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.
		0-75% of the presence		the presence	87-100% of		ce Case studies resolved
	attendance	0 points		oints	0 p	oints	0 points
	Seminar paper	2		3		4	5
4.3. Forming the final grade	IV.	lade and handed over	Made and	nanded over	Made and	handed ove	
according to the evaluation	Examination /	2		3	6.1	4	5
elements	Written	50-64%		80%		90%	91-100%
	examination	25-32 points	33-40	points	41-45	points	46-50 points
	Oral part of the	25, 22,	22.40	3	41 42	5	5
44.5	exam	25-32 points		points	41-45	points	46-50 points
4.4. Formation of final grade based on absolute distribution		uired knowledge, skills ar (teaching + final exam)	na	Number ratir	ıg		ECTS grade



90 – 100	5 (excellent)	A
80 – 89,9	% 4 (very good)	В
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	Title	Number of copies in the library	Availability via other media
(available in the library and through other media)	Cerovac, V.: Technology and traffic safety, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 2001. (selected chapters) Božičević, D., Kovačević, D.: Modern transport technologies, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 2002.	3	No
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	Courses Lectures Zelenika, R.: Traffic systems, Faculty of economics, University of Rijeka, Rijeka, 2001. Zelenika, R.: Multimodal traffic systems, Faculty of economics, University of Rijeka, Rijeka, 2006. Sussman, J.: Introduction to Transportation Systems, Artech House, United Kingdom, 2000.	3 0 0	No No Yes
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensure students' attendance and activity in the classroom and information obtained about student progress the needed for further guidance to students in order to increase their work efficiency. Students will be ins working methods and required literature. Quality assurance system indicators: Student survey, monitor status of students, employer survey and Alumni Association.	rough the midterm will partructed in their rights and	provide the information d 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 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 explains 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).	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 or an amended and/or changed or modernized course.

1. GENERAL INFORMATION									
1.1. Course title	BASICS OF ELECTRICAL ENGINEERING AND ELECTRONICS	1.8. Course code in ISVU	201136						
1.2. Course lecturer	MSc. Danijel Mileta, senior lecturer	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30 + 30 + 0 + 0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%						
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	3						
1.6. Year of study	1 st	1.13. Modernization	X yes □ no						
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 main objective of the course is to familiarize students	with basic knowledge in the field of electrical engineering at	nd electronics.						
2.2. Terms of course entry and required competences	Four-year secondary education completed; Possession of a	Level 4.2 qualification according to the CROQF							
2.3. Learning outcomes on the	IU4: Apply knowledge of natural and technical sciences to	road transport problems.							
study programme level	IU8: Solve traffic problems using analytical and / or graph	ical methods.							
	Learning outcomes by Bloom: (maximum 2 werbs for LC	0)	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 circu	uits and magnetic circuits.		3			
	2	2. Draw or sketch schematics of basi	c electrical de	evices.		4, 3			
	3	3. Identify and compare electrical an	d magnetic ph	nenomena.		2, 4			
	4	. Describe electronic components a	nd basic electi	rical devices.		1			
	5	6. Predict the results of electrical and	d magnetic int	eractions.		5			
	6	6. Solve simple tasks in the field of e	electrostatics a	and electromagnetism.		3			
2.5. Course content according to detailed curriculum schedule	Cons	Constructive allignement							
	No	Thematic unit	LO of the	Content/teaching methods	Eva	luation	Time		
			course				needed		
	1.	Introduction to the course and		Students listen to a lecture. On the computer,					
		detailed curriculum.	-	they are introduced to the course content and		-	2 h		
				documents on the e-learning course page.					
	2.	Basics of electricity		Students listen to a lecture and read literature.	_	um, written and oral			
				The exercises demonstrate how to solve	-	define and describe			
				tasks. Independent task solving.	_	and identify causes			
			3, 5			of electricity, draw	6 h		
						same, and solve or			
					electricity.	e tasks in the field of			
	3.	Electric current and associated		Students listen to a lecture and read literature.	_	ım, written and oral			
] .	phenomena and associated		The exercises demonstrate how to solve	_	define and describe			
				tasks. Independent task solving.	•	identify the basic			
			1, 3, 5		_	direct current and	4 h		
					related phenom	ena, draw or sketch			
						e simple tasks in the			
					field of direct cu				
	4.	Simple DC circuits		Students listen to a lecture and read literature.	-	ım, written and oral			
				The exercises demonstrate how to solve		define and describe			
			1, 2, 3, 5	tasks. Independent task solving.		pts, the behavior of	4 h		
						imple DC circuits,			
					draw or sketch t	he same, and set and	1		



					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.	4 h
	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	4 h
	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.	4 h
	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.	1 h
	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	4 h



					describe the basic concepts of electromagnetism.	
	10.	Electrome anoticm		Students listen to a lecture and read literature.	At the colloquium, written and oral	
	10.	Electromagnetism			-	
				The exercises demonstrate how to solve	exam they can define and describe	
			1 2 2 4 5	tasks. Independent task solving.	the basic concepts of	0.1
			1, 2, 3, 4, 5		electromagnetism, identify related	9 h
					phenomena, draw and sketch them,	
					and solve or calculate simple tasks in	
					the field.	
	11.	Transformer		Students listen to a lecture and read literature.	At the colloquium, written and oral	
				The exercises demonstrate how to solve	exam they can define, describe,	
				tasks. Independent task solving.	draw or sketch the mode of	4 h
			1, 2, 3, 4, 5		operation of the transformer and the	
					phenomena that occur in it and to	
					solve or calculate simple tasks in the	
					field.	
	12.	AC generator		Students listen to a lecture and read literature.	At the colloquium, written and oral	
				The exercises demonstrate how to solve	exam they can define, describe,	4 h
			1, 2, 3, 4, 5	tasks. Independent task solving.	draw or sketch the principle of	
					operation of the generator and solve	
					or calculate simple tasks in the field.	
	13.	Electromotor		Students listen to a lecture and read literature.	At the midterm, written and oral	
				The exercises demonstrate how to solve	exam they can define, describe,	
			1, 2, 3, 4, 5	tasks. Independent task solving.	draw and sketch the principle of	4 h
			1, 2, 3, 4, 3		operation of electric motors and	4 11
					solve or calculate simple tasks in the	
					field.	
	14.	Basic electronic elements		Students listen to a lecture and read literature.	At the oral exam, they are able to	
			2, 4	The exercises demonstrate how to solve	define and describe the basic	2 h
				tasks. Independent task solving.	electronic elements.	
	15.	Repetition / Colloquium		Students listen to a lecture and read literature.	It is necessary to identify, set and	
			1, 2, 3, 4, 5	The exercises demonstrate how to solve	solve simple tasks from thematic	4 h
				tasks. Independent task solving.	units 10-13.	



4. EVALUATION OF ST	UDENT WORK							
3.1. Student obligations	In accordance with the	Rulebook on Study and the Rulebo	ook on Student Assessmen	nt and Evaluation: for a	ll full-time students att	endance of at least 70%.		
	Part-time students are required to attend a class of at least 50%. Students who have achieved during the course: from 0 - 24,9% ECTS credits- are rate (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 re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and must re-enroll in the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year; from 25 - 49,9% - are assessed by FX (insufficient) and the next academic year.							
					•			
		en exam (test). Written exam (test)	_	•		_		
		Students can take the final exam f		•		ontinuous monitoring of		
		pation in classes and through two e			<u> </u>			
3.2. Student work monitoring	Attending classes	1 V	Vritten exam	1	Project			
(enter the share of ECTS credits for each activity so that the total	Experimental work	F	esearch		Practical work			
number of ECTS credits	Esaay	F	eport		Continuous check			
corresponds to the course credit	Colloquiums	1 S	eminar paper		(other)			
value)	Teaching activities	Т	he oral part of exam	1	(other)			
3.3. Student work-load								
A CDADING OVCIDENT								
4. GRADING SYSTEM								
4.1. Evaluation of seminar paper	Elements of	Bad	Satisf	fying	Above	e average		
	evaluation							
	Organization	The paper is not organized in a			* *	structured with a clear		
		logical order and lacks structure.	distinction between the introduction, the main		distinction between the introduction, the			
			body of the text and the	e conclusion.	~	ext and the conclusion,		
	Tamain alaga, amitin a	Wanda and ammasians and not in	Wanda and ammassis	! !!!.	which are logically in			
	Terminology, writing	Words and expressions are not in line with official terminology.	Words and expression official terminology.		Words and expressions are aligned with official terminology and show an			
	style	The writing style is not	• • • • • • • • • • • • • • • • • • • •		1	gy and show an sir meaning. The writing		
		appropriate, the sentences are	** *		_	e sentences are clear and		
		too long, of a modest vocabulary		•	•	ary is rich and there are		
		and with frequent and repeated		3.	no grammatical error	•		
		grammatical errors.			no grammatical circl			
	Citing and	The sources are not listed at all.	The sources are listed	d but incomplete and	The sources are acc	urately, completely and		
	referencing	The references do not fit the		•		The references are		



		topic and show a cursory	topic and show a sati	sfactory research	•	shows a detailed research
		approach to exploring the topic.	attitude.		approach.	
4.2. Gradeing of the		Bad	Satisfyin	g	Abo	ve average
colloquium/written and oral						
exam	It responds by memory	without a deeper understanding.	It reproduces the basic cor	ncepts and without	Knowledge is at	the level of analysis,
	It does not know or appl	y basic terms and concepts. It does	difficulty imparts no	ew knowledge,	synthesis, and eva	aluation. It observes the
	not know how to appl	y or explain the contents of the	understands the material,	explains the terms	legality, accurately	and thoroughly explains
	course with examples.		and concepts that it suppor	ts with examples.	the content of the	e material, and logically
					connects and explain	ins the terms and concepts
					that it supports	with examples. Finds
					solutions that were	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
	Colloquiums x2 Written part of exam	2	3	4		5
		16 points	20 points	26 points		30 points
		2	3	4 80 - 89,9%		5
		50 - 64,9%	65 - 79,9%			90 - 100%
		15 points	20 points	25 points		30 points
	Oral part of exam	2	3	4		5
	Oral part of exam	15 points	20 points	25	points	30 points
4.4. Formation of the final grade	Percentage of acq	uired knowledge, skills and	Numerical g	rade	ECTS grade	
based on the absolute	competencies	(teaching + final exam)				
distribution	9	90 – 100%	5 (exceller	nt)		A
	3	80 – 89,9%	4 (very goo	od)		В
	(55 – 79,9%	3 (good)			С
	(60 - 64,9%	2 (sufficien	nt)		D
	4	60 – 59,9%	2 (sufficien	nt)		Е



5. ADDITIONAL INFORMATI	ON 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.: "Basics of electrical engineering", School book, Zagreb	3	
5.2. Additional literature (at the	Kulišić, P.: "Physics 2", School book, Zagreb		
moment of changes and/or	Pinter, V.: "Basics of electrical engineering 1 and 2", Technical book, 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	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	ough short colloquiums and ho	omework, information for
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Stud	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, 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-learning site of the course and on the w	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	ons they can be contacted during	ng 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	ON		
1.1. Course title	TRAFFIC LOGISTIC	1.8. Course code in ISVU	140773
1.2. Course lecturer	Darijo Šego, univ. spec. traff., senior lecturer	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+0+30+0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4
1.6. Year of study	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		ledge and case studies: learn about the elements of the logistic, transportation, and traffic, mastering the modern logistics of	•
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 study programme level	in Croatian and English.	and organization of road traffic in written and oral communi	cation with the professional public
	LO2: To organize and implement team work, and critically		
	LO3: To individually and responsibly search, interpret and	integrate the relevant literature needed to make decisions.	
	LO5: To apply basic legal and economic principles in orga	nization with socially responsible management in technical-	technological subjects.
	LO6: To analyze and present relevant facts from the field of	of traffic needed to reach conclusions.	
	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 tr	affic technology and technique.	
	LO12: To set up a minor traffic process and critically evaluate	uate it.	



	LO13: To track trends in the development of technique, technology and safety in traffic.							
	Lear	ning outcomes by Bloom: (maximum	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	. Define and differentiate basic term	ns and division	n in logistics, warehousing, and freight forwarding	ng.	1, 2		
	2	. Analyze and extract information a	and communic	ation technologies in transport logistics.		4, 2		
	3	. Select, evaluate and categorize ser	rvices in the w	varehouse business.		3, 5		
	4	. Compare and connect ways of tra	ansportation o	f products, organization of distribution and perf	formance of city	4, 6		
	5	. Propose ways of doing urban logi	stics, handling	g of products and reduction of inventory costs.		6		
	6	. Use materials and tools to search	the scientific a	and professional literature in their native and Eng	glish languages.	3		
	7	. Present the acquired knowledge, i	deas, problem	s, and solutions independently and in a team.		6		
2.5. Course content according to	Cons	tructive allignement						
detailed curriculum schedule								
	No	Thematic unit	LO of the	Content/teaching methods	Eva	Evaluation		
			course				needed	
	1.	Introductory presentation		Listening to the lecture. In the course of				
		(introducing students to the course		seminars, they are introduced to the course				
		content and obligations)	-	content and documents on the e-learning page		-	2 h	
				of the course by working independently on a				
				computer.				
	2.	The term of logistics (term,		They listen to a lecture and read literature. At	-	m or the written and		
		developmental factors, elements of		the seminar class, they individually explore	-	lents know how to		
		the logistics system, logistics	1, 6, 7	the content of this topic area by searching the		distinguish basic	4 h	
		system division)	1, 0, /	database, and on the basis of it and reading	-	ogistics, types of	, 11	
				the literature, create a seminar paper that	•	ors of logistics		
					development. Se	minar paper created		



presents the acquired knowledge and presents their own ideas, and ways to solve problems. 1. 6. 7 1.							
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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 seminar class, they individually explore the content of this topic area by searching the describe and present the warehouse equipment. Choose adequate racks and forklifts for the storage of products and internal transport. Seminar paper created and presented		5.	9		•	<u> </u>	
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database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents 4 h 4 h Figure 1, 3, 6, 7 database, and on the basis of it and reading the literature, create a seminar paper that products and internal transport. Seminar paper created and presented					* * *	-	
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presents the acquired knowledge and presents Seminar paper created and presented				1, 5, 6, 7			
					the literature, create a seminar paper that	products and internal transport.	
their own ideas, and ways to solve problems. (by computer programs).					presents the acquired knowledge and presents	Seminar paper created and presented	
					their own ideas, and ways to solve problems.	(by computer programs).	



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



	9.	Inventory management and		They listen to a lecture and read literature. At	At the colloquium or the written and	4 h
		manipulation with products		the seminar class, they individually explore	oral exam, students can propose	
		(inventory planning and control,		the content of this topic area by searching the	ways of manipulating with products	
		supply chain, packaging of goods,		database, and on the basis of it and reading	(packaging, palletizing) and	
		palletization and containerization)		the literature, create a seminar paper that	reducing the cost of supplies (supply	
			5, 6, 7	presents the acquired knowledge and presents	chain). Define and describe Supply	
				their own ideas, and ways to solve problems.	Chain and Just in time procurement.	
					Identify the difference between	
					applying pallets and containers.	
					Seminar paper created and presented	
					(by computer programs).	
	10.	Transportation in the logistics		They listen to a lecture and read literature. At	At the colloquium or the written and	4 h
		system (road, rail, air and pipeline		the seminar class, they individually explore	oral exam, students know how to	
		transport, inland waterways		the 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	logistics, in all branches of traffic.	
		documents)	2, 4, 6, 7	the literature, create a seminar paper that	Identify the advantages,	
				presents the acquired knowledge and presents	disadvantages and costs of	
				their own ideas, and ways to solve problems.	transportation. Seminar paper	
					created and presented (by computer	
					programs).	
	11.	Modern transport technologies in		They use multimedia nad network. They	At the colloquium or the written and	4 h
		transport logistics (conditions for		listen to a lecture and read literature. At the	oral exam, students know how to	
		development, integral transport,		seminar class, they individually explore the	isolate and analyze transport	
		technologies on the road, rail,		content of this topic area by searching the	technologies in logistics in the road,	
		water, and air transport)		database, and on the basis of it and reading	rail, water, and air transport.	
			2, 4, 6, 7	the literature, create a seminar paper that	Compare, identify	
				presents the acquired knowledge and presents	similarities/differences in the	
				their own ideas, and ways to solve problems.	transportation of products with	
					modern transportation technologies.	
					Seminar paper created and presented	
					(by computer programs).	
	12.	Distribution and ordering of goods	4, 6, 7	They use multimedia and network. They	At the colloquium or the written and	4 h
		(concept, purpose, and structure of	7, 0, 7	listen to a lecture and read literature. At the	oral exam, students can define the	



		the distribution system,		seminar class, they individually explore the	terms of order and distribution.	
		distribution networks, costs in		content of this topic area by searching the	Propose the ways of orders in case	
		distribution, term of the order,		database, and on the basis of it and reading	of missing products. Determine the	
		processes in ordering)		the literature, create a seminar paper that	difference between physical	
				presents the acquired knowledge and presents	distribution and distribution	
				their own ideas, and ways to solve problems.	channels. Compare and explain	
					distribution network concepts.	
					Identify distribution costs. Seminar	
					paper created and presented (by	
					computer programs).	
13	3.	City logistics (concept, task, and		They listen to a lecture and read literature. At	At the colloquium or the written and	
		goal of city logistics, initiatives,		the seminar class, they individually explore	oral exam, students can define the	
		the structure of city logistics		the content of this topic area by searching the	concept and the goal of city	
		system, optimization of logistics		database, and on the basis of it and reading	logistics. Distinguish and isolate	
		flows)		the literature, create a seminar paper that	participants in city logistics.	
				presents the acquired knowledge and presents	Categorize flows of products in city	
			4, 5, 6, 7	their own ideas, and ways to solve problems.	logistics. Identify means of	4 h
					transport. Suggest city logistics	
					concepts. Identify the advantages	
					and disadvantages of optimizing the	
					flow of products. Seminar paper	
					created and presented (by computer	
					programs).	
14	4.	Study trip to KONZUM or LIDL			On a study tour, students will be able	
		Logistics-distribution center			to define and differentiate basic	
		(located in Dugopolje and			terms and divisions in logistics,	
		Perušić).			warehousing, and freight	
			1, 3, 4, 5		forwarding. Select, evaluate and	8 h
			1, 5, 1, 5		categorize services in the warehouse	0 11
					business. Compare and connect	
					modes of product transport,	
					organization of distribution of	
					products. Suggest ways of	



							manipulation with the reducing inventory cos	-	
	15.	Final conside	erations/Repeating		They listen to a course	lecture and prepare			58 h
		and preparing fo	r the exam.	-	individuals for the exam		-		
3. EVALUATION OF STUD	ENT V	WORK							
3.1. Student obligations	Part-t have acade	time students are r achieved during the emic year; from 25	equired to attend a ne course: from 0 - 6 - 49,9% - are asse	class of at leading 24,9% ECTS essed by FX (book on Student Assessment ast 50%. All students must be credits- are rated F (unsuc insufficient) and must pass	create, present and poccessful) and cannot e and pass the written e	ositively colloquy semin arn ECTS credits, and mexam (test). Written exam	ar papers. Stud nust re-enroll in m (test) can be	ents who the next held in a
	two v	ar 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 ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing the course of the exam (active participation in classes).							
3.2. Student work monitoring (enter the share of ECTS credits		iding classes	1		Written exam	1 (without colloqiums)	Project		
for each activity so that the total	Expe	rimental work			Research		Practical work		
number of ECTS credits corresponds to the course credit	Esaay	у			Report		Continuous check		
value)	Collo	oquiums	1 (without writte exam)	-	Seminar paper	0,5	(other)		
	Teach	hing activities	1		The oral part of exam	0,5	(other)		
3.3. Student work-load					nester hours and is assessed elf-study (60 hours).	as attendance (30 hou	rs), preparation of semin	ar work and pre	sentation
4. GRADING SYSTEM									
4.1. Evaluation of seminar paper		Elements of evaluation	Bac	i	Satis	fying		e average	
	(Organization	The paper is not	•					
	logical order and lacks structure.			e. distinction between the body of the text and th		main body of the to which are logically in	ext and the co	-	
	Term	Terminology, writing Words and expressions are not in Words and expressions are in line					-	Ū	
		style	line with official The writing s	l terminolog style is n	.			.	ow an e writing



		appropriate, the sentences are	the vocabulary is appropri	ate and there are	style is excellent, th	ne sentences are clear and
		too long, of a modest vocabulary	few grammatical errors.		concise, the vocabu	alary is rich and there are
		and with frequent and repeated			no grammatical erro	ors.
		grammatical errors.				
	Citing and	The sources are not listed at all.	The sources are listed but incomplete and		The sources are ac	ccurately, completely and
	referencing	The references do not fit the	with errors. The references	are relevant to the	consistently listed	l. The references are
	references	topic and show a cursory	topic and show a satis	sfactory research	appropriate, their	list is "rich" and
		approach to exploring the topic.	attitude.		comprehensive and	shows a detailed research
					approach.	
4.2. Gradeing of the		Bad	Satisfying	3	Abo	ve average
colloquium/written and oral exam	It responds by memory	, without a deeper understanding.	It reproduces the basic con	cepts and without	Knowledge is at	the level of analysis,
exam	It does not know or appl	y basic terms and concepts. It does	difficulty imparts no	ew knowledge,	synthesis, and eva	aluation. It observes the
	not know how to appl	y or explain the contents of the	understands the material, e	explains the terms	legality, accurately and thoroughly explains	
	course with examples.		and concepts that it supports with examples.		the content of the material, and logically	
					connects and explains the terms and concept	
						with examples. Finds
						e not originally given. It
					notes correlations v	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	class	70 7570 deterradate	70 0070 attendance	07 10070		Case studies resolved
elements		2 points	4 points 7 p		ooints	3 points
	Seminar paper	2	3		4	5
	Semmar paper	5 points	7 points	8 p	ooints	10 points
	Colloquiums/	2	3		4	5
	Written part of exam	50 - 64,9%	65 - 79,9%	80 -	89,9%	90 - 100%
	written part of exam	25 points	30 points	35 ₁	points	40 points
	Oral part of exam	2	3		5	5
	Oral part of Chaill	25 points	30 points	35]	points	40 points
4.4. Formation of the final grade	Percentage of acc	uired knowledge, skills and	Numerical gr	ade	ECTS grade	
based on the absolute	competencies (teaching + final exam)					
distribution		90 – 100%	5 (excellen	t)		A
					1	



	$80 - 89{,}9\%$	4 (very good)	В		
	65 – 79,9%	3 (good)		C	
	60 – 64,9%	2 (sufficient)		D	
	50 – 59,9%	2 (sufficient)		Е	
5. ADDITIONAL INFORMATI	ON 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)	Ivakovic C., Stankovic R., Šafran M.: Freight Forwarding a	and Logistics Processes, Faculty of	-	City of Sibenik library	
	Transport and traffic sciences, University of Zagreb, Zagre	*	-	PDF (Internet website)	
	Mlinarić Josip T.: Freight-transport Centers, Faculty of Tra	ansport and traffic sciences, University	2		
	of Zagreb, 2013 (selected chapters)			City of Sibenik library	
	Zelenika R.: Logistics Systems, University of Rijeka, Facu	lty of Economics, Rijeka, 2005	_	City of Stocilik Horary	
	(selected chapters)	. 114			
	Bloomberg D.: Logistics, MATE, Zagreb School of Econor	mics and Management, Zagreb, 2006			
5.2. Additional literature (at the	(selected chapters)	aming anatom of the Deletechnic of			
moment of changes and/or	Teaching materials from lectures and seminars on the e-Lea Sibenik for the mentioned course.	arning system of the Polytechnic of		e-learning system	
amended of study programme)	Zelenika R.: Transport Systems, University of Rijeka, Facu	ulty of Economics Rijaka 2001		City of Sibenik library	
amended of study programme)	Zelenika R.: Transport systems, Chrycisty of Rijeka, Face Zelenika R.: Transport and freight forwarding business, Un				
	Economics, Rijeka, 2001.	inversity of regenta, ruesity of		City of Sibenik library	
	Logistics www.logistika.com.hr			Internet website	
5.3. Quality assurance methods	The control of students' work quality and the acquisition of	necessary knowledge and skills will be	ensured through interactive v	vork. By keeping track of	
that ensure the acquisition of	attendance and student activity during classes and provided	d information on students` progress throu	gh short colloquiums and ho	omework, information for	
knowledge, skills and	further guidance to students will be provided in order to inc	crease the efficiency of their work. Stude	nts will be informed about th	neir rights and obligations	
competences	as well as the methods of work and the required literature	e. Indicators of quality assurance system:	Student survey, monitoring	g of annual data from the	
	Croatian employment service on the annual state of student	1 0 0 1 0			
5.4. Informing about the course	It is the responsibility of each student to be regularly inform			_	
and contacting the course	adjournment will be published in a timely manner on the e-		•		
lecturer	during the consultation period (at least one hour per week),	-	•	_	
	to ask questions by e-mail (from the official e-mail address	s name@vus.hr), which will be answered	d 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	ON						
1.1. Course title	ENGLISH LANGUAGE II	1.8. Course code in ISVU	187599				
1.2. Course lecturer	PhD. Ivana Kardum Goleš, senior lecturer	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 (1st, 2nd, 3rd 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	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 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	Four-year secondary education completed; quali	ification level 4.2 according to the CROQF, Completed course	e English language I				
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	LO2: To organize and implement team work, an	d critically judge the opinions and attitudes 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	e Bloom`s tax	onomy: (up to two verbs per LO)		Level of LO: 1- remembering 2- understandin 3- application, 4- analysis, 5- evaluation, 6- synthesis	,	
	1	. to understand and apply b	lish road traffic in English.	2, 3				
	2	2. to apply grammatical struct		3				
		3. to interpret and use tenses i	3, 4					
		to develop an essay within	5, 6					
	5. to present own ideas for development of traffic problems.6. to communicate in a foreign language within the subjects of the course, to express one own opinions.						3 6	
		to compare and evaluate di		7	ess one own opinions.	5		
	8	3. to analyse medium comple				4		
	Ģ	o. to use part of the general la				6		
	Cons	tructive allignement						
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time needed	
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 applied grammatical structures or are evaluated, understand, apply from the professional terminol road traffic and use them in v communication verb tenses are	n texts and tasks and link terms ogy of English written and oral	4 h	



ſ							1
						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, express their own opinions, present their own ideas related to the development of transport solutions to develop	4 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	
		RAIL TRAFFIC IN		Listen to lectures and read	languages within the course topic, express their	
	6.	EUROPE – Expressing	1, 2, 3, 5,	literature. Use multimedia and	own opinions, present their own ideas related to	4 h
	0.	habit	6, 9	internet. Solve exercises.	the development of transport solutions to develop	4 11
		Habit			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	
				Listen to lectures and read	are evaluated, verb tenses are interpreted in a real	
				literature. During lectures	linguistic context, can communicate in foreign	
				individually research the content of	languages within the course topic, express their	
	1 7	To CC and LICA Towns	1, 2, 3, 5,	this thematic field by searching data	own opinions, present their own ideas related to	<i>c</i> 1.
	7.	Traffic in the USA – Tenses	6, 9	bases, presentt acquired knowledge,	the development of transport solutions to develop	6 h
				express their own ideas and ways of	a longer essay within course topics, comparing	
				problem 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	
		Traffic for tomorrow –	1, 2, 3, 5,	Listen to lectures and take part in	applied grammatical structures on texts and tasks	10.1
	8.	X I	6, 9	discussion. Write the colloquium.	are evaluated, verb tenses are interpreted in a real	10 h
					linguistic context, can communicate in foreign	
L					5 ,	



TES.	_		1		,	
					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.	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, 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



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	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 solve tasks, use part of other language competences at B1 level.	10 h
	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	4 h



				,	
				other countries, analyze medium complex texts and solve tasks, use part of other language competences at B1 level.	
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.	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 colloquium	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	5	Written exa	m 1 (without colloqu	iia) 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 am)	Seminar par	per	Other	
	Class activity 0,5	;	Oral exam	1	Other	
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 45 hours					
4. GRADING SYSTEM						
4.1. Grading seminar papers	-					
	Unsatisfa	ctory		Satisfactory	Above a	verage
4.2. Grading colloquia/ written and oral exam	understanding. Does r basic terms and con know how to apply	by memory, without a deeper ding. Does not know or apply ms and concepts. Does not w to apply or explain the of the course with examples.		e basic concepts and without mparts new knowledge, e material, explains the terms apported with examples.	Knowledge is at the level evaluation. Observes the thoroughly explains the contenconnects and explains the term examples. Finds solutions the Notes correlations with related	principles, accurately and t of the material, and logically s and concepts supported with at were not originally given.
4.3. Final grade according to	Active course	70-75% of		76-86% of attendance	87-100% of attendance	Maksimum bodova
evaluation elements	attendance	3 po	ints	7 points	20 points	20 bodova
	Seminar paper					



	Callaguia/Written	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 exam	2	3	4	5	
	Oral exam	25 points	30 points	35 points	40 bodova	
		knowledge, skills and competence hing + final exam)	es Numerical grade		CTS grade	
4.2 Final and a coordinate		90 – 100%	5 (excellent)		A	
4.3. Final grade according to absolute division		80 – 89,9%	4 (very good)		В	
absolute division		65 – 79,9%	3 (good)		С	
		60 – 64,9%			D	
		50 – 59,9%			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)	Katja Bošković Gazdović: "English textbook of Transport I", Faculty of transport nad traffic sciences, University of Zagreb, 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", Department for traffic, Polytechnic of Rijeka, 2007. Adrian Pilbeam, 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. Martinat: "A Practical English Grammar exercises", 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 wattendance and student activity during classes and provided information on students' progress further guidance to students will be provided in order to increase the efficiency of their work as well as the methods of work and the required literature. Indicators of quality assurance Croatian employment service on the annual state of student employment, surveys from employment.		t colloquiums and homew be informed about their is t survey, monitoring of	work, information for 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 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 title	TECHNICAL MECHANICS	1.8. Course code in ISVU	201137	
1.2 Course lecturer	Luka Olivari, mag. eng. mech., lecturer	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 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		4	
1.6. Year of study	1 st	1.13. Modernization	X yes □ no	
1.7. Credit score (ECTS)	score (ECTS) 8 1.14. Percentage estimate of supplements		Less than 20% X More than 20 % □	
2. COURSE DESCRIPTION				
2.1. Course objectives	=	cal knowledge and practical examples: to introduce into the application of the acquired knowledge for soluechanics for the application in practice.		
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 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 LO) Learning outcomes by Bloom: (maximum 2 werbs for LO) Learning outcomes by Bloom: (maximum 2 werbs for LO) 3- application 4- analysis 5- evaluation 5- evalua			



						6– synthesis.	
	1.	Define and explain basic concepts in	n technical me	echanics.		1, 2	
	2.	Explain and analyze the axioms of solid state statics and physical laws and phenomena in the field of mechanics.				2, 4	
	3.	Apply and analyze equilibrium equa	ations for a rig	gid body.		3, 4	
	4.	Evaluate the consequences of the acanalytical methods.	tion of a syste	em of forces and / or static moment using graph	nical and	5	
	5.	Sketch the diagrams of internal force	es and momei	nts for straight solid beam.		4	
	6.	Identify the type of motion of a part	icle or solid a	nd solve numerical problems in the field of kir	nematics.	4, 4	
	7.	Analyze and sketch kinematic diagr	ams of the mo	otion of a particle or solid.		4, 4	
	8.	Select physical laws and principles the dynamics of particles and solids		the problem, and use them to solve numerical	problems in	5, 4	
2.5. Course content according to detailed curriculum schedule	Constructive allignement				l		
	No	Thematic unit	LO of the course	Content/teaching methods		Evaluation	Time needed
	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 the	nuium or the written and ney define and explain ms, physical quantities measurement.	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 to explain and solid state st in the field numerical ta area; evaluate	they know: to define, analyze the axioms of atics and physical laws of mechanics; solve asks from the specified te the consequences of a system of forces and /	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	6 h



					numerical problems in the field of kinematics.	
	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	6 h



					them solve numerical tasks in the field of dynamics.	
	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 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
	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	6 h



						them solve numerical	_	
						·		
	-	t of inertia, rigid				1		
	body rotation					•		
				_	_		•	
				preparation for c	olloquiums.		-	
14.			1, 2, 4, 6, 8			_		6 h
						_		
							tasks in the	
						field of dynamics.		
15	Final consideration	nn.		Listen to a lec	ture and read literature.	-		6 h
13.	i mai consideratio)11		Prepare individua	ally for the exam.			011
ENT WO	ORK							
In accor	rdance with the Ru	lebook on Study a	and the Rulebo	ook on Assessmen	t and Evaluation of Studen	t Performance: Full-time	students are re	quired to
			•	_	_	<u>-</u>		
	•	-						-
			se in two way	rs: a) during the co	ourse, by taking three collo	quiums and oral part of t	the exam; b) pa	ssing the
Attendi	ng classes	3		Written exam	`	Project		
					colloquiums)			
Experin	nental work			Research		Practical work		
Essay				Report		Continuous check		
Colloqu	iiums	3 (without writter	n exam)	Seminar paper		Field works or Study		
						trips		
Teachin	ng activities			The oral part of	2	(other)		
				exam				
	In acco attend of of class Student written Attendi Experir Essay	body rotation 14. 15. Final consideration ENT WORK In accordance with the Ru attend classes at least 70% of classes by the day of the Students can take the final written and oral part of the Attending classes Experimental work	14. 15. Final consideration ENT WORK In accordance with the Rulebook on Study a attend classes at least 70%, which is also a re of classes by the day of the colloquium, and to Students can take the final exam in the cour written and oral part of the exam. Attending classes 3 Experimental work Essay Colloquiums 3 (without written	body rotation 14.	body rotation 14.	body rotation exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums. 14. 1, 2, 4, 6, 8 Listen to a lecture and read literature. Prepare individually for the exam. ENT WORK In accordance with the Rulebook on Study and the Rulebook on Assessment and Evaluation of Studen attend classes at least 70%, which is also a requirement for obtaining the lecturer's signature. Full-time s of classes by the day of the colloquium, and to earn a minimum of 25% of the points at the previous colloq Students can take the final exam in the course in two ways: a) during the course, by taking three collowritten and oral part of the exam. Attending classes 3 Written exam 3 (without colloquiums) Experimental work Research Essay Report Colloquiums 3 (without written exam) Seminar paper Teaching activities The oral part of 2	Dynamic moment of inertia, rigid body rotation Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums. 14. 1, 2, 4, 6, 8 1, 2, 4, 6, 8 Listen to a lecture and read literature. The explain basic concepts explain and analyze pthe field of mechanics consequences of the act and moments, identify motion of a particle of physical laws and pring them solve numerical field of dynamics. ENT WORK In accordance with the Rulebook on Study and the Rulebook on Assessment and Evaluation of Student Performance: Full-time attend classes at least 70%, which is also a requirement for obtaining the lecturer's signature. Full-time students are required to at of classes by the day of the colloquium, and to earn a minimum of 25% of the points at the previous colloquiums in order to qualify Students can take the final exam in the course in two ways: a) during the course, by taking three colloquiums and oral part of the exam. Attending classes 3 Written exam 3 (without project Experimental work Research Practical work Essay Report Continuous check Field works or Study trips Teaching activities The oral part of 2 (other)	Dynamic moment of inertia, rigid body rotation Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Individual preparation for colloquiums. 1, 2, 4, 6, 8 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. 1, 2, 4, 6, 8 Listen to a lecture and read literature. Prepare individually for the exam. Listen to a lecture and read literature. Prepare individually for the exam. Listen to a lecture and read literature. Prepare individually for the exam. ENT WORK In accordance with the Rulebook on Study and the Rulebook on Assessment and Evaluation of Student Performance: Full-time students are reattend classes at least 70%, which is also a requirement for obtaining the lecturer's signature. Full-time students are required to attend a minimum of classes by the day of the colloquium, and to earn a minimum of 25% of the points at the previous colloquiums in order to qualify for the next col Students can take the final exam in the course in two ways: a) during the course, by taking three colloquiums and oral part of the exam. Attending classes 3 Written exam 3 (without project Colloquiums) Research Project Continuous check Field works or Study trips Teaching activities The oral part of 2 (other)



		Student workload on all bases is 1 ECTS credit for 30 hours of work per preparation of seminar work and presentation (30 hours).	semester and is estimated as going to fieldwork or study trips (30 hours),
2.2 54-1	dent work-load	Obligation Hours (estimated)	Hours (estimated)
3.3. Stu	ideiit work-ioad	1. Attending classes	90
		2. Colloquiums and written exam individual preparation	90
	60		

4. GRADING SYSTEM

	Elements of evaluation	Bad	Satisfying	Above average
	Physical quantities and	Nonstandard physical units have not	Nonstandard units have been converted to	Nonstandard units have been converted
	their units of	been converted to basic or have been	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, complete,
	legibility and orderliness	is not traceable, and it is not readable.	traceable and readable. The diagrams and	very neat and legible. The diagrams are
	of the procedure,	Diagrams and sketches are non-	sketches are meaningful, neat with minor	completely accurate, clear and very
4.1. Evaluation of written exam	diagrams and sketches	existent, inaccurate, messy, unclear	errors.	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, the
		included in the expression. The end	expression with smaller numbers, 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
		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	them with examples. Knows the expert	the material, and logically connects and
		examples.	terminology.	explains the terms and concepts and
				supports them with examples. Finds
				solutions that were not originally given.



						It n mater termi	
4.3. Forming the final grade according to the evaluation elements	Colloquiums/ Written exam	2		3		4	5
		50-64,9%		65-79,9% 80-8		9,9%	90-100%
		50-64,9 points	65	5-79,9 points	80-89,9	points	90-100 points
	The oral part of exem	2		3	4	4	5
		50-64,9 points	65	5-79,9 points	80-89,9	points	90-100 points
4.4. Formation of the final grade based on the absolute distribution	Percentage of acquired knowledge, skills and competencies (teaching + final exam)		Numerical grade			ECTS grade	
	90 – 100%		5 (excellent)			A	
	80 – 89,9%		4 (very good)			В	
	65 – 79,9%		3 (good)			С	
	60 – 64,9%		2 (sufficient)			D	
	50 –	2 (sufficient)			Е		
5. ADDITIONAL INFORMATI	ON ABOUT COURSE						
5.1. Compulsory literature (available in the library and via other media)	Title				Number of copies in the library	Availability via other media	
	Srećko Đuranović: Book from course Tehnical mechanics, Polytechnic of Šibenik, 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 Jurum Kipke, J.: Mechanics in traffic engineering, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 2001. Jurum Kipke, J., Wolf, H., Muftić O.: Mechanics in traffic, Faculty of transport and traffic sciences,					- - 5 2	on-line (e-learning) - -
	University of Zagreb, Zagreb 2009. Jecić S.: Mechanics (kinematics and dynamics), Technical books, Zagreb, 1989.					2	-



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
	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 an amended and/or changed or modernized course.

1. GENERAL INFORMATION	1. GENERAL INFORMATION ABOUT THE SUBJECT									
1.1. Coures title	TRAFFIC AND ECOLOGY	1.8. ISVU course code	201135							
1.2. Coures lecturer	MSc. Tanja Radić Lakoš, senior lecturer	1.9. MOZVAG course code								
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+0+15+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1st, 2nd, 3rd level), percentage of on line course performance (max. 20%)	1 st – 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 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. 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.								
	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)	IO Level: 1- Recapture, 2- Understanding, 3- Application, 4- Analysis, 5- Evaluation, 6- 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).	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	LO of the Course	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 elearning course page.		2 h
		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	4 h



					concepts. They describe the role of ecology as a science, describe the difference between ecology and environmental protection, define the role of Darwin. They know to sketch and explain the population growth in the ecosystem relative to the environmental capacity.	
	2.	Ecological factors.	1, 6, 7	Listen to the lecture and read the literature.	In a colloquy or written and oral exam students can name, distinguish and give an example of an ecological factor.	4 h
	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 content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam students can define and describe the underlying concepts of air pollution, enumerate and distinguish natural and anthropogenic sources of air pollution, predict the effects of polluted air and the consequences of phenomena such as: greenhouse effect, global warming, climate change, acid rain, ozone depletion, analyse the impact of air pollution on the atmosphere, human health, plant and animal life and material heritage. Created and Presented seminar paper (by independent use of computer programs).	10 h
	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	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	10 h



			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.	interpret the choice, analyse the use of vehicles with ICE in the contemporary context of technology development and science. Created and Presented seminar paper (by independent use of computer programs).	
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 and to propose mitigation and / or rehabilitation measures. Solved case study.	8 h
	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	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	1 h



				the exposed topic is applied in the whole group.	how to take care of it. Created and Presented seminar paper (by independent use of computer		
					programs).		
	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 content of this topic area by searching the database and based on it and read literature students write seminar paper thus presenting the acquired knowledge and making their own ideas, and ways to solve problems. Methods of brain storm and discussion on the exposed topic is applied in the whole group.	In a colloquy or written and oral exam students can define and describe the underlying concepts of noise pollution, enumerate road noise sources, predict the effects of noise on human health and propose measures to reduce noise in and out of the vehicle. Created and Presented seminar paper (by independent use of computer	6 h	
	14.	Ecologically acceptable forms of traffic.	1, 2, 3, 5, 6, 7	Listen to the lecture and read the literature.	In a colloquy or written and oral exam they can describe and critically evaluate the most environmentally acceptable form of traffic, analyse this choice in the historical and contemporary context of traffic technology, give an example of the impact of air and rail traffic on the environment.	6 h	
	15.	Concluding Considerations / Repeating and Preparing for Exam.		Listen to the lecture and individual preparation for the exam.	-	20 h	
3. EVALUATION OF STUDEN	T WO	RK					
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: • 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;									
		•	have the right to access	the final exam of the subje	act					
	 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, creating									
	mental map, solving case studies, making and presenting the seminar paper and passing two colloquia); b) during the course (active participal lessons, creating mental map, solving case studies, creating and presenting the seminar paper) and passing the exam (written and oral exam).									
	lessons, creating ment	ar map, sorving case studie	es, creating and presenting	2 (by submitting	passing the exam (written and	orai exam).				
				both colloquiums the						
	Attendance		Written exam	student is relieved of	Project					
				an written						
				examination)						
3.2. Monitoring student work	Experimental work		Research		Practical work					
(enter the share of ECTS credits	Essay		Report		Continuous examination					
for each activity so that the total number of ECTS points corresponds to the credit score of the course)	Colloquium	3 (by submitting both colloquiums the student is relieved of a written and oral examination)	Seminar paper	0,5	Other (inscribe)					
	G1	,		1 (by submitting both colloquiums the						
	Class activities	0,5	Oral exam	student is relieved of an oral examination)	Other (inscribe)					
	The student's workload	d on all bases amounts to 1	ECTS point for 30 hou	rs of work per semester and	d is estimated as:					
	Commitmen	ıt		Hours (estimate)						
3.3. Student workload	1. Attending c			45						
		d Presenting seminar paper		10						
	3. Preparation	for the Colloquium / exam	through self-study	65						
4. GRADING SYSTEM										



	Valuation Element	Poor	Poor		Satisfying			Above average	
	Organization		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.		listinction nain part	is well-structured with a clear between the introduction, the of the text and the conclusions erfectly logically linked to one	
4.1. Seminar paper grading	Terminology, writing style	Words and phrase harmonized with office Writing style is no sentences are too vocabulary, and freque grammatical mistakes.	ial terminology. ot appropriate, long, modest ent 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.		ng style un cture is ropriate cl	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.		
	Quoting and referencing	Sources are not speci d references do not mat show a superficial a research topic.	ch the topic and	Sources are listed, but incomplete and with errors. The references are appropriate for the subject and show a satisfactory research attitude.		es are co show a th	Sources are accurate, complete and consistent. The references are appropriate, their list is "rich" and comprehensive and shows a robust research approach.		
	P	oor	Satisfying				Above average		
4.2. Colloquium / exam grading	understanding. Does	memory, no deeper not know and does not s and concepts. Cannot ontents of the course.	know and does not not concepts. Cannot matter, explains t		ands subject	evaluation thoroughly logically li that it end	n. It obser y explains inks and o capsulate given.		
	Active participation in the	70-75% of attendance	76-86%	of attendance	87-100%	of attendan	nce	Created mental map. Solved case study.	
	lessons	2 points	4	points	7	points		3 points	
4.3. Creating a final grade	Seminar paper	2		3		4		5	
according to evaluation elements	Schillar paper	5 points	7	points	8	points		10 points	
Cicincilis	Colloquium /	2		3		4		5	
	written exam	50-64,9%	65	5-79,9%	80)-89,9%		90-100%	
	Witton Oxum	25 points	30) points	35	5 points		40 points	



	Oral exam			3 5			5
	Ofai Cxaiii	25 points		30 points 35 point		ts	40 points
		ted knowledge, skills and compe eaching + final exam)	tences	Numerous	grade		ECTS grade
446 6 1 1		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 (suffici	ent)		Е

5. ADDITIONAL INFORMATION ABOUT THE COURSE

	Title	Number of copies in	Availability via
	Title	the library	other media
	European Parliament and Council of the European Union: "White Paper - A Single European Transport		
5.1. Compulsory literature	Space Platoon - A Road to a Comprehensive Transport System Resourcefully Managing Resources",		Available On-line
(available in the library and	COM (2011) 144 final, 2011.		
through other media)	Golubić, J.: Traffic and environment, Faculty of transport and traffic sciences, University of Zagreb,	5	
	Zagreb, 1999.		
	Radić Lakoš, T. Environmental management in Tourism, Polytechnic in Šibenik, Šibenik, 2022. (selected		Available On-line
	chapters)		
5.2. Additional literature (at the	Radić Lakoš, T.: Environmental management, Polytechnic of Šibenik, Šibenik, 2018. (selected chapters)		Available On-line
moment of changes and/or	Glavač, V.: Introduction to global ecology, Croatia University Edition, Zagreb, 2001.	5	
amended of study programme)	Udovičić, B.: Human and environmental, Kigen, Zagreb, 2009.	2	
5.3. Quality assurance methods	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensure	ed through interactive wo	rk. By keeping track of
that ensure the acquisition of	attendance and student activity during classes and provided information on students' progress through sh	ort colloquiums and hom	ework, information for
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Students wi	ll be informed about thei	r rights and obligations
competences	as well as the methods of work and the required literature. Indicators of quality assurance system: Stud	ent survey, monitoring of	f annual data from the
competences	Croatian employment service on the annual state of student employment, surveys from employers and Al	umni 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 title	BASICS OF MECHANICAL ENGINEERING	1.8. Course code in ISVU	187601			
1.2 Course lecturer	Luka Olivari, mag. eng. mech., lecturer 1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	MSc. Srećko Đuranović, senior lecturer, Izidor Alfirević, grad. eng., lecturer 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 (1st, 2nd, 3rd level), percentage of on line course performance (max. 20%) 1st, course mater 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 X		X yes □ no			
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	<u> </u>	oretical knowledge and practical examples: to introduce into the fine acquired knowledge for solving practical tasks in the fieled or solving problems.	-			
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	and / or graphical methods.				
	Learning outcomes by Bloom: (maximum 2 werbs for	or LO)	Level of 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.	Define and explain basic conce	•			1, 2	
	2.	Explain and comment on mate	rial characteri	stics and properties, and procedures for testing	g material properties.	2, 4	
	3.	Distinguish between basic mad	chine elements	s, coupling elements, and power and motion tra	ansmission elements.	4	
	4.	Analyze and evaluate the stress	s of the mater	al and the deformation due to load on the exam	mple.	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 and	motion transmissions.	6, 4	
	7.	Distinguish the basic concepts	and laws of h	eat science and select appropriate laws to solv	e a given problem.	4, 5	
	8.	Synthesize the adopted laws to	solve comple	x problems.		6	
2.5. Course content according to detailed curriculum schedule	Constr	uctive allignement					
			LO of the				rene
	No	Thematic unit	course	Content/teaching methods	Evalua	ation	Time needed
	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		Content/teaching methods 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 exam they define an concepts from the basengineering.	the written and oral ad explain the basic	



				a system of forces and / or static moment	
				using graphical and analytical methods.	
	Types of load and strain.		Listen to a lecture and read literature. The	At the colloquium or the written and oral	
			exercises demonstrate how to solve tasks.	exam they know: to analyze and calculate	
			Independent task solving.	the heat conduction and thermal	
3.		1, 2, 4		stretching of the material; explain and	6 h
٥.		1, 2, 4		comment on material characteristics and	OII
				properties, and material testing	
				procedures; solve numerical tasks from	
				the specified area.	
	Fundamentals of testing the		Listen to a lecture and read literature. The	At the colloquium or the written and oral	
	mechanical properties of		exercises demonstrate how to solve tasks.	exam they know: to explain and comment	
	materials, Diagram σ-ε,		Independent task solving.	on the characteristics and properties of the	
4.	Permissible stress and safety	1, 2, 4, 8		material, as well as the procedures for	6 h
٦.	factor	1, 2, 7, 0		examining the material; analyze and	0 11
				evaluate the stress of the material and the	
				deformation due to loading; solve	
				numerical tasks from the specified area.	
	Stress Concentration, Torque		Listen to a lecture and read literature. The	At the colloquium or the written and oral	
	Moments, Hardness and		exercises demonstrate how to solve tasks.	exam they know: to explain and comment	
	Hardness Testing		Independent task solving. Individual	on the characteristics and properties of the	
			preparation for colloquiums.	material, as well as the procedures for	
5.		1, 2, 4		examining the material; analyze and	6 h
		1, 2, 1		evaluate the stress of the material and the	0.11
				deformation due to loading; to dimension	
				machine elements based on sizing	
				criteria; solve numerical tasks from the	
				specified area.	
	Creep and creep test,		Listen to a lecture and read literature. The	At the colloquium or the written and oral	
_	Toughness and toughness		exercises demonstrate how to solve tasks.	exam they know: to explain and comment	
6.	test.	1, 2, 4	Independent task solving.	on the characteristics and properties of the	6 h
				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
	10.	Machine Elements: bearings, couplings	1, 3, 5, 6	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	6 h



					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.	
		Machine Elements: power		They listen to a lecture and read literature.	At the colloquium or the written and oral	
		transmissions		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	
					for the transmission of power and motion;	
	11.		1, 3, 5, 6, 8		analyze and evaluate the stress of the	6 h
					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 of		They listen to a lecture and read literature.	At the colloquium or the written and oral	
		heat. Kinetic molecular		The exercises demonstrate how to solve	exam they know: to distinguish between	
		theory.		tasks. Independent task solving.	the basic elements of machines, the	
					elements for coupling, and the elements	
					for the transmission of power and motion;	
	12.		1, 2, 7		analyze and evaluate the stress of the	6 h
					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.	
		Heat conduction. Laws of		They listen to a lecture and read literature.	At the colloquium or the written and oral	
		thermodynamics.		The exercises demonstrate how to solve	exam they know: to distinguish between	
	13.		1, 7	tasks. Independent task solving.	the basic elements of machines, the	6 h
					elements for coupling, and the elements	
					for the transmission of power and motion;	



							analyze and evaluate the material and the deform loading; calculate the trans and power losses of complemotion transmitters; solve tasks from the specified are	ation due to smission ratio ex power and we numerical	
		Equation of state	of an ideal		They listen to a lectur	re and read literature.	At the colloquium or the w		
		gas. Changes in	the state of		The exercises demor		exam they can: define an	-	
		gases.			tasks. Independent tas	•	basic concepts from th		
	14.			1, 7, 8	preparation for colloq	uiums.	mechanical engineering; fo to determine the traction		6 h
							resistance of the vehicle; so		
							tasks from the specified are		
					They listen to a lectur	re and read literature.	-		
	15.	Circular processe	s	1, 7, 8	The exercises demor				6 h
		1	-	1, 7, 0	tasks. Independent tas	•			
					preparation for colloq	ulullis.			
3. EVALUATION OF STUD	ENT W	ORK							
3.1. Student obligations	of class Student	classes at least 70% ses by the day of the	, which is also colloquium, a l exam in the	o a requirement and to earn a r	nt for obtaining the lectroninimum of 25% of the	urer`s signature. Full-ti points at the previous co	ident Performance: Full-time me students are required to a olloquiums in order to qualify olloquiums and oral part of	ttend a minimum for the next coll	n of 70% loquium.
	Attendi	ing classes	3		Written exam	2 (without	Project		
3.2. Student work monitoring	E				Dagagash	colloquiums)	Practical work		
(enter the share of ECTS credits		nental work			Research				
for each activity so that the total number of ECTS credits	Essay		Report		Continuous check				
corresponds to the course credit	Colloqu	uiums	2 (without w	ritten	Seminar paper		Field works or Study		
value)	T 1 *		exam)		The second reserve of	1	trips		
,	Teachii	ng activities			The oral part of exam		(other)		



	Student workload on all bases is 1 ECTS credit for 30 hours of work per semester and is estimated as going to fieldwork or study trips (30 hours),						
	preparation of seminar work and presentation (30 hours).						
3.3. Student work-load	Obligation	Hours (estimated)					
5.5. Student Work-load	Attending classes	90					
	Colloquiums and written exam individual preparation	60					
	Oral exam individual preparation	30					

4. GRADING SYSTEM

	Elements of evaluation	Bad	Satisfying	Above average
	Physical quantities and	Nonstandard physical units have not	Nonstandard units have been converted to	Nonstandard units have been converted
	their units of	been converted to basic or have been	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, complete,
	legibility and orderliness	is not traceable, and it is not readable.	traceable and readable. The diagrams and	very neat and legible. The diagrams are
	of the procedure,	Diagrams and sketches are non-	sketches are meaningful, neat with minor	completely accurate, clear and very
4.1. Evaluation of written exam	diagrams and sketches	existent, inaccurate, messy, unclear	errors.	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, the
		included in the expression. The end	expression with smaller numbers, 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
4.2. Evaluation of oral exam		Does not know how to apply or	explains the terms and concepts supports	and thoroughly explains the content of
4.2. Evaluation of oral exam		explain the contents of the course with	them with examples. Knows the expert	the material, and logically connects and
		examples.	terminology.	explains the terms and concepts and
				supports them with examples. Finds
				solutions that were not originally given.



							material. Fluent in professional terminology.
	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	i-79,9 bodova	80-89,	9 bodova	90-100 bodova
Cicinents	The oral part of exem	2		3		4	5
		50-64,9 bodova	65	7-79,9 bodova	80-89,	9 bodova	90-100 bodova
		d knowledge, skills and sching + final exam)	1	Numerical grade			ECTS grade
4.4. Formation of the final grade	90 -	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 INFORMATI	ON ABOUT COURSE						
5.1. Compulsory literature (available in the library and via other media)		Title				Number o copies in th library	
other media)	Srećko Đuranović: Book for collequium Basics of mechanical engineering, Polytechnic o Šibenik, 2016.				of Šibenik,	-	on-line (e-learning)
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Teaching materials from the course Introduction Vrhovski, D., Nikšić, M and Traffic Sciences, Un Perše, S., Višnjić. V.: M University of Zagreb, Z	ed tasks, Faculty of	Transport	5 2	on-line (e-learning) - -		

It notes correlations with related



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
ğ .	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	STATISTICS IN TRAFFIC	1.8. Course code in ISVU	214569				
1.2. Course lecturer	phD. Ana Perišić, senior lecturer	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	Ivana Beljo, grad. eng. math., univ. spec. oecc., senior lecturer phD. Dino Peran, postdoctoral	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 (1st, 2nd, 3rd level), percentage of on line course performance (max. 20%) 1st, course m. 0%		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	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 goal is to provide students with theoretical kno	wledge and practical skills needed for performing statistical	analysis and interpretation of the results.				
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification	ation level 4.2 according to the CROQF					
2.3. Learning outcomes on the	LO1: To apply and link professional terms from tec in Croatian and English.	hnology and organization of road traffic in written and oral or	communication with the professional public				
study programme level	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 tax	onomy: (up to two verbs per LO)	Level of LO: 1- remembering,				



	2- understanding,
	3- application,
	4- analysis,
	5- evaluation,
	6- synthesis
 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 needed
	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	10 h



			1		1
				written/oral exams. 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	10 h



					and and all the models for 1'ff.									
					apply probability models for different									
					stochastic phenomena. Students will apply									
					probability theory in transport problems									
					solving.									
	8.	Partial exam preparation		Group problem solving and		3 h								
	0.	1 artial exam preparation		discussion. Exam preparation.		311								
					Students will define fundamental concepts									
					of descriptive statistics and interpret									
					indicator values from the field of									
				Attending lectures. Actively	descriptive statistics; will calculate and									
	9.	Descriptive statistics.	1, 2, 7	involving students through	interpret values for the measures of central	8h								
		1	, , ,	problem solving and discussion.	tendency and dispersion parameters									
					through colloquia or written/oral exams.									
					Students will apply methods of descriptive									
					statistics in transport problems solving.									
					Students will define fundamental concepts									
					-									
			1, 2, 7		of descriptive statistics and interpret									
				,	Attending lectures. Actively	indicator values from the field of								
		Measures of central tendency,		involving students through	descriptive statistics; will calculate and	0.4								
	10.	dispersion parameters.		1, 2, 7	1, 2, 7	1, 2, 7	1, 2, 7	1, 2, 7	1, 2, 7	1, 2, 7	1, 2, 7	1, 2, 7	problem solving and discussion.	interpret values for the measures of central
		The state of the s		proorein sorving and diseassion.	tendency and dispersion parameters									
			1		through colloquia or written/oral exams.									
				Students will apply descriptive statistic										
					methods for solving transport problems.									
					Students will define fundamental concepts									
					of descriptive statistics and interpret									
				Attending lectures. Actively	indicator values from the field of									
11.		Measures of central tendency,			descriptive statistics; will calculate and									
		1, 2, 7	involving students through	interpret values for the measures of central	8 h									
			problem solving and discussion.	tendency and dispersion parameters										
		varaos. Oadiois. Data distribution.			through colloquia or written/oral exams.									
					Students will apply descriptive statistic									
					methods for solving transport problems									
					meanous for sorting dampert problems									



	12.	Descriptive statistics. Partial exam preparation	5, 6, 7	Attending lectures. Actively involving students through problem solving and discussion. Group problem solving and discussion. Exam preparation.	Students will define fundamental concepts of descriptive statistics and interpret indicator values from the field of descriptive statistics; will calculate and interpret values for the measures of central tendency and dispersion parameters through colloquia or written/oral exams. Students will apply descriptive statistic methods for solving transport problems	3 h
	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

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%. 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.



Attendance 0.2 Written exam 3 (without colloquia) Project Experimental 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) Colloquim 3 (without written exam) Seminar paper Continuous examination Other			Students can take the final exam from the course in two ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through three colloquia); b) by passing the exam (written and oral part of the exam).								
Center the share of ECTS credits for each activity so that the total number of ECTS points corresponds to the credit score of the course) Essay		Attendance	0.2	Written exam	3 (without colloqui	a) Project					
Number of ECTS points corresponds to the credit score of the course) Colloquium 3 (without written exam) Seminar paper Colloquium Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: Attending classes and exercises 45 hours; Preparing colloquia or exams through individual work 75 hours. A. GRADING SYSTEM Satisfactory Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Satisfactory Satisfactory Showed a variable of the course with examples Showed a variable of the variable of the course with examples Showed a variable of the variable of	_	-		Research		Practical work					
Colloquium exam) Seminar paper Other	number of ECTS points	Essay		Report			0.1				
3.3. Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: Attending classes and exercises 45 hours; Preparing colloquia or exams through individual work 75 hours. 4.1. Grading seminar papers Visatisfactory Satisfactory Above average	-	Colloquium	`	Seminar paper		Other					
4.1. Grading seminar papers Conding colloquia/written and oral exam Final grade according to evaluation elements		Class activity	0.2	Oral exam	0.5	Other					
4.1. Grading seminar papers Consideration											
4.2. Grading colloquia/ written and oral exam 4.3. Final grade according to evaluation elements Percentage of acquired knowledge, skills and competences (teaching + final exam) 4.3. Final grade according to absolute division Percentage of acquired knowledge, shills and competences (teaching + final exam) 4.3. Final grade according to absolute division Percentage of acquired knowledge, shills and competences (teaching + final exam) Above average Reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, evaluation diefficulty imparts new knowledge, understands the material, evaluation diefficulty explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material. Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Authority imparts new 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. Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) A vumerical grade B ECTS grade B ECTS grade Percentage of acquired knowledge, skills and competences (teaching + final exam) A vumerical grade according to a vertical exam according to a ve	4. GRADING SYSTEM										
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. 4.3. Final grade according to evaluation elements Final grade is determined on the oral exam after successfuly passing the colloquia of written exam. Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + final exam) Percentage of acquired knowledge, skills and competences (teaching + fin	4.1. Grading seminar papers			4.1. Grading seminar papers							
4.2. Grading colloquia/ written and oral exam 4.2. Grading colloquia/ written and oral exam 4.2. Grading colloquia/ written and oral exam 4.3. Final grade according to evaluation elements 4.4. Final grade according to absolute division 4.5. Final grade according to absolute division 4.6. Final grade according to absolute division 4.7. Final grade by memory, without a deeper understands the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supported with examples. 4.6. Final grade according to absolute division 4.7. Final grade according to absolute division 4.8. Final grade according to absolute division 4.9. Final grade according to absolute division 4.1. Final grade according to absolute division 4.2. Final grade according to accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. 4.3. Final grade according to accurately and thoroughly explains the content of the material, explains the terms and concepts supported with examples. 4.3. Final grade according to accurately and thoroughly explains the content of the material, explains the terms and concepts supported with examples. 4.3. Final grade according to accurately and thoroughly explains the content of the material, explains the terms and concepts supported with examples. 4.3. Final grade according to accurately and thoroughly explains the content of the material, explains the terms and concepts supported with examples. 4.4. Final grade according to accurately and thoroughly explains the content of the material, explains the terms and concepts supported with examples. 4.5. Final grade according to accurately and thoroughly explai											
evaluation elements Percentage of acquired knowledge, skills and competences (teaching + final exam) 4.3. Final grade according to absolute division Percentage of acquired knowledge, skills and competences (teaching + final exam) $90-100\%$ $80-89.9\%$ 4 (very good) $80-89.9\%$ 5 (excellent) $65-79.9\%$ 5 (good) $65-79.9\%$		Un	nsatisfactory	S	Satisfactory	Al	oove average				
4.3. Final grade according to absolute division		Responds by m understanding. I basic terms and how to apply or	nemory, without a deeper Does not know or apply concepts. Does not know explain the contents of the	Reproduces the without diff knowledge, un explains the terr	ne basic concepts and ficulty imparts new inderstands the material, ms and concepts supported	Knowledge is at the evaluation. Observes thoroughly explains the connects and explains the examples. Finds solution	level of analysis, synthesis and the principles, accurately and content of the material, and logically e terms and concepts supported with ans that were not originally given.				
4.3. Final grade according to absolute division	and oral exam 4.3. Final grade according to	Responds by m understanding. I basic terms and how to apply or course with exan	nemory, without a deeper Does not know or apply concepts. Does not know explain the contents of the inples.	Reproduces the without diff knowledge, ur explains the terr with examples.	ne basic concepts and ficulty imparts new nderstands the material, ms and concepts supported	Knowledge is at the evaluation. Observes thoroughly explains the connects and explains the examples. Finds solution Notes correlations with respect to the examples of the examples.	level of analysis, synthesis and the principles, accurately and content of the material, and logically e terms and concepts supported with ans that were not originally given.				
absolute division	and oral exam 4.3. Final grade according to	Responds by m understanding. I basic terms and how to apply or course with exan Final grade is dete	nemory, without a deeper Does not know or apply concepts. Does not know explain the contents of the nples. ermined on the oral exam aft of acquired knowledge, skill tences (teaching + final exam)	Reproduces the without diff knowledge, undexplains the term with examples. er successfuly pasters and	ne basic concepts and ficulty imparts new nderstands the material, ms and concepts supported ssing the colloquia ot writter Numerical grade	Knowledge is at the evaluation. Observes thoroughly explains the connects and explains the examples. Finds solution Notes correlations with remain exam.	level of analysis, synthesis and the principles, accurately and content of the material, and logically e terms and concepts supported with ins that were not originally given. elated material.				
, (C)	and oral exam 4.3. Final grade according to evaluation elements	Responds by m understanding. I basic terms and how to apply or course with exan Final grade is dete	nemory, without a deeper Does not know or apply concepts. Does not know explain the contents of the nples. ermined on the oral exam aft of acquired knowledge, skiltences (teaching + final exam 90 – 100%	Reproduces the without diff knowledge, undexplains the term with examples. er successfuly pasters and	ne basic concepts and ficulty imparts new inderstands the material, ims and concepts supported ssing the colloquia of writter Numerical grade 5 (excellent)	Knowledge is at the evaluation. Observes thoroughly explains the connects and explains the examples. Finds solution Notes correlations with remain exam.	level of analysis, synthesis and the principles, accurately and content of the material, and logically e terms and concepts supported with ans that were not originally given. elated material. CTS grade A				
00-04.9% 2 (Salisfactory) D	and oral exam 4.3. Final grade according to evaluation elements 4.3. Final grade according to	Responds by m understanding. I basic terms and how to apply or course with exan Final grade is dete	nemory, without a deeper Does not know or apply concepts. Does not know explain the contents of the nples. ermined on the oral exam aft of acquired knowledge, skill tences (teaching + final exam 90 – 100% 80 – 89,9%	Reproduces the without diff knowledge, undexplains the term with examples. er successfuly pasters and	ne basic concepts and ficulty imparts new inderstands the material, ims and concepts supported ssing the colloquia of writter Numerical grade 5 (excellent) 4 (very good)	Knowledge is at the evaluation. Observes thoroughly explains the connects and explains the examples. Finds solution Notes correlations with remain exam.	level of analysis, synthesis and the principles, accurately and content of the material, and logically e terms and concepts supported with ms that were not originally given. clated material. CTS grade A B				
50 – 59,9% 2 (satisfactory) E	and oral exam 4.3. Final grade according to evaluation elements 4.3. Final grade according to	Responds by m understanding. I basic terms and how to apply or course with exan Final grade is dete	nemory, without a deeper Does not know or apply concepts. Does not know explain the contents of the imples. ermined on the oral exam aft of acquired knowledge, skill tences (teaching + final exam 90 - 100% 80 - 89,9% 65 - 79,9%	Reproduces the without diff knowledge, undexplains the term with examples. er successfuly pasters and	ne basic concepts and ficulty imparts new inderstands the material, ims and concepts supported ssing the colloquia of writter Numerical grade 5 (excellent) 4 (very good) 3 (good)	Knowledge is at the evaluation. Observes thoroughly explains the connects and explains the examples. Finds solution Notes correlations with remain exam.	level of analysis, synthesis and the principles, accurately and content of the material, and logically exterms and concepts supported with ans that were not originally given. celated material. CTS grade A B C				



5. ADDITIONAL COURSE INI	FORMATION					
5.1. Compulsory literature (available in the library and via	Title	Number of copies in the library	Availability via other media			
other media)	Kovač Striko E., Fratović T., Ivanković B., Probability and statistics, Books of University of Zagreb, Zagreb 2008.	1	No			
	Šošić I., Serdar V.: Introduction to statistics, School book, Zagreb, 2002. Šošić I.: Applied statistics, School book, Zagreb, 2004.	1 12				
5.2. Additional literature (at the	Azcel A. Sounderpandian J.: Complete Business Statistics, McGraw Hill, 2009. Zenzerović Z.: Statistical manual, Faculty of Maritime Studies, University of Rijeka, Rijeka, 2004.	1 - 5				
moment of changes and/or amended of study programme)	Čižmešija M., Kurnoga Živadinović N.: A collection of solved tasks based on statistics, Mirorad d.o.o., Zagreb, 2006. Patrick R. McMullen: Business statistics for professional studies [translated by Devčić, K., Perišić, A.],	2				
	Polytechnic of Šibenik, 2017. Teaching materials on 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 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	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 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	INTERNAL TRANSPORT AND STORAGE	1.8. Course code at ISVU	140768
1.2. Course lecturer	phD. Ana-Mari Poljičak, senior lecturer	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 (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	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 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	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.



		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.
2.4. Expected learning outcomes	 define, describe and explain basic concepts in internal transport and storage. 	1, 2
on the course level	2. distinguish and choose types of warehouses, equipment and means of internal transport and storage according to	2, 5
	the type 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
	distinguish between business benchmarks and internal transport and storage 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

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



				T		
	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.	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. 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	6 h



	1			I	T	
					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 transport and storage are applied on the examples of expert visits.	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	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. They know how to calculate the required number and load capacity of a forklift.	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.	-	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.	7 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 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 h
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	At the colloquium or written and oral exam, they can describe and explain internal transport and storage and	4 h



	ı					1
				products). The method of experiential learning	production automation. Calculate how	
				and self-discovery learning is applied. The	many goods may be stacked on a flat	
				method of brainstorming and the method of	pallet.	
				discussing technological processes and		
				transshipment mechanization in internal		
				transport and storage are applied on the		
				examples of expert visits.		
	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
2 EXALITATION OF COURTN	WOD	TZ.				

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;
- \bullet 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 two colloquia); b) during classes (active participation in classes) and taking exams (written and oral part of the exam).							
	Attendance		Written exam	1	vithout 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 4 (without written exam)		Seminar paper	per		Other		
	Class activity	0,5	Oral exam	0,5		Other		
	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:							
3.3. Student workload	Obligati	on			Hours (estimated)			
5.5. Student Workload	Active class attendance				60			
	2. Preparin	g colloquia or exams throu	igh individual work		90			

4. GRADING SYSTEM

	Element of evaluation	Bad	Satisfying	Above average
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.
4.1. Evaluation of a project assignment	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	The sources are listed but incomplete and with errors. The references are	The sources are accurately, completely and consistently listed. The references are appropriate, their list is "rich" and



		a cursory approach t	o exploring	the relevant	to the topic	and sho	w a comp	orehensive	and shows a detailed		
		topic.		satisfacto	ry research att	itude.	resea	rch approa	ch.		
		Bad		Satisfying				Above average			
4.2. Grading of the colloguium / written and oral exam	terms and concepts. Does not know how to apply		It reproduces the basic concepts and widifficulty imparts new knowledge, unders the material, explains the terms and concept it supports with examples.			and evaluation. It accurately and thoroug of the material, and explains the terms and			ly explains the content ogically connects and oncepts that it supports olutions that were not		
	Active	70-75% of the presence	76-86%	76-86% of the presence 87-100% of the		0% of the p	resence	Cas	se studies resolved		
	attendance 2 points		4 points			7 points			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 points			40 points		
	Oral part of the	2		3		4		5			
	exam	25 points	30 points 35 p		35 points			40 points			
	Percentage of ac	quired knowledge, skills and cor	npetences				ECTS grade				
		(teaching + final exam)		Number rating			LC 15 grade				
4.4. Formation of final grade		90 - 100%		5 (excellent)			A				
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 (suffic			D				
50 – 59,9%				2 (sufficient)			Е				
5. ADDITIONAL INFORMATI	ON ON THE SUBJ	ECT									
	Title Number of copies in the library hadia										



	Dundović Č., Hess S.: Internal transport and storage, Faculty of Maritime Studies, University of	3		
5.1. Required literature (available	Rijeka, Rijeka, 2007.			
in the library and through other	Miloš I.: Internal transport and storage, Polytechnic of Rijeka, Rijeka, 2003.	1		
media)	Boris Ribarić: Examples of solved tasks in the subject of handling machinery, Faculty of transport and	0		
	traffic sciences, University of Zagreb, Zagreb, 1994 (selected chapters)			
5.2. Supplementary literature (at				
the time of the submission of	Prikril B., Božičević D.: Transhipment and storage mechanization, Faculty of transport and traffic	6		
changes and / or additions to the	sciences, University of Zagreb, Zagreb, 1987.	0		
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 tudents' 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 tatus of students, employer survey and Alumni Association.			
5.4. Informing about the course and contacting the teacher	t is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or ossible 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 eachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is lso 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	1. GENERAL INFORMATION								
1.1. Course title	LOGISTIC AND SUPPLY CHAINS	1.8. Course code in ISVU	214567						
1.2. Course lecturer	Darijo Šego, univ. spec. traff., senior lecturer	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates	phD. Dijana Mečev, collegue professor	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%)	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	X yes □ no						
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	-	ledge and case studies: learn about the elements of the logist are related to the storage, transport, purchase, stocks, retain							
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 study programme level	in Croatian and English.	and organization of road traffic in written and oral communi	cation 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.							
	LO5: To apply basic legal and economic principles in orga	nization with socially responsible management in technical-	technological subjects.						
	LO6: To analyze and present relevant facts from the field of	of traffic needed to reach conclusions.							
	LO9: To assess and organize processes in the area of road	traffic and/or traffic logistics.							



	LO11	: To identify, predict and propose solu	utions in road	traffic technology and technique.				
	LO12	: To set up a minor traffic process and	d critically eva	lluate it.				
	LO13	: To track trends in the development	of technique, t	echnology and safety in traffic.				
	Leari	ning outcomes by Bloom: (maximum	2 werbs for L	.O)		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	. Define and differentiate basic term		1, 2				
	2	. Identify, explain, and analyze flow	vs in supply ch	nain and retail.		4, 2		
	3	. Organize the procurement process		6, 5				
	4	. Identify similarities and difference	4, 3					
	5	. Distinguish sales from demand an	d predict futur	re demand in the supply chain.		3, 5		
	6	. Indicate the participants and to dis	stinguish proce	esses in the system of reverse logistics.		1, 4		
	7	. Use materials and tools to search	ch the scienti	fic and professional literature in their native	and English	3		
		languages.						
		<u> </u>	deas, problems	s, and solutions independently and in a team.		6		
2.5. Course content according to	Const	tructive allignement						
detailed curriculum schedule			70.07		_			
	No	Thematic unit	LO of the	Content/teaching methods]	Evaluation	Time needed	
	1.	Introductory presentation	course	Listening to the lecture. In the course of			needed	
	1.	(introducing students to the course		seminars, they are introduced to the course				
		content and obligations)		content and documents on the e-learning page				
		content and obligations)	-	of the course by working independently on a		-	2 h	
				computer.				
	2.	The term of Logistics (term,	1, 7, 8	They listen to a lecture and read literature.		uium or the written and	5 h	
		developmental factors, elements of	1, /, 0	They use multimedia and network. At the	oral exam,	students know how to	J 11	



		the logistics system, logistics		seminar class, they individually explore the	define and distinguish basic	
		system division)		content of this topic area by searching the	concepts in logistics, types of	
				database, and on the basis of it and reading	logistics, factors of logistics	
				the literature, create a seminar paper that	development. Seminar paper created	
				presents the acquired knowledge and presents	and presented (by computer	
				their own ideas, and ways to solve problems.	programs).	
	3.	The term of Supply chain		They listen to a lecture and read literature.	At the colloquium or the written and	
		(concept, jobs, goal, structure,		They use multimedia and network. At the	oral exam, students know how to	
		information technologies, e-		seminar class, they individually explore the	define the basic terms of Supply	
		commerce)		content of this topic area by searching the	chain. List the tasks that are	
				database, and on the basis of it and reading	performed in the supply chain. To	
			1, 7, 8	the literature, create a seminar paper that	divide the functional stages and	5 h
				presents the acquired knowledge and presents	cycles. Distinguish information	
				their own ideas, and ways to solve problems.	technologies for the supply chain	
					management. Explain E-commerce.	
					Seminar paper created and presented	
					(by computer programs).	
	4.	Purchase in the supply chain (goal,		They listen to a lecture and read literature.	At the colloquium or the written and	
		organization and processes, types		They use multimedia and network. At the	oral exam students know how to	
		of purchase, purchase system Just		seminar class, they individually explore the	define the basic terms of purchase.	
		in time)		content of this topic area by searching the	Indicate the goal and purpose of the	
			1, 3, 7, 8	database, and on the basis of it and reading	purchase. Distinguish and explain	5 h
				the literature, create a seminar paper that	the processes in purchase. Explain	
				presents the acquired knowledge and presents	the purchase system Just in time.	
				their own ideas, and ways to solve problems.	Seminar paper created and presented	
					(by computer programs).	
	5.	Inventories (stocks) in the supply		They listen to a lecture and read literature.	At the colloquium or written and	
		chain (term, concept, function,		They use multimedia and network. At the	oral exam, they know the concept of	
		types, management strategies,		seminar class, they individually explore the	stock. Explain the function of stocks	
		costs)	3, 4, 7, 8	content of this topic area by searching the	in the supply chain. Distinguish and	5 h
				database, and on the basis of it and reading	categorize stock types. List and	
				the literature, create a seminar paper that	comment on inventory management	
					strategies. Categorize and break	



				presents the acquired knowledge and presents	down inventory holding costs.	
				their own ideas, and ways to solve problems.	Seminar paper created and presented	
					(by computer programs).	
	6.	Demand management in the		They listen to a lecture and read literature. At	At the colloquium or written and	
		supply chain (role and cost		the seminar class, they individually explore	oral exam, they know how to	
		forecasting, methods and factors		the content of this topic area by searching the	identify and differentiate costs in	
		for prediction)		database, and on the basis of it and reading	forecasting demand. Analyze,	
			2, 5, 7, 8	the literature, create a seminar paper that	compare and evaluate methods for	5 h
				presents the acquired knowledge and presents	forecasting demand. Critically judge	
				their own ideas, and ways to solve problems.	types of demand. Seminar paper	
					created and presented (by computer	
					programs).	
	7.	Logistics centers (term, concept,		They listen to a lecture and read literature.	At the colloquium or written and	
		role in the supply chain,		They use multimedia and network. At the	oral exam, they know how to define	
		development goals, functions,		seminar class, they individually explore the	the term of Logistics Center.	
		types, warehouse management		content of this topic area by searching the	Explain the role of the logistics	
		system)		database, and on the basis of it and reading	center in the supply chain.	
			1570	the literature, create a seminar paper that	Distinguish and categorize the types	5 h
			1, 5, 7, 8	presents the acquired knowledge and presents	of logistics centers. Highlight the	3 11
				their own ideas, and ways to solve problems.	advantages of using a warehouse	
					management system. Identify and	
					plan key business processes.	
					Seminar paper created and presented	
					(by computer programs).	
	8.	Logistics centers (term, concept,		They listen to a lecture and read literature.	At the colloquium or written and	
		role in the supply chain,		They use multimedia and network. At the	oral exam, they know how to define	
		development goals, functions,		seminar class, they individually explore the	the term of Logistics Center.	
		types, warehouse management		content of this topic area by searching the	Explain the role of the logistics	
		system)	1, 5, 7, 8	database, and on the basis of it and reading	center in the supply chain.	5 h
				the literature, create a seminar paper that	Distinguish and categorize the types	
				presents the acquired knowledge and presents	of logistics centers. Highlight the	
				their own ideas, and ways to solve problems.	advantages of using a warehouse	
					management system. Identify and	



					plan key business processes. Seminar paper created and presented (by computer programs).	
	9.	Transport in the supply chain (road, rail, air, and internal transport and transmission, costs in transport, shipping documents)	3, 7, 8	They listen to a lecture and read literature. 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.	At the colloquium or written and oral exam, students know isolate types of transportation in the supply chain, in all branches of transport. Identify the advantages, disadvantages and costs of transportation. Suggest the type of transport for individual goods. Seminar paper created and presented (by computer programs).	5 h
	10.	Transport in the supply chain (road, rail, air, and internal transport and transmission, costs in transport, shipping documents)	3, 7, 8	They listen to a lecture and read literature. 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.	At the colloquium or written and oral exam, students know isolate types of transportation in the supply chain, in all branches of transport. Identify the advantages, disadvantages and costs of transportation. Suggest the type of transport for individual goods. Seminar paper created and presented (by computer programs).	5 h
	11.	Modern transport technologies (conditions for development, integral transport, technologies on the road, rail, water, and air transport)	3, 7, 8	They listen to a lecture and read literature. 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.	At the colloquium or the written and oral exam, students know how to isolate and analyze transport technologies in the road, rail, water, and air transport. Compare, identify similarities/differences in the transportation of products with modern transportation technologies. Seminar paper created and presented (by computer programs).	5 h



	12.	Logistics in retail (concept, types of stores, logistics processes in retail)	2, 6, 7, 8	They listen to a lecture and read literature. 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.	At the colloquium or written and oral exam, students know how to define the concept of trade and retail. Compare and comment on the largest retail chains. Identify and distinguish types of retail stores. Recognize and differentiate logistics processes in retail. Seminar paper created and presented (by computer programs).	5 h
	13.	Reverse logistics (concept, goal, carriers, recycling, design of return logistics system)	6, 7, 8	They listen to a lecture and read literature. At the seminar class, they individually explore the content of this topic area by searching the database, and on the basis of it and reading the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems.	At the colloquium or written and oral exam, students know how to define the concept of reverse logistics. List and distinguish the carriers of reverse logistics. Identify factors for designing a reverse logistics system. Recommend the best options for returning goods or products. Seminar paper created and presented (by computer programs).	5 h
	14.	Study trip to LIDL Logistics-distribution center (located in Perušić).	1, 2, 3, 5, 6	-	On a study tour, students will be able to define and differentiate basic terms and divisions in logistics, warehousing, and freight forwarding. Select, evaluate and categorize services in the warehouse business. Compare and connect modes of product transport, organization of distribution of products. Suggest ways of manipulation with the products and reducing inventory costs.	8 h



		erations/Repeating	They listen to a course		-		80 h	
	and preparing fo	or the exam.	individuals for the exam					
3. EVALUATION OF STUD								
3.1. Student obligations		Rulebook on Study and the Rule						
		required to attend a class of at le						
	_	ne course: from 0 - 24,9% ECTS						
	•	5 - 49,9% - are assessed by FX (•	•				
	•	ular 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 ways: a) during the course of teaching through continuous monitoring of students (active participation in classes and through two exams); b) passing						
			inuous monitoring of stude	ents (active participat	ion in classes and through	two exams); b) passing	
	,	am (written and oral part of the exam).						
3.2. Student work monitoring	Attending classes	1	Written exam	1 (without	Project			
(enter the share of ECTS credits				colloqiums)				
for each activity so that the total	Experimental work		Research		Practical work			
number of ECTS credits corresponds to the course credit	Esaay		Report		Continuous check			
value)	Colloquiums	1 (without written part of	Seminar paper	0,5	(other)			
varae)		exam)						
	Teaching activities	1	The oral part of exam	0,5	(other)			
3.3. Student work-load	Student workload on all	bases is 1 ECTS credit for 30 ser	nester hours and is assessed	as attendance (45 ho	ours), preparation of semin	ar work and pre	sentation	
	(15 hours), preparation	for the midterm/exam through s	elf-study (90 hours).					
4. GRADING SYSTEM								
4.1. Evaluation of seminar paper	Elements of	Bad	Satisfy	ring	Above a	average		
	evaluation							
	Organization	The paper is not organized in	a The paper is well struc	ctured with a clear	The paper is well st	ructured with	a clear	
		logical order and lacks structur	e. distinction between th	e introduction, the	distinction between the	introduction,	the main	
			main body of the text a	and the conclusion.	body of the text and the	e conclusion, v	vhich are	
					logically interconnected.			
	Terminolog, writing	nolog, writing Words and expressions are not in Words and expressions are in line with Words and expressions are aligned with official						
	style	line with official terminolog			terminology and show a		~	
		The writing style is n	ot appropriate, the sent	tence structure is	meaning. The writing	-		
		appropriate, the sentences a	•	11 1	sentences are clear and c		•	
		too long, of a modest vocabula	ry there are few grammat	ical errors.	rich and there are no gra	mmatical errors	3.	



		and with frequent and repeated						
		grammatical errors.						
	Citing and	The sources are not listed at all.	The sources are listed but in	ncomplete and	The sources are accurately, completely and			
	referencing	The references do not fit the	with errors. The references	are relevant to	consistently listed.	The references are		
	references	topic and show a cursory	the topic and show a satisfactory research		appropriate, their	list is "rich" and		
		approach to exploring the topic.	attitude.		comprehensive and si	hows a detailed research		
					approach.	approach.		
4.2. Gradeing of the		Bad	Satisfying		Above average			
colloquium/written and oral	It responds by memory	, without a deeper understanding.	It reproduces the basic	concepts and	Knowledge is at the le	evel of analysis, synthesis,		
exam		does not know or apply basic terms and concepts. It does		nparts new	_	observes the legality,		
	* *	y or explain the contents of the	knowledge, understands	-	accurately and thoroug	hly explains the content of		
	course with examples.	•	explains the terms and co	ncepts that it	the material, and logic	ally connects and explains		
	supports with examples.		-	the terms and concepts that it supports with				
			e		examples. Finds solutions that were not			
					originally given. It notes correlations with related			
					material.			
4.3. Forming the final grade	Active attendance on	70-75% attendance	76-86% attendance	Q7 10	00% attendance	Mental map created,		
according to the evaluation	class	70-73% attendance	70-00/0 attendance 07-1		Case studies resolv			
elements		2 points	4 points		7 points	3 points		
	Seminar paper	2	3		4	5		
	Schillar paper	5 points	7 points		8 points	10 points		
	Galla maiorma /	2	3		4	5		
	Colloquiums/ Written part of exam	50 - 64,9%	65 - 79,9%	8	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		uired knowledge, skills and	Numerical grad	le	ECT	'S grade		
based on the absolute		(teaching + final exam)						
distribution		90 - 100%	5 (excellent)			A		
		80 – 89,9%	4 (very good)		В			
		65 – 79,9%	3 (good)			С		



			l	D
	50 – 59,9%	2 (sufficient)		Е
5. ADDITIONAL INFORMATION	ON 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)	Ivakovic C., Stankovic R., Šafran M.: Freight Forwarding	g and Logistics Processes, Faculty of	-	
	transport and traffic sciences, University of Zagreb, Zagr	<u> </u>		
	Prester J.: Supply chain management, Sinergija, Zagreb,		2	City of Sibenik library
	Zelenika R.: Logistics systems, Faculty of Economics, U	niversity of Rijeka, Rijeka, 2005 (selected		
	chapters)		2	City of Sibenik library
	Bloomberg D.: Logistics, MATE, Zagreb School of Econ	nomics and Management, Zagreb, 2006		
	(selected chapters)		-	PDF (Internet website)
	Crkvenčić M., Buntak K., Krpan Lj.: Supply chain manag	gement, University NORTH, Koprivnica,		
	2018.	D. 1. 2014	2	
	Regodić D.: LOGISTICS Supply chains, University of Si			
	Segetlija Z .: Logistic processes in trade, Faculty of Econ	omics, University of Osijek, Osijek, 2012.	3	
5.2. Additional literature (at the	Teaching materials from course lectures			
moment of changes and/or	Logistics <u>www.logistika.com.hr</u> Trade law			e-learning system
amended of study programme)		[anagement]] and [II agistics in Trade]]		Internet website
	Dujak Davor, lectures from the courses "Supply Chain M Faculty of Economics, Osijek, 2020.	tanagement and Logistics in Trade,		
5.3. Quality assurance methods	The control of students' work quality and the acquisition	of necessary knowledge and skills will be ansu	rad through interactive v	work By kooning track of
that ensure the acquisition of	attendance and student activity during classes and provid	•	· ·	
knowledge, skills and	further guidance to students will be provided in order to i			
competences	as well as the methods of work and the required literatu	•		•
competences	Croatian employment service on the annual state of stude	- · · · · · · · · · · · · · · · · · · ·	•	5 or annual data from the
5.4. Informing about the course	It is the responsibility of each student to be regularly infor	<u> </u>		ices of classes or possible
and contacting the course	adjournment will be published in a timely manner on the			_
lecturer	during the consultation period (at least one hour per week)	•	~	
	to ask questions by e-mail (from the official e-mail addre		=	-
	after receiving the e-mail).	**************************************	•	<i>2</i> ,



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

1. GENERAL INFORMATION	ON					
1.1. Course title	ENGLISH LANGUAGE III	1.8. Course code in ISVU	140775			
1.2. Course lecturer	phD. Ivana Kardum Goleš, senior lecturer	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	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						
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	Four-year secondary education completed; qualifi	cation level 4.2 according to the CROQF, Completed course	English language II			
2.3. Learning outcomes on the	LO1: To apply and link professional terms from te in Croatian and English.	chnology and organization of road traffic in written and oral	communication with the professional public			
study programme level	LO2: To organize and implement team work, and critically judge the opinions and attitudes of team members.					



	LO3: 7	To individually and responsibly	search, interp	ret and integrate the relevant literature	needed to make decisions.		
	Lear	ning outcomes accroding to the	: Bloom`s tax	onomy: (up to two verbs per LO)		Level of LO: 1- rememberin, 2- understandin 3- application, 4- analysis, 5- evaluation, 6- synthesis	J.
	1	written and oral communica	lish road traffic and use them in	2, 3			
		2. to apply grammatical structu				3	
		to interpret and use tenses into develop a longer essay with				3, 4 5, 6	
		5. to present own ideas for dev				3	
	6	6. to communicate in a foreign	language wit	thin the subjects of the course, to expres	ss one own opinions.	6	
		to compare and evaluate dif		solutions.		5	
		3. to analyse complex texts and		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		4	
	9	o. to use part of the general lar	iguage compe	etency at levels B1/B2.		6	
	Cons	tructive allignement					
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time needed
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 applied grammatical structures or are evaluated, understand, apply from the professional terminole road traffic and use them in w communication verb tenses are	n texts and tasks and link terms ogy of English vritten and oral	4 h



real inquistic context, 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 topic, 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. Early Carriages - The Passive Voice, Past times Early Carriages - The Passive Voice, Past times Listen to lectures and read literature. Use multimedia and internet. Solve exercises. Listen to lectures and read literature. Use multimedia and internet. Solve context, can communicate in foreign languages within the course topic, comparing and evaluating different solutions to develop the development of transport solutions to develop the development of transport solutions to develop the development of transport 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 literature. Use multimedia and internet. Solve exercises. Listen to lectures and read literature. Use multimedia and internet. Solve the development of transport solutions to develop the development of transport 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 literature. Use multimedia and internet. Solve exercises. Listen to lectures and read literature. Use multimedia and internet. Solve the development of transport solutions to develop the d			-			1			_
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				rassive voice, Past times	9	exercises.	languages within the course topic, express their		
the development of transport solutions to develop							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.	Trade And Transport In The Turnpike Era - The Passive Voice, Future times	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.	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 colloquium	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	10 h



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					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		
	9.	The Satellite - The Infinitive and the Gerund	1, 2, 3, 5, 6, 9	Listen to lectures and read literature. Solve exercises.	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 tasks, use part of other language competences at B1 level.	6 h	



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	11.	Transport, Communications And City Organisation - Conditional Sentences (II Type)	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.	Navigation Devices - Conditional Sentences (III Type)	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.	Safe And Clean Road Transport - Conditional Sentences (Mixed Types)	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	4 h



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					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 colloquium	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



	from the written part of learning outcomes are: inform oneself about the	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 earning 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	5	Written exa	m	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)	Colloguium	without written am)	Seminar pap	per		Other			
	Class activity 0,5	5	Oral exam		1	Other			
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as: 1. Attending classes and exercises 45 hours 2. Preparing colloquia or exams through individual work 45 hours								
4. GRADING SYSTEM									
4.1. Grading seminar papers	-								
	Unsatisfa	ctory		Satisfactor	у	Above aver			
4.2. Grading colloquia/ written and oral exam	Responds by memory understanding. Does a basic terms and conknow how to apply contents of the course	not know or apply acepts. Does not or explain the	difficulty impa	arts new know explains the t	cepts and without rledge, understands erms and concepts	Knowledge is at the level of analysis, synthesis and evaluation. Observes the principles, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supported with examples. Finds solutions that were not originally given. Notes correlations with related material.			
4.3. Final grade according to	Active course	70-75% of			of attendance	87-100% of attendance	Maksimum bodova		
evaluation elements	attendance	3 po	ints	7	points	20 points	20 bodova		



	Seminar paper				
	Callaguia/Written	2	3	4	5
	Colloquia/ Written	50-64,9%	65-79,9%	80-89,9%	90-100%
	exam	25 points	30 points	35 points	40 bodova
	Oral avam	2	3	4	5
	Oral exam	25 points	30 points	35 points	40 bodova
	_	quired knowledge, skills and s (teaching + final exam)	Numerical grade	ECTS	grade
42 5		90 – 100%	5 (excellent)	A	
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)	E	

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)	Katja Bošković Gazdović: "English textbook of Transport I", Faculty for transport and traffic sciences,	10	V
other media)	University of Zagreb, Zagreb, 2002. (selected chapters)	10	Λ
	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", Department for traffic, Polytechnic of		
5.2 Additional literature (at	Rijeka, 2007.		X (e-learning,
the moment of changes and/or	Adrian Pilbeam and Nina O'Driscoll: "Logistics Management", Market Leader, Pearson Longman, 2010	10	handouts)
amended of study programme)	A.J. Thomson, A. V. Martinet: "A practical English Grammar", Oxford University		nandouts)
	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		



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 title	TRAFFIC CORRIDORS AND MERCHANDISE FLOWS	1.8. Course code in ISVU	140771			
1.2. Course lecturer	Darijo Šego, univ. spec. traff., senior lecturer	1.9. Course code in MOZVAG				
1.3. Assistants and/or associates	phD. Luka Vukić, assistant collegue professor	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%) 1st, 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	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		ge and case studies: become familiar with the creation and de world and Croatia, distinguish the main transport corridors				
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification lev	el 4.2 according to the CROQF.				
2.3. Learning outcomes on the study programme level	in Croatian and English.	and organization of road traffic in written and oral communi	cation 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.				
	LO6: To analyze and present relevant facts from the field of	f traffic needed to reach conclusions.				
	LO10: To compare and choose technical and technological	solutions in traffic and/or goods flows.				
	LO12: To set up a minor traffic process and critically evaluate	ate it.				



2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	1. 2.	1. Present and comment on the historical development of the traffic branches. 2. List and explain the main factors for the creation and development of commodity flows. 3. Analyze and evaluate world trade in goods. 4. Present and comment on the traffic connection of the Republic of Croatia.					
	4. 5.	List and compare major transport corri	III about	6, 4			
	 Comment on the objective and strategy of the Marco Polo Program and the current White Paper EU about transport. Use materials and tools to search scientific and professional literature in native and English languages. Present the acquired knowledge, ideas, problems, and solutions independently and in a team. 						
2.5. Course content according to detailed curriculum schedule	8. Const	ructive allignement	, problems, a	nd solddon's independently and in a team.		6	
	No	Thematic unit	LO of the course	Content/teaching methods	Eval	uation	Time needed
	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	oral exam stude define, numerate main factors for	n or the written and ents know how to and distinguish the the formation and commodity flows ral and socio-	6 h



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



			presents their own ideas, and ways to solve problems.	Seminar paper created and presented (by computer programs).	
-	The development of traffic in the air		They listen to a lecture and read literature.	At the colloquium or written and	
6.	-		· ·	1	
	(types of aircraft, aircraft		At the seminar class, they individually	oral exam students know to present	
	manufacturers, airlines, airports and		explore the content of this topic area by	and comment on the historical	
	routes)	1 2 7 0	searching the database, and on the basis of	development of traffic in the air.	
		1, 3, 7, 8	it and reading the literature, create a	Analyze and evaluate the	6 h
			seminar paper that presents the acquired	merchandise in air traffic in the	
			knowledge and presents their own ideas,	world. Categorize airports and	
			and ways to solve problems.	airlines. Seminar paper created and	
				presented (by computer programs).	
7.	The development of traffic in the air		They use multimedia and network. They	At the colloquium or written and	6 h
	(video film)		listen to a lecture and read literature. At the	oral exam students know the present	
			seminar class, they individually explore the	airport in the world. Identify and	
			content of this topic area by searching the	distinguish the types and capacity of	
		1, 3, 7, 8	database, and on the basis of it and reading	aircraft for passenger and cargo	
			the literature, create a seminar paper that	transportation. Analyze and evaluate	
			presents the acquired knowledge and	continental air routes. Seminar paper	
			presents their own ideas, and ways to solve	created and presented (by computer	
			problems.	programs).	
8.	Transport corridors in Europe (Trans-		They listen to a lecture and read literature.	At the colloquium or written and	6 h
	European transport network, transport		At the seminar class, they individually	oral exam students know state and	
	corridors in Western and Northern		explore the content of this topic area by	compare the main transport	
	Europe, Pan-European transport		searching the database, and on the basis of	corridors in all parts of Europe and	
	corridors, pipeline corridors, inland		it and reading the literature, create a	all branches of transport. Define the	
	waterways)	5, 7, 8	seminar paper that presents the acquired	term of traffic corridor. List the	
			knowledge and presents their own ideas,	countries through which each	
			and ways to solve problems.	transport corridor passes. Seminar	
			and ways to serve proceeds.	paper created and presented (by	
				computer programs).	
9.	Transport corridors in the Republic of		They listen to a lecture and read literature.	At the colloquium or the written and	6 h
'.	Croatia (Geographical location, traffic	4, 5, 7, 8	At the seminar class, they individually	oral exam, students can identify and	011
	Crouna (Geographical location, traffic	r, 5, 7, 0	explore the content of this topic area by	compare major traffic corridors in	
			explore the content of this topic area by	compare major traine corridors in	



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	directions, traffic corridors in the road,		searching the database, and on the basis of	Europe and the Republic of Croatia.	
	rail, air, water, and pipeline transport)		it and reading the literature, create a	Present, critically evaluate the traffic	
			seminar paper that presents the acquired	connection of the Republic of	
			knowledge and presents their own ideas,	Croatia in the road, rail, air, pipeline	
			and ways to solve problems.	and inland waterway transport.	
				Seminar paper created and presented	
				(by computer programs).	
10.	Merchandise and traffic flows in the		They listen to a lecture and read literature.	At the colloquium or the written and	6 h
	modern world (Concept and		At the seminar class, they individually	oral exam, students know how to	
	characteristics of traffic flow,		explore the content of this topic area by	define the concept of goods traffic.	
	commodity flows of food, raw		searching the database, and on the basis of	Categorize, analyze and evaluate the	
	materials, and industrial products)	250	it and reading the literature, create a	world trade of food, raw materials,	
		3, 7, 8	seminar paper that presents the acquired	and industrial products. List the	
			knowledge and presents their own ideas,	countries with the largest importers	
			and ways to solve problems.	and exporters of all types of goods.	
			and ways to solve problems.	Seminar paper created and presented	
				(by computer programs).	
11.	Merchandise and traffic flows in the		They listen to a lecture and read literature.	At the colloquium or the written and	6 h
11.	modern world (Concept and		At the seminar class, they individually	oral exam, students know how to	OII
	characteristics of traffic flow,			define the concept of goods traffic.	
	commodity flows of food, raw		explore the content of this topic area by		
	1		searching the database, and on the basis of	Categorize, analyze and evaluate the	
	materials, and industrial products)	3, 7, 8	it and reading the literature, create a	world trade of food, raw materials,	
			seminar paper that presents the acquired	and industrial products. List the	
			knowledge and presents their own ideas,	countries with the largest importers	
			and ways to solve problems.	and exporters of all types of goods.	
				Seminar paper created and presented	
				(by computer programs).	
12.	Merchandise and traffic flows of the		They listen to a lecture and read literature.	At the colloquium or the written and	6 h
	Republic of Croatia (import and		At the seminar class, they individually	oral exam students know how to	
	export of products, merchandise and	3, 4, 7, 8	explore the content of this topic area by	analyze and evaluate the trade of	
	traffic flows of the Republic of Croatia	3,4,1,0	searching the database, and on the basis of	products in the Republic of Croatia.	
	in land, water, and air)		it and reading the literature, create a	List the products that the Republic of	
			seminar paper that presents the acquired	Croatia imports/exports the most.	



				knowledge and presents their own ideas,	Present, critically evaluate and	
				and ways to solve problems.	comment on the traffic connection	
					of the Republic of Croatia in all	
					branches of traffic. Seminar paper	
					created and presented (by computer	
					programs).	
	13.	Marco Polo Program (program		They use multimedia and network. They	At the colloquium or the written and	
		objective, program activities, program		listen to a lecture and read literature. At the	oral exam, students can define the	
		projects)		seminar class, they individually explore the	goal and strategy of the Marco Polo	
				content of this topic area by searching the	program. Distinguish activities	
			6, 7, 8	database, and on the basis of it and reading	Marco Polo. Critically evaluate the	4 h
				the literature, create a seminar paper that	professional video films program.	
				presents the acquired knowledge and	Seminar paper created and presented	
				presents their own ideas, and ways to solve	(by computer programs).	
				problems.		
	14.	European Union White Paper on		They listen to a lecture and read literature.	At the colloquium or written and	
		Transport (White Paper titles, key		At the seminar class, they individually	oral exam, students define objective	
		content areas, preparing the European		explore the content of this topic area by	and strategy of the current EU White	
		transport area for the future, visions	6, 7, 8	searching the database, and on the basis of	Paper on transport. Comment on EU	6 h
		for developing a competitive and	0, 7, 0	it and reading the literature, create a	professional projects in the field of	O II
		sustainable transport system, strategy		seminar paper that presents the acquired	transport. Seminar paper created and	
		- what needs to be done)		knowledge and presents their own ideas,	presented (by computer programs).	
				and ways to solve problems.		
	15.	Final considerations/Repeating and	_	They listen to a course lecture and prepare	_	40 h
		preparing for the exam.		individuals for the exam.		
3. EVALUATION OF STUD	ENT V	VORK				

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 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	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		uses is 1 ECTS credit for 30 semes the midterm/exam through self-s		attendance (60 hours)	, preparation of seminar	r work and presentation
4. GRADING SYSTEM						
4.1. Evaluation of seminar paper	Elements of evaluation	Bad	Satisfy	ing	Above	average
	Organization Terminolog, writing style	The paper is not 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 paper is well strudistinction between the inbody of the text and the composition with the sentence structure is composition and there are a serrors.	ntroduction, the main onclusion. re in line with official g style is appropriate, lear, the vocabulary is are few grammatical	distinction between main body of the te which are logically in Words and express official terminolog understanding of their style is excellent, the concise, the vocabular no grammatical error	ions are aligned with gy and show an ir meaning. The writing sentences are clear and ary is rich and there are es.
	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 errors. The references are and show a satisfactory re	e relevant to the topic	consistently listed. appropriate, their	rately, completely and The references are list is "rich" and d shows a detailed
		Bad	Satisfy	ing	Above	average



4.2. Gradeing of the colloquium/written and oral exam	does not know or apply b	ithout a deeper understanding. It asic terms and concepts. It does explain the contents of the course	It reproduces the basic cond difficulty imparts new knowl the material, explains the te that it supports with example	synthesis, and evalegality, accurately the content of the connects and exconcepts that it is Finds solutions to	the level of analysis, aluation. It observes the and thoroughly explains a material, and logically explains the terms and supports with examples. That were not originally correlations with related	
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	oints	3 points
	G	2	3	4		5
	Seminar paper	5 points	7 points	8 points		10 points
		2	3		4	5
	Colloquiums/ Written part of exam Oral part of exam	50 - 64,9%	65 - 79,9%	80 -	89,9%	90 - 100%
		25 points	30 points	35 points 5		40 points
		2	3			5
		25 points	30 points	35 points		40 points
4.4. Formation of the final grade based on the absolute		red knowledge, skills and eaching + final exam)	Numerical grade		ECTS grade	
distribution	90	- 100%	5 (excellent)	A	
	80	- 89,9%	4 (very good	1)		В
	65	- 79,9%	3 (good)			С
	60	- 64,9%	2 (sufficient)			D
	50	- 59,9%	2 (sufficient)			Е
5. ADDITIONAL INFORMATI	ION ABOUT COURSE		1			



5.1. Compulsory literature	Title	Number of copies in the	Availability via
(available in the library and via		library	other media
other media)	Šego Darijo: Traffic corridors and merchandise flows, Script for internal use, Polytechnic of Sibenik,	-	e-learning system
	Šibenik 2016.	-	Internet website
	Strategy for Transport Development of the Republic of Croatia for the Period 2014-2030. (selected		Internet website
	chapters)		
	World trade organization http://www.wto.org/ (selected chapters)		Internet website
	Transport in EU http://ec.europa.eu/transport/index en.htm(selected chapters)		Internet website
	Central Bureau of Statistics of the Republic of Croatia https://www.dzs.hr/		
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.		
amended of study programme)	International trade statistics https://www.trademap.org/Index.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 necessary knowledge and skills will be	ensured through interactive wo	ork. By keeping track of
that ensure the acquisition of	attendance and student activity during classes and provided information on students' progress throu	gh short colloquiums and hon	nework, information for
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Stude	nts will be informed about the	ir rights and obligations
competences	as well as the methods of work and the required literature. Indicators of quality assurance systems	Student survey, monitoring	of annual data from the
	Croatian employment service on the annual state of student employment, surveys from employers an	d 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 notic	es 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 well	bsite of the Polytechnic. Stude	ents can contact teachers
lecturer	during the consultation period (at least one hour per week), while for short questions and explanation	s 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 title	TRAFFIC LAW	1.8. Course code in ISVU	140781							
1.2. Course lecturer	MSc. Krešimir Nimac, lecturer	1.9. Course code in MOZVAG								
1.3. Assistants and associates	phD. Nikola MANDIĆ, associate collegue professor	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+0+15+0)							
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , 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 spe law. In this way, students acquire basic knowledge about the system of traffic law and the relationship between specific modes of tractivities necessary for the functioning of transport as a whole.	-				
2.2. Terms of course entry and required competences	Four-vear secondary education completed, qualification level 4.7 according to the (CROI) b					
	LO1: Use and connect professional terms from technology and organization of road traffic in written and oral communication with the in Croatian and English.	he professional public				
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
245		5- evaluation
2.4. Expected learning outcomes		6- synthesis
on the course level (4-10	 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.	Δ, 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

	Constr	ructive alignment				
	No.	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed
	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 h
2.5. Course content according to detailed curriculum 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 h
	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 h



						1
	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 h
	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 h
	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 h
	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 h



				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 h
	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 h
	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 h
	10.	ROAD TRANSPORT CONTRACTS - concept of transport contract, essential elements, conclusion of contract, liability,	2, 4, 5	Students listen to lectures, browse databases and read literature. At the seminar classes, they group up a	At the midterm or oral exam, they know how to define the essential features of a contract on road transport in accordance	4 h



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



	CONCLUDING	REMARKS,		Students listen	to lectures and read	regulation of telecommunication the Republic of Croatia. Prepresented practical work (index of computer programs and sour practice).	repared and pendent use			
	15. REPETITION of	*	-		tudents prepare		40 h			
3. EVALUATION OF STUDENTS' WORK										
3.1. Students` obligations	In accordance with the <i>Regulations on Studying</i> and the <i>Regulations on Student Assessment and Evaluation</i> : for all full-time students' attendance of at least 70%. Part-time students are required to attend classes at least 50%. All students must create, present and have a positively rated seminar paper. Students who have achieved during the course: • from 0 - 24,9% ECTS credits- are rated F (unsuccessful) and cannot obtain ECTS credits, and must re-enrol 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 examination 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 teaching, preparation and presentation of seminar work) and taking exams (written and oral part of the 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	0,5	Writte	n exam		Project				
	Experimental work	Rese		rch		Practical work				
	Esssay	Report		t		Continuous examination				
	Colloquium (midterm)	2	Semin	ar paper	0,5	Other				
	Class activity		Oral e	xam	2 (without colloquia/midterm)	Other				
3.3. Student workload	Student workload on all bases for 1 ECTS credit is 30 hours in a semester and is estimated as:									
	Obligation				Hours (estimated)					
	1. Attendance 2. Writing seminar paper and presentation				35 15					
	2. Witting schinial paper and presentation				13					



	3. Preparation for the midterm / exam through self-study 40								
4. GRADUATE SYSTEM									
4.1. Grading seminar papers	The evaluation element	Unsatisfac	tory	Satisfactory			Above average		
	Organization	The paper is not organ order and lacks structur	_	The paper is well structured with a condistinction between the introduction the main body of the text and conclusion.		action, and the	, distinction between the introduction, the		
	Terminology, writing style	Words and expressions with official terminolo style is not appropriate are too long, of a mo and with frequent grammatical errors.	gy. The writing e, the sentences dest vocabulary	Words and expressions are in line wofficial terminology. The writing st is appropriate, the sentence structure clear, the vocabulary is appropriate at there are few grammatical errors.		g style ture is	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 references	The sources are not li references do not fit the a cursory approach to topic.	e topic and show	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.			and consist appropriate	es are accurately, completently listed. The reference, their list is "rich" sive and show a determinant.	es are and
	Unsati	sfactory	Satisfactory				Above average		
4.2. Grading colloquia/ written and oral exam	understanding, does n terms and concepts, doe	nemory, without a deeper of know or apply basic es not know how to apply nts of the course with	Student reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts supporting them with examples.			and eval law, ac content and exp them we not orig	Knowledge is at the level of analysis, synthesis and evaluation. Student observes the principles of aw, accurately and thoroughly explains the content of the material, and logically connects and explains the terms and concepts supporting them with examples. Finds solutions that were not originally given and notices correlations with related material.		
4.3. Final grade according to	Active attendance	70-75% attendance	76-8	76-86% attendance		87-100% attendar		Solved case studies	3
absolute division	Active attendance	2 points		4 points		7 points		3 points	



	Saminar manar	2	3	4	5
	Seminar paper	5 points	7 points	8 points	10 points
		2	3	4	5
	_	50-64,9%	65-79,9%	80-89,9%	90-100%
	conoquium/imaterm	25 points	30 points	35 points	40 points
	Oral arran	2	3	5	5
	Oral exam	25 points	30 points	35 points	40 points
	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Numerical grade	ECTS	grade
4 4 T' 1 1 1' 4	90	0 – 100%	5 (excellent)	A	Α
	Seminar paper 5 points 7 points 8 points Taking a colloquium/midterm 2 3 4 Taking a colloquium/midterm 25 points 30 points 35 points Oral exam 2 3 5 Oral exam 2 3 5 25 points 30 points 35 points Percentage of acquired knowledge, skills and competences (teaching + final exam) Numerical grade ECTS graduled with the competences (teaching + final exam) Numerical grade ECTS graduled with the competences (teaching + final exam) Seminary Seminary	3			
absolute division	65	5 – 79,9%	5 points 7 points 8 points 2 3 4 50-64,9% 65-79,9% 80-89,9% 25 points 30 points 35 points 2 3 5 25 points 30 points 35 points nowledge, skills and ng + final exam) Numerical grade 0% 5 (excellent) 9% 4 (very good) 9% 3 (good) 9% 2 (satisfactory) 9% 2 (satisfactory)	(
Taking a colloquium/midter Oral exam Percentage of	60	60 – 64,9%		D	
	50	0 – 59,9%	2 (satisfactory)	I	Ξ
5. ADDITIONAL COURSE IN	NFORMATION				
				Number of	copies in Availability via

	5.1. Commula on Litanotum	Title	Number of copies in	Availability via
	5.1. Compulsory literature	Title	the library	other media
	(available in the library and via other media)	Slobodan Kaštela, Ladislav Horvat: Traffic law, School book, Zagreb, 2008.	5	
	other media)	Dragan Bolanča: Traffic law (book in electronic form), Polytechnic of Šibenik, 2016.		
Ī	5.2. Additional literature (at the	Aleksandra Vasilj, Biljana Činčurak Erceg: Traffic law and insurance, Faculty of Law, University of Osijek,		
	moment of changes and/or	Osijek, 2016.		
	amended of study programme)	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 to attendance and student activity during classes and provided information on students' progress through short 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 Croatian employment service on the annual state of student employment, surveys from employers and Alumn	colloquiums and homewoe informed about their rit survey, monitoring of a	ork, information for ghts 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	GENERAL INFORMATION								
1.1. Course title	TRANSSHIPMENT RESOURCES	1.8. Course code at ISVU	214571						
1.2. Course lecturer	phD. Ana-Mari Poljičak, senior lecturer	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 , 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	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 CROQF.
2.3. Learning outcomes on the	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: Organize and conduct teamwork, and critically evaluate the opinions and attitudes of team stakeholders.
	LO3: Independently and responsibly search, interpret and integrate relevant literature needed to reach conclusions.



	LO4: Apply knowledge of natural and technical sciences to problems in the field of road transport.									
	LO6: Analyze and interpret relevant road transport facts needed to reach conclusions.									
	LO10: Compare and select technical and technological solutions for traffic and / or goods flows.									
	Learning outcomes according to Bloom's taxonomy:	Level of LO: 1- remembering, 2- understanding, 3- application, 4- analysis, 5- evaluation, 6- synthesis								
2.4. Expected learning outcomes on the course level	1. state the division of goods according to the technical suitability for transport and transhipment and list the physical and technical characteristics of the goods,	1								
on the course level	2. to sketch and comment on continuous operation transhipments,	3, 4								
	 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, 5								
	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								

	Constructive allignement								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed			
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	At the colloquium or written and oral exam, they state the types of transhipment according to the degree of mechanization and	6 h			



				papers. They choose the topics of seminar	automation. They state the division of goods	
				papers. In the seminar classes, the	according to the technical convenience for	
				brainstorming method and the method of	transport and transhipment and state the	
				discussion on the presented topic are	physical and technical characteristics of the	
				applied. During the exercises classes they	goods. They define and sketch the	
				repeat the units of measurement and	embankment angle. They list the types of	
				formulas needed to calculate the	productivity of transhipment machinery with	
				productivity of transhipment machinery.	continuous operation.	
			2, 3, 4	They listen to lectures and read literature. In		10 h
				seminar classes, they individually research	At the colleguium on written and area even	
				the content of this thematic area by	At the colloquium or written and oral exam,	
				searching the database, and on the basis of	they can list the features and sketch the belt	
				it and the read literature, they prepare a	conveyor and explain its constituent elements. Give an example of application.	
	2.	Belt conveyors. Band		seminar paper which presents the acquired	List and explain the types of conveyor belts.	
	۷.	conveyor belts.		knowledge. In the seminar classes, the		
				brainstorming method and the method of	State and sketch the shapes of the bearing	
				discussion on the presented topic are	surfaces of the conveyor belts of the belt conveyor. They know how to calculate the	
				applied. In the exercises classes, they	, ,	
				calculate the productivity of the conveyor	productivity of belt conveyors.	
				by analytical methods.		
			2, 3, 4	They listen to lectures and read literature. In	At the colloquium or written and oral exam,	10 h
				seminar classes, they individually research	they can enumerate and explain the role of	
				the content of this thematic area by	drums. Sketch the belt conveyor drive with	
				searching the database, and on the basis of	one, two and three drive drums. List and	
		Drums and rollers of belt		it and the read literature, they prepare a	sketch the types of rollers according to	
		conveyors. Devices for		seminar paper which presents the acquired	construction solutions and shape. They can	
	3.	loading and unloading.		knowledge. In the seminar classes, the	state, sketch and explain the role of loading	
		Calculation of belt		brainstorming method and the method of	and unloading devices. Prepared and	
		conveyors.		discussion on the presented topic are	presented seminar paper (independent use of	
				applied. In the exercises classes, they	computer programs). They know how to	
				calculate the productivity of the conveyor	calculate the required belt width for a belt	
				by analytical methods.	conveyor. They know 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. Scope, forms 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	At the colloquium or written and oral exam, they can state the characteristics of sectional conveyors and sketch and explain their working principle. 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	8 h



				discussion on the presented topic are applied. In the exercises classes, they calculate the productivity of the conveyor by analytical methods.	seminar paper (independent use of computer programs). They know how to calculate the productivity of elevators.	
	7.	Gravity conveyors. Scope, shapes and calculation of gravity conveyors. Conveyors scrapers. Scope, forms and calculation of scraper conveyors.	1, 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 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 h
	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 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 get acquainted with the calculation of	At the colloquium or written and oral exam, they can state and explain the classes of the crane and calculate the theoretical and operational productivity. List, distinguish and sketch crane elements and identify the crane class. Prepared and presented seminar paper (independent use of computer programs).	8 h



			41- a man dan atinitan a C tanan ah imma ant ann a 11 in ann		
			the productivity of transhipment machinery		
			with occasional operation and calculate the		
			productivity with an analytical method.		
		5, 7		At the colloquium or written and oral exam,	8 h
				they know how to list and describe the types	
			They listen to lectures and read literature. In	of ropes and choose the necessary rope. List	
			the seminar classes, they individually	and explain ways of fixing steel ropes. List,	
			research databases and, based on that, read	describe and sketch the types of hooks,	
			the literature and prepare a seminar paper	perform the calculation of the dangerous	
	Ropes and steel ropes.		which presents the acquired knowledge.	cross section of the hook. List, explain, sketch	
10.			1 1	· •	
	Hooks.Chain. Grippers.		The brainstorming method and the	the types of chains and give an example from	
			discussion method are applied in the	practice. They can list, describe and sketch	
			seminar classes. In the exercises classes,	the types of catchers and give an example	
			they determine the classes of cranes by the	from practice. Calculate the parameters for	
			analytical method.	classifying cranes into classes and, based on	
				the parameters, classify the cranes into a	
				specific class.	
		5, 7	They listen to lectures and read literature. In		10 h
			the seminar classes, they individually	At the colloquium or written and oral exam,	
			research databases and, based on that, read	they can explain the task of the pulley, list the	
			the literature and prepare a seminar paper	types of pulley, sketch the performance of the	
			which presents the acquired knowledge.	pulley in practice. They know how to explain	
			The brainstorming method and the	the task of brakes, list the types and give an	
			discussion method are applied in the	example from practice. Sketch and explain	
11.	Pulleys. Brakes.		seminar classes. In the exercises classes,	the brakes with two and one pedal. They can	
			they solve numerical problems for	sketch and explain conical, belt and lamellar	
			manipulative vehicles using the analytical	brakes. Calculate the parameters for	
			method In the exercises classes, they solve	classifying cranes into classes and, based on	
			-	, ,	
			numerical problems with the analytical	the parameters, classify the cranes into a	
			method, which determine the parameters	specific class.	
			for classifying cranes into classes.		
			1 TT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
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	At the colloquium or written and oral exam, they can list small and large cranes. Sketch	10 h



			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.	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.	
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. 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 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 know how to define and list the types of pallets and containers and give an example from practice. Calculate the control number of the container.	8 h
15.	Repetition and preparation for the colloquium. Colloquium II. Concluding	5, 6, 7, 8	They listen to the lecture and read the literature and individually prepare for the colloquium/ exam.	-	40 h



	consideration and prepari	ons. Repeating ng for the exam.					
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 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).						
	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	4 (without written exam)	Seminar paper	0,5	Other		
	Class activity	0,5	Oral exam	1(without colloquia)	Other		
	Student workload	on all bases is 1 ECTS	credit 30 semester hours ar	d is estimated as:	1	1	
	Obligati			Hours (estimated)	, ,		
3.3. Student workload	1. Class at			75			
		tion of seminar paper a	_	10			
	3. Preparir	ig colloquia or exams t	hrough individual work	95			
4. GRADING SYSTEM							



	Element of evalua	tion Bad			Satisfying		Above average	
	Organization	The paper is not organiorder and lacks structure	_	distinction bet	ell structured with tween the introd y of the text an	uction, dis	e paper is well structured with a clear tinction between the introduction, the in body of the text and the conclusion, ich are logically interconnected.	
4.1. Grading of seminar work	Terminology, w	Words and expressions official terminology. T riting is not appropriate, the s long, of a modest voca frequent and repeate errors.	he writing style entences are too bulary and with	Words and expressions are in line w official terminology. The writing st is appropriate, the sentence structure clear, the vocabulary is appropriate a there are few grammatical errors.		offing style cture is attention and are	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 refere references	The sources are not li references do not fit the a cursory approach to topic.	e topic and show	The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.			e sources are accurately, completely d consistently listed. The references appropriate, their list is "rich" and apprehensive and shows a detailed earch approach.	
		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 examples.		difficulty impa	rts new knowled	pts and without dge, understands and concepts that	and evaluaccurately the materia the terms examples.	e is at the level of analysis, synthesis uation. It observes the legality, and thoroughly explains the content of al, and logically connects and explains and concepts that it supports with Finds solutions that were not given. It notes correlations with related	
	Active	70-75% of the presence	76-86% of t	he presence	87-100% of th	ne presence	Case studies resolved	
	attendance	2 points	4 po		7 poi	nts	10 points	
4.3. Forming the final grade	Seminar paper	2	3		4		5	
according to the evaluation	Pupu	5 points	7 po		8 poi	nts	10 points	
					4		~	
elements	Examination /	2	3				5	
elements	Examination / Written examination	2 50-64,9% 25 points	65-79 30 pc	9,9%	4 80-89, 35 poi		90-100% 40 points	



	Oral part of the	2		3		4	5
	exam	25 points	ints 30 points		35 points	40 points	
	_	of acquired knowledge, skills an tences (teaching + final exam)	d	Number rating		I	ECTS grade
4.4 Formation of final grade		90 – 100%		5 (excellent)		A	
4.4. Formation of final grade based on absolute distribution	80 – 89,9%			4 (very good)		В	
based on absolute distribution		65 – 79,9% 60 – 64,9% 50 – 59,9%		3 (good)			С
				2 (sufficient)		D	
				2 (sufficient)		Е	

Number of copies in

Availability via other

5. ADDITIONAL INFORMATION ON THE SUBJECT

employer survey and Alumni Association.

		Title	the library	Availability via other media
	5.1. Required literature	Mavrin I.: Conveyors, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 1999. Šćap D.: Transmissions and elevators, Faculty of Mechanical and Naval Engineering, University of	0	Available online
	(available in the library and through other media)	Zagreb, Zagreb, 2004. (selected chapters) Bognolo, D., Kršulja, M.: Transhipment means - Collection of solved tasks, Polytechnic of Rijeka,	0	
		Rijeka 2017. (selected chapters) Boris Ribarić: Examples of solved tasks in the subject of handling machinery, Faculty of transport and	3	
		traffic sciences, University of Zagreb, Zagreb 1994 (selected chapters)	0	
•	5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	Serdar J.: Transmissions and elevators, Lexicographic Institute "M. Krleža", Zagreb, 1995.	5	
	5.3. Quality assurance methods that ensure the acquisition of knowledge skills and	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured thr attendance and activity in the classroom and information obtained about student progress through the further guidance to students in order to increase their work efficiency. Students will be instructed in their	midterm will provide th	e information needed for

and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employment status of students,

competences

knowledge, skills and



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 title	THEORY OF VEHICLE MOVEMENT	LE MOVEMENT 1.8. Course code in ISVU		
1.2. Course lecturer	Luka Olivari, mag. eng. mech., lecturer	1.9. Course code in MOZVAG		
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+15+0+0)	
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	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	X yes □ no	
1.7. Credit score (ECTS)	4	1.14. Percentage estimate of course changes and/or supplements		
2. COURSE DESCRIPTION				
2.1. Course objectives	The aim of the course is to provide students with theoret the problem of road vehicle exploitation.	ical knowledge and practical examples to acquire the knowledge	edge necessary 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 technolo in Croatian and English.	gy and organization of road traffic in written and oral commu	nication with the professional public	
2.3. Learning outcomes on the	LO4: To apply knowledge from the field of natural and t	echnical sciences to problems in road traffic.		
study programme level	LO8: To solve problems in traffic by using analytical and	d / or graphical methods.		
	LO13: To track trends in the development of technique,	technology and safety in traffic.		
			Level of LO:	
	Learning outcomes by Bloom: (maximum 2 werbs for LO)			
			2- understanding,	



2.4. Expected learning outcomes on the course level (4-10 learning outcomes)						3- application, 4- analysis, 5- evaluation, 6- synthesis.	
	1.	1, 2					
	2.	Distinguish the drive engines, co	oncepts and eler	ments of transmission of road vehicles.		4	
	3.	3. Formulate the final equation of motion of the vehicle based on the traction forces and the resistance of the movement of the vehicle.					
	4.	Evaluate the fuel economy of a 1	road vehicle.			5	
	5. Analyze the properties and performance of the road vehicle under different operating conditions.				4		
2.5. Course content according to detailed curriculum schedule	Constr	ructive allignement				l	
	No	Thematic unit	LO of the course	Content/teaching methods	Evaluatio		Time needed
	1.	Introductory presentation (introducing students to the content and obligations of the course). Area of study of vehicle motion theory. Exploitation of vehicle technical characteristics.	1	Listen to a lecture. By working independently on a computer, they become acquainted with the course content, obligations, literature and documents on the e-learning course page. Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving.	At the colloquium or the exam they define and expla		3 h
	2.	Construction of motor vehicles. IC engines. Power transmission.	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 define and econcepts; distinguish between concepts and elements or road vehicles; solve numer specified area;	explain the basic een drive engines, f transmission of	3 h
	3.	Forces on the vehicle. Static and dynamic axle reactions.	1, 3, 5	Listen to a lecture and read literature. The exercises	At the colloquium or writt define and explain the distinguish between power	basic concepts;	3 h



demonstrate how to solve tasks. Independent task solving. Tire. Tire hysteresis. Rolling resistance factor. Wheel slipping and rolling. 1, 3, 5 Movement resistances. Rolling resistance. Air resistance. 5. Climb resistance. Inertia resistance. Climb resistance. Climb resistance. Traction force. Traction force hyperbole. Traction diagram. Adhesion force. 1, 3 Engine characteristic. Engine classicity. Power balance. Traction-speed characteristics. 7. Traction-speed characteristics. 1, 3, 5 Independent task solving. I.isten to a lecture and read literature and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Listen to a lecture and read literature are read literature. The exercises demonstrate how to solve tasks. Independent task solving. Listen to a lecture and read literature are read literature. The exercises concepts, 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; Listen to a lecture and read literature and read literature. The exercises concepts, 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; Listen to a lecture and read literature. The exercises concepts, 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; Listen to a lecture and read literature. The exercises concepts, 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; Listen to a lecture and read literature and read literature. The exercise solve tasks. Independent task solving. Listen to a lecture and read literature and read literature. The exercise solve tasks. Independent task solving. Listen to a lecture and read literature and read literat							
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analyze the properties and performance of the		7.	-	1, 3, 5	Independent task solving.	• •	3 h
					_	forces and the resistance of the vehicle;	
road vehicle under different operating						analyze the properties and performance of the	
						road vehicle under different operating	



					conditions; solve numerical tasks from the	
					specified area;	
		Vehicle economy. Fuel		Listen to a lecture and read	At the colloquium or the written and oral	
		consumption equation.		literature. The exercises	exam they define and explain the basic	
				demonstrate how to solve tasks.	concepts; formulate the final equation of	
8	8.		1, 3, 4	Independent task solving.	motion of the vehicle based on the traction	3 h
					forces and the resistance of the vehicle;	
					evaluate the fuel economy of a road vehicle;	
					solve numerical tasks from the specified area;	
		Vehicle steering. Oversteering		Listen to a lecture and read	At the colloquium or the written and oral	
		and understeering.		literature. The exercises	exam they define and explain the basic	
9	9.		1, 5	demonstrate how to solve tasks.	concepts; analyze the stability of the road	3 h
				Independent task solving.	vehicle under different operating conditions;	
					solve numerical tasks from the specified area;	
		Vehicle stability. Longitudinal		Listen to a lecture and read	At the colloquium or the written and oral	
		and transverse stability.		literature. The exercises	exam they define and explain the basic	
1	10.		1, 5	demonstrate how to solve tasks.	concepts; analyze the stability of the road	3 h
				Independent task solving.	vehicle under different operating conditions;	
					solve numerical tasks from the specified area;	
		Acceleration. Dynamic		Listen to a lecture and read	At the colloquium or the written and oral	
		characteristic. Time and path		literature. The exercises	exam they define and explain the basic	
		of acceleration. Overtaking.		demonstrate how to solve tasks.	concepts; formulate the final equation of	
				Independent task solving.	motion of the vehicle based on the traction	
1	11.		1, 3, 5		forces and the resistance of the vehicle;	3 h
					analyze the properties and performance of the	
					road vehicle under different operating	
					conditions; solve numerical tasks from the	
					specified area;	
		Braking. Braking		Listen to a lecture and read	At the colloquium or the written and oral	
		characteristic. Distribution of		literature. The exercises	exam they define and explain the basic	
1	12.	braking forces.	1, 3, 5	demonstrate how to solve tasks.	concepts; formulate the final equation of	3 h
				Independent task solving.	motion of the vehicle based on the traction	
					forces and the resistance of the vehicle;	



	1	I		I	T		·	a . T	
							analyze the properties and performance road vehicle under difference conditions; solve numerical transpecified area;	ent operating	
	13.	Active stability Braking with active systems. devices.		1, 5	literature. T	ecture and read The exercises To solve tasks. Solving.	At the colloquium or the wr exam they define and expli- concepts; analyze the stability vehicle under different operations solve numerical tasks from the	ain the basic y of the road ng conditions; specified area;	3 h
	14.	Vehicle dynamic	s calculations.	1, 2, 3, 4, 5	Listen to a lecture and read literature. The exercises demonstrate how to solve tasks. Independent task solving. Listen to a lecture and read literature. Prepare individually for the exam.		At the colloquium or the written and ora exam they define and explain the basi concepts; submit vehicle dynamic calculation; solve numerical tasks in the specified area;		3 h
	15.	Final consideration and preparation f		-					3 h
3. EVALUATION OF STUD	ENT W	ORK							
3.1. Student obligations	attend of paper.	classes at least 709	%, which is also the final exam i	a requirement	for obtaining the le	ecturer`s signature.	Student Performance: Full-time All students must create and pos ng colloquiums and oral part of	sitively colloquy	seminar
3.2. Student work monitoring	Attendi	ng classes	1,5		Written exam	1 (without colloquiums)	Project		
(enter the share of ECTS credits	E		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	1 (without wr	itten exam)	Seminar paper	0,5	Field works or Study trips		
value)	Teaching activities			The oral part of exam	1	(other)			



	Student workload on all bases is 1 ECTS credit for 30 hours of work per	semester and is estimated as going to fieldwork or study trips (30 hours),
	preparation of seminar work and presentation (30 hours).	
	Hours (estimated)	
3.3. Student work-load	1. Attending classes	45
	2. Seminar paper	15
	3. Colloquiums and written exam individual preparation	30
	4. Oral exam individual preparation	30

4. GRADING SYSTEM

	Elements of evaluation	Bad	Satisfying	Above average
	Physical quantities and	Nonstandard physical units have not	Nonstandard units have been converted to	Nonstandard units have been converted
	their units of	been converted to basic or have been	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, complete,
	legibility and orderliness	is not traceable, and it is not readable.	traceable and readable. The diagrams and	very neat and legible. The diagrams are
	of the procedure,	Diagrams and sketches are non-	sketches are meaningful, neat with minor	completely accurate, clear and very
4.1. Evaluation of written exam	diagrams and sketches	existent, inaccurate, messy, unclear	errors.	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, the
		included in the expression. The end	expression with smaller numbers, 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
4.2. Evaluation of oral exam		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	them with examples. Knows the expert	the material, and logically connects and
		examples.	terminology.	explains the terms and concepts and
				supports them with examples. Finds



						I	solutions that were not originally given. It notes correlations with related material. Fluent in professional erminology.
4.3. Forming the final grade according to the evaluation elements	Colloquiums/ Written exam	2	3 4			5	
	50-64,9% 50-64,9 points		6	65-79,9% 65-79,9 points	80-89,9% 80-89,9 points		90-100% 90-100 points
	The oral part of exem	50-64,9 points	6	3 55-79,9 points	80-89,9	points	5 90-100 points
	Percentage of acquired knowledge, skills and competencies (teaching + final exam)			Numerical grade	2		ECTS grade
4.4. Formation of the final grade	9	0 – 100%	5 (excellent)		A		
based on the absolute	80	0 – 89,9%		4 (very good)		В	
distribution	6:	5 – 79,9%		3 (good)			С
	60	0 – 64,9%	2 (sufficient)		D		
5		0 – 59,9%		2 (sufficient)		Е	

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	Mikulić, D.: Motorna vozila: Teorija kretanja i konstrukcija (III. izdanje), Veleučilište Velika	5	On-line
other media)	Gorica, Velika Gorica, 2020. (selected chapters)		
	Perše, S., Višnjić, V.: Mechanical engineering in traffic, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 2005. (selected chapters)	10	
	Cerovac V.: Technique and safety of road traffic, Faculty of transport and traffic sciences,	5	
	University of Zagreb, Zagreb, 2001. (selected chapters)	5	



	Vrhovski D., Nikšić M.: Basics of mechanical engineering - a collection of solved tasks, Faculty							
	of transport and traffic sciences, University of Zagreb, Zagreb, 2000. (selected chapters)							
5.2. Additional literature (at the	Courses lectures, also lectures and exercises of the course Technical Mechanics.	-	on-line (e-learning)					
moment of changes and/or	Rotim, F.: Elements of road traffic safety, Book 2, Scientific council for traffic Croatian national	1	on-me (e-rearming)					
amended of study programme)	academy of science and art, 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 in	nteractive 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							
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							
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 activiti	ies. 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 Polyte	chnic. Students can contact teachers					
and contacting the course	during the consultation period (at least one hour per week), while for short questions and explanat	tions they can be cont	acted 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 answ	ered as soon as possi	ble (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	phD. Ana-Mari Poljičak, senior lecturer	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 (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	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: Define basic goods-distribution terms; Understand the division, structure and function of goods-distribution centers and terminals; 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 CROQF.
	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.



	LO10: Compare and select technical and technological solutions for traffic and / or goods flows.	
2.4. Expected learning outcomes	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.
on the course level	 define and explain basic concepts in the field of distribution and trade in goods. 	1, 2
	2. comment on the fundamental characteristics of the goods centers and terminals in the transport system.	4
	 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
	distinguish between types of storage and technological storage procedures.	2
	6. present the acquired knowledge independently and in a team.	6

	Constr	ructive allignement				
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed
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-	2 h	



					distribution centers, warehouses and goods-transport centers and know how to list and explain logistic activities of goods-transport centers.	
	2.	Field teaching VELPRO Šibenik.	2, 3	They listen to a lecture. (Touring the goods 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	At the colloquium or the written and oral exam they can define what containerization and container is, and list the advantages and disadvantages	10 h



			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.	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).	
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	At the colloquium or written and oral exam knows define and describe LUF and LASH terminals explain the technological processes of work on	8 h



literature, create a seminar paper that present the acquired knowledge and presents their ow	loading and unloading devices and	
ideas, and ways to solve problems. In the grou		
work on seminar teaching, the brainstormin	·	
method and the discussion method on the topi	e	
are applied.	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).	
They listen to a lecture and read literature. At the	e At the colloquium or the written and	
seminar teaching, they individually explore the	e oral exam they know how to define	
content of this topic area by searching the	and describe ways of transshipment in	
database, and on the basis of it and reading the	ports and terminals. Describe the coal	
literature, create a seminar paper that present	and iron ore transhipment terminal and	
Terminals for the the acquired knowledge and presents their ow	the phosphate transhipment terminal	
9. transhipment of dry and 1, 3, 4, 5 ideas, and ways to solve problems. In the grou	and explain their technological	10 h
bulk cargo. work on seminar teaching, the brainstormin	g processes. Enumerate loading and	
method and the discussion method on the topi	unloading devices and explain storage	
are applied.	of coal and iron ore and phosphate.	
	Seminar paper created and presented	
	(using computer programs	
	independently).	
They listen to a lecture and read literature. At the	At the colloquium or the written and	
seminar teaching, they individually explore the	e oral exam they can define and describe	
content of this topic area by searching the	e cereals and cement transshipment	
Terminals for the database, and on the basis of it and reading the	terminals. Explain their technological	
10. transhipment of dry and 1, 3, 4, 5 literature, create a seminar paper that present	s processes of work and the list of	10 h
bulk cargo. the acquired knowledge and presents their ow	loading unloading devices. Explain	
ideas and many to calcus makings. In the annu	storage of cereals and cement. Seminar	
ideas, and ways to solve problems. In the grou		
work on seminar teaching, the brainstormin	g paper created and presented (using	



-						
				method and the discussion method on the topic		
				are applied.		
	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	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
				experiential and self-discovery methods are applied.		
	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	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	At the colloquium or written and oral exam knows define and enumerate dangerous cargoes. List the systems by which the classification of the	12 h



-						
		terminals for the transhipment of wood and wood products.		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.	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	
				ас арриси.	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	
	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.	independently). 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 work and the list of loading unloading devices for animals.	8 h
	15.	Concluding considerations. Repeating and preparing for the exam.		They listen to a lecture and prepare individually for the exam.	-	35 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 development and presentation of seminar work and two colloquium); b) during class (active participation in class and development and presentation of seminar work) and passing exams (written and oral part of the exam).								
	Attendance		Written exam	3	(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			Continuo examinat			
corresponds to the credit score of the course)	Colloquium	3 (without written exam)	Seminar paper	0),5	Other			
	Class activity	0,5	Oral exam	1	(without colloquia)	Other			
	Student workload on	all bases is 1 ECTS credi	it 30 semester hours and	d is esti	mated as:				
	Obligation	ı			Hours (estimated)				
3.3. Student workload		ss attendance			60				
		a seminar paper and pres			20				
	3. Preparing	colloquia or exams throug	gh individual work		70				
4. GRADING SYSTEM									
4.1. Evaluation of a of seminar work	Element of evalua	tion I	on Bad			Satisfying Above average		ove average	



	Organization	The paper is not organized in a logical order and lacks structure.		clear distinction, the	clear distinction between the introduction, the main body of the text		aper is well structured with a clear ction between the introduction, the body of the text and the conclusion, are logically interconnected.	
	Terminology, writing style	Words and expressions official terminology. T is not appropriate, the s long, of a modest voca frequent and repeate errors.	he writing style entences are too bulary and with	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.		official official understante and official are cleaned.	s and expressions are aligned with all terminology and show an standing of their meaning. The g style is excellent, the sentences ear and concise, the vocabulary is nd there are no grammatical errors.	
	Citing and referencing references	The sources are not li references do not fit the a cursory approach to topic.	topic and show	The sources are listed but incompand with errors. The references relevant to the topic and show satisfactory research attitude.		es are are are are compri	ources are accurately, completely onsistently listed. The references oppopriate, their list is "rich" and rehensive and shows a detailed och approach.	
	Ba	ıd		Satisfying			Above average	
4.2. Grading of the colloguium / written and oral exam	It responds by memoral understanding. Does not terms and concepts. Does or explain the content examples.	t know or apply basic s not know how to apply	difficulty impar	the basic conceptrs new knowled plains the terms a examples.	ge, understands	and evaluati accurately and of the mater explains the to with example	at the level of analysis, synthesis on. It observes the legality, d thoroughly explains the content rial, and logically connects and erms and concepts that it supports es. Finds solutions that were not even. It notes correlations with al.	
	Active 70	-75% of the presence	76-86% of	the presence	87-100% of t	he presence	Case studies resolved	
	attendance	2 points	·	oints	7 poi	ints	10 points	
4.3. Forming the final grade	Seminar paper	2		3	4		5	
according to the evaluation		5 points		oints	8 poi		10 points	
elements	Examination /	2		3	4		5	
	Written	50-64,9%		9,9%	80-89	<u> </u>	90-100%	
	examination	25 points	-	ooints	35 pc		40 points	
		2	3		4		5	



	Oral part of the exam	25 points		30 points		35 points	40 points
	·	Percentage of acquired knowledge, skills and competences (teaching + final exam)		Number rating		ECTS grade	
4.4 Formation of final grada		90 – 100%		5 (excellent)			A
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) 2 (sufficient)			C
		60 – 64,9%				D	
		50 – 59,9%		2 (sufficient)			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)	Poljičak, AM., Ljubić Hinić, M.: Freight Terminals - Authorized script, Polytechnic of Šibenik, Šibenik, 2016.		Available online				
	Dundović, Č.: Freight terminals, Faculty of Maritime Studies, University of Rijeka, Rijeka, 2002.						
5.2. Supplementary literature (at	Mlinarić T. J.: Freight-distributional centres, Faculty of transport and traffic sciences, University of	3					
the time of the submission of	Zagreb, Zagreb, 2013.		Available online				
changes and / or additions to the	Dundović, Č., Kesić, B.: Technology and organization of ports, Faculty of Maritime Studies, University	2					
study program)	of Rijeka, Rijeka, 2001.	3					
	Kirinčić, J.: Ports and terminals, School book, Zagreb, 1991.						
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 reconstudents' 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 we working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employer 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 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 of teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during						



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

1. GENERAL INFORMATION	I		
1.1. Course title	TECHNOLOGY AND ORGANIZATION OF PUBLIC CITY TRANSPORT	1.8. Course code at ISVU	140782
1.2. Course lecturer	MSc. Martina Ljubić Hinić, senior lecturer	1.9. Course code at MOZVAG	
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+0+15+0)
1.4. Study program (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	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 CROQF
	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 program 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.



	LO9: Assess and organize processes in the field of road transport and / or transport logistics.							
	LO13: Follow trends in technology, technology and traffic safety.							
	Learning outcomes according to Bloom's taxonomy:	Level of LO: 1- remembering, 2- understanding, 3- application, 4- analysis, 5- evaluation, 6- synthesis						
2.4. Expected learning outcomes on the course level	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						

	Constructive allignement							
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time nedeed		
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		
		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 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 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



6.	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 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	3 h



172	T T	1							
				come up with thei to solve problems.	r own ideas, and ways	effects and influence of transportation system in cities Seminar work is organized discussion and proposing possibilities of improving pu	es. in groups, with measures for ablic transport.		
	Innovative 14. technologie 2nd Colloqu		1, 2, 3, 4, 5, 6, 7	They listen to a individually for the	lecture and prepare e colloquium.	In colloquium or written and define and describe the format ransport technologies, ar effects and impact on the system.	ms of innovative nd explain the	38 h	
		considerations. and preparing for	6, 7	They listen to a individually for the	lecture and prepare e exam.	-		38 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								
3.2. Monitoring student work	Attendance	1	Writ	ten exam	1 (without colloquia)	Project			
(enter the share of ECTS credits for each activity so that the total	Experimental work		Rese	arch		Practical work			
number of ECTS points corresponds to the credit score	Essay		Repo	ort		Continuous examination			
of the course)	Colloquium	1 (without written exam)	Semi	inar paper	1	Other			



	Class activity	1	Oral exam	1	(Other			
3.3. Student workload		all bases is 1 ECTS credit id-term / midterm exam 11		and is estimated	as: Attendance 30	0 h, Design	of seminar v	work and presentation	n 15 h,
4. GRADING SYSTEM									
	Element of evaluati	ion Ba	Bad		Satisfying		Above average		
	Organization	The paper is not org	_	distinction bet	ell structured with tween the introd y of the text a	uction, dis	stinction bety	ell structured with a ween the introduction text and the conclu	n, the
					conclusion.		•	cally interconnected.	,
4.1. Grading of seminar work	Terminology, wri	Words and expression official terminology is not appropriate, the long, of a modest work frequent and reponents.	The writing style e sentences are too ocabulary and with	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.			ficial terminderstanding riting style is e clear and c	pressions are aligned nology and show of their meaning. It is excellent, the sente concise, the vocabula are no grammatical er	The ences ary is
	Citing and reference references	The sources are no references do not fit a cursory approach topic.	the topic and show	topic and show and with errors. The reference		es are and are	d consistent e appropriate	re accurately, complety listed. The reference, their list is "rich" and shows a detect.	ences " and
		Bad		Satisfying			Above	e average	
4.2. Grading of the colloguium / written and oral exam	terms and concepts. Does not know how to apply or explain the contents of the course with		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.		
		70-75% of the presence	76-86% of	he presence	87-100% of th	ne presence		Case studies resolved	



	Active attendance	0 points		0 points	0 poin	ts		0 points
	g .	2		3	4			5
4.3. Forming the final grade according to the evaluation	Seminar paper	Made and handed over	Ma	de and handed over	Made and han	ded over	Mad	de and handed over
	Examination /	2		3	4			5
elements	Written	50-64%		65-80%	81-909	%		91-100%
	examination	25-32 points		33-40 points	41-45 pc	ints		46-50 points
	Oral part of the	2		3	5			5
	exam	25-32 points	33-40 points		41-45 pc	pints 46-50 poin		46-50 points
	Percentage of acquired knowledge, skills and competences (teaching + final exam)			Number rating		ECTS grade		
4.4 Farmation of final and	90 – 100%			5 (excellent)		A		
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)		D		
		50 – 59,9%	2 (sufficient)		E			
5. ADDITIONAL INFORMAT	ION ON THE SUB.	IECT						
5.1. Required literature (available in the library and		Title	e			Number of copies the library	in	Availability via other media
through other media)	Štefančić, G.: Technology of public (urban) city traffic, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 2008. (selected chapters)					3		No
5.2. Supplementary literature (at	Štefančić, G.: Technology of public (urban) city traffic II, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 2010.							No

No

Yes

0

Modern traffic, Journal of Croatian scientific society for traffic, Zagreb

Courese lectures

Banister, D.: Transport and Urban Development, E & FN Spon, New York, 1995.

study program)

the time of the submission of

changes and / or additions to the



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 title	ENGLISH LANGUAGE IV	1.8. Course code in ISVU	140784					
1.2. Course lecturer	phD. Ivana Kardum Goleš, senior lecturer	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 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	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 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	Four-year secondary education completed; quali	fication level 4.2 according to the CROQF, Completed course	English language III					
2.3. Learning outcomes on the	LO1: To apply and link professional terms from in Croatian and English.	technology and organization of road traffic in written and oral	communication with the professional public					
study programme level	LO2: To organize and implement team work, an	d 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	ning outcomes accroding to the	Level of LO: 1- remembering, 2- understanding 3- application, 4- analysis, 5- evaluation, 6- synthesis	,						
	1	to understand, apply and line written and oral communication	2, 3							
		2. to create CV (Europass temp		3, 4, 6						
		3. to interpret and use tenses in				3, 4				
	4	 to develop a longer essay wit to present own ideas for deve 	5, 6							
	- 6	5. to communicate in a foreign	6							
		7. to compare and evaluate diffe	5							
	8	4								
	ç	o. to use part of the general lang	guage compete	ency at levels B1/B2.		6				
	Cons	structive allignement								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation		Time needed			
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, appl from the professional terminolog traffic and use them in w communication verb tenses a	on texts and tasks ly and link terms gy of English road written and oral	4 h			



				mod linguistic context use next of other learness	
				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	4 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.	
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, 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 level.	
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.	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 colloquium	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	10 h



					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.	
	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 other countries, analyze medium complex texts	6 h



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



			D :	1 4.14	
			Brainstorming, discussion. Solve	a longer essay within course topics, comparing	
			exercises.	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	
			Listen to lectures and read	applied grammatical structures on texts and tasks	
			literature. During lectures	are evaluated, verb tenses are interpreted in a real	
			individually research the content of	linguistic context, can communicate in foreign	
			this thematic field by searching	languages within the course topic, express their	
1.4	Problems Of Modern	1, 3, 4, 5, 6,	data bases, presentt acquired	own opinions, present their own ideas related to	<i>c</i> 1
14.	Transportation	7, 8, 9	knowledge, express their own	the development of transport solutions to develop	6 h
	1		ideas and ways of problem solving.	a longer essay within course topics, comparing	
			Brainstorming, discussion. Solve	and evaluating different solutions in the traffic of	
			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	
				languages within the course topic, express their	
		1 2 2 4 5		own opinions, present their own ideas related to	
15.	Revision – II colloquium	1, 2, 3, 4, 5,	Solve exercises.	1 1	10 h
		6, 7, 8, 9		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.	

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



	participation in tea evaluation are the written part of the outcomes are: essa oneself about the c	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	ory		e 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 condifficulty imparts in understands the material, and concepts supported with	ew knowledge, explains the terms	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 evaluation elements		2	3	4	5	
evaluation elements	Colloquia/ Written exam	50-64,9%	65-79,9%	80-89,9%	90-100%	
	CAdili	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 competence ching + final exam)	Numerical grade	ECTS	grade	
4.2 Final and a coordinate		90 – 100%	5 (excellent)	A		
4.3. Final grade according to absolute division		80 - 89,9%	4 (very good)	В		
		65 – 79,9%	3 (good)	C		
		60 – 64,9%	2 (satisfactory)	D		
		50 – 59,9%	2 (satisfactory)	E	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)	Katja Bošković Gazdović: "English textbook of Transport I", Faculty of transport and traffic sciences, University of Zagreb, 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", Department for Traffic, Polytechnic of Rijeka, 2007. Adrian Pilbeam, 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 (e-learning, handouts)



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



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

1 CENEDAL INFORMATION	1. GENERAL INFORMATION ABOUT THE SUBJECT								
1. GENERAL INFORMATION ADOUT THE SUBJECT									
1.1. Course title	ECONOMICS OF TRAFFIC	1.8. ISVU course code	142541						
1.2. Course lecturer	phD. Dijana Mečev, college professor	1.9. MOZVAG course code							
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+0+15+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1st, 2nd, 3rd level), percentage of on line course performance (max. 20%)	1 st level – materials available on-line, 0%						
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	1						
1.6. Study year	2 nd	1.13. Modernization	□ yes X 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 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-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: 1- Recapture, 2- Understanding, 3- Application, 4- Analysis,				



						5- Evaluation, 6- Synthesis	
	1.	2					
	2.	1		nomics and the transport market from a micro	1	2	
	3.	To critically evaluate cost comp	onents and co	onnect them with the overall business of trans	port companies.	5, 4	
	4.	To analyze business processes o	f transport co	mpanies.		4	
	Constr	uctive alignment					
	no.	Thematic ensemble / Lecture Topic	LO of the course	Content / Teaching Method	Evaluation	1	Time needed
	economics and transport 1 market. Economic sense and practical		-	Listen to the lecture. By independent work on the computer students get acquainted with course content and documents on the e-learning course page.	-		1 h
2.5. Course content according to detailed curriculum schedule		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 h
		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 enumerate the main factors and criteria for the division of transport. They can explain how transport affects division of labor and specialization. They can use critical thinking to explain the importance of accessibility of transport services.		4 h	



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 previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	In colloquium or written and oral exams students can explain the role of transport in the circulation in macroeconomics. They can explain how traffic affects production and how it functionally links factors of production.	4 h
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 h
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 h
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 h
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	In colloquium or written and oral exams they can define the term tariffs in transport.	6 h



			presenting the appropriateness of previously acquired knowledge and presenting adopted knowledge and ideas, discuss issues.	They can define and explain factors that affect the amount and ormation of tariffs.	
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 h
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 h
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 h
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 presenting the appropriateness of previously acquired knowledge and	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 h



				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 h
	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 h
	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 h
3 EVALUATION OF STUDEN	15.	Concluding Considerations / Repeating and Preparing for Exam.		Concluding Considerations / Repeating and Preparing for Exam.		30 h

3. EVALUATION OF STUDENT WORK



3.1. Students` obligations	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.									
	studies, making and	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		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		Oral exam	1 (by submitting both colloquiums the student is relieved of an oral examination)						
	The student's workl		1 ECTS point for 30 hour	s of work per semester and Hours (estimate)	f work per semester and is estimated as:					
3.3. Student workload	1. Attending			45	·					
	2. Creating	and Presenting seminar pap		10						
	3. Prepara	ation for the Colloquium / e	exam through self-study	35						



4. GRADING SYSTEM								
	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 cl distinction between the introducti the main part of the text and conclusion.		duction, and the	main part of the text and the conclusions that are perfectly logically linked to one another Words and phrases are aligned with	
	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.		official terminology. The writing style is appropriate, the sentence structure is		ng style acture is iate and	Words and phrases are aligned with official terminology and show an understanding of their meaning. The writing style is excellent, the sentences are clear and concise, the vocabulary is rich and there are no grammatical errors.	
	Quoting and referencing	Sources are not speci references do not mate show a superficial a research topic.	ch the topic and	Sources are listed, but incomplete and with errors. The references are appropriate for the subject and show a satisfactory research attitude.		es are show a	Sources are accurate, complete and consistent. The references are appropriate, their list is "rich" and comprehensive and shows a robust research approach.	
	Poo	or	Satisfying			Above average		
4.2. Colloquium / exam grading	Give answer by memory, no dec understanding. Does not know and does apply the basic terms and concepts. Car 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.		and evaluand thore and logic concepts are not	Knowledge is at the level of analysis, synthesis and evaluation. It observes legitimacy, accurately and thoroughly explains the content of the subject, and logically links and explains the terms and concepts that it encapsulates. Find solutions that are not originally given. There is a correlation with correlative subjects.		
42.0		0-75% of attendance	76-86% of	attendance	87-100% of	attendance	e Solved case study.	
4.3. Creating a final grade according to evaluation	participation in the lessons	2 points	4 po	ints	7 po	ints	3 points	
elements	Seminar paper	2	3		4		5	



		5 points		8 points	10 points	
		2	3	4	5	
	Colloquium / written exam	50-64,9%	65-79,9%	80-89,9%	90-100%	
	William Chain	25 points	30 points	35 points	40 points	
	Oral exam	2	3	5	5	
	Oral exam	25 points	30 points	35 points	40 points	
		of adopted knowledge, skills and ences (teaching + final exam)	Numerous grade		ECTS grade	
4.4. Creating a final grade		90 – 100%			A	
according to absolute allocation		80 - 89,9%	4 (very good)		В	
according to absolute anocation		65 – 79,9%	3 (good)		С	
		60 – 64,9%			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): "Economics of Traffic", Faculty of transport and traffic sciences, University of Zagreb, Zagreb. (selected chapters) Perić T., Radačić Ž., Šimulčik D. (2000).: "Economics of traffic and transport systems." Faculty of transport and traffic sciences, University of Zagreb, Zagreb. (selected chapters)	4 2	
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Baričević, H. (2003).: "Traffic and tourism." 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	201138						
1.2. Course lecturer	Ivana Beljo, grad. eng. math., univ. spec. oecc., senior lecturer	1.9. Course code in MOZVAG							
1.3. Assistants and/or associates	Želimir Mikulić, grad. eng., senior lecturer Luca Olivari, mag. math., 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 (1st, 2nd, 3rd 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	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	Getting acquainted with the various types of problems that arise in business decision making. Adopting knowledge and skills of the analytical way of thinking, and the logical way of concluding and interpreting the results in further education. The aim of the course is to familiarize and teach students how to use the methods in order to solve certain problems in business decision making and to use methods for optimizing such problems.
2.2. Terms of course entry and required competences	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	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. 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								
	no Thematic unit		LO of the course	Content/teaching methods	Evaluation	Time needed				
	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.	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				
		Simplex Method. 4. Sensitivity Analysis, Postoptimality Analysis,	_	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			



	Shadow prices. Modeling Integers				
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	In colloquium or written and oral exams students know how to describe the	2 h



				solve tasks. Solve	exercises.	optimization problems.	ramming to sorve	
	1 13 1	ochastic Dynamic ogramming.	5	Work independent	and read literature. y on a computer solve es demonstrate how to exercises.	In colloquium or written students know how to application of stoha programming to solve problems.	to describe the astic dynamic	2 h
	14. Sel Me Pro	proach to Problem alysis, The Model ection Criteria and ethod of Solving oblems. Revision for loquium.	4, 5	Write the colloquit	ım.	-		20 h
	15. Rev	vision	-	Listen to lectures a	nd read literature.	-		20 h
3. EVALUATION OF STUDENT	rs` work						<u> </u>	
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	Writ	tten exam	2 (without colloquia)	Project		
(enter the share of ECTS credits for each activity so that the total	Experimenta work	al	Rese	earch		Practical work		
number of ECTS points	Essay		Repo	ort		Continuous examination	0,5	

tasks. The exercises demonstrate how to

application of dynamic programming to solve



corresponds to the credit score of the course))	Colloquium	2 (without written exam)	eminar pape	er		Other			
	Class activity	0,5	Oral exam	0,5		Other			
3.3 Student workload	1. Attending	udent 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							
4. GRADING SYSTEM									
4.1. Grading seminar papers	-								
	U	nsatisfactory		Satisfactory	7		Above 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	70-74,9% of attendance	75-79	9,9% of attendance	80-89,9% of	attendance	90-100% of attendance		
	attendance	2 points		5 points	10 pc	oints	20 points		
4.3. Final grade according to	Colloquia/ Written	2		3	4		5		
evaluation elements	exam	50-64,9%		65-79,9% 80-89		9,9%	90-100%		
		25 points		30 points	35 pc	oints	40 points		
	Oral exam	2		3	5		5		
	Orar exam	25 points		30 points	35 pc	oints	40 points		
44 Final and	_	of acquired knowledge, skillences (teaching + final exam		nd Numerical grade		ECTS grade			
4.4. Final grade according to absolute division		90 – 100%		5 (exceller	<i>'</i>	A			
		80 – 89,9%		4 (very god	· · · · · · · · · · · · · · · · · · ·		B		
	1 1	65 - 79,9%		3 (good)		C			



5.4. Informing about the course

working days after receiving the e-mail).

and contacting the teacher

	60 - 64,9%	2 (satisfactory)		D					
	50 – 59,9%	2 (satisfactory)		E					
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)	Pašagić, H., Ivanković, B., Kapetanović, N.: Mathemathics sciences, University of Zagreb, 2004. (selected chapters) Lukač Z., Neralić L.: Operational research, Element 2013. (3							
5.2. Additional literature (at the moment of changes and/or amended of study programme)	Neralić, L.: Introduction to mathematical programming 1, Z Hillier F., Lieberman G.: Introduction to operations research chapters)								
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	The control of students' work quality and the acquisition of necessary knowledge and skills will be ensured through interactive work. By keeping track of attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information for further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligations as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.								
	It is the responsibility of each student to be regularly inform	med about the course, the coursewo	ork, and the class	sroom activities. All no	otices 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



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

1. GENERAL INFORMATI	ON		
1.1. Course title	INFRASTRUCTURE OF ROAD TRAFFIC	1.8. Course code in ISVU	187603
1.2. Course lecturer	Darijo Šego, univ. spec. traff., senior lecturer	1.9. Course code in MOZVAG	
1.3. Assistants and/or associates	MSc. Martina Ljubić Hinić, senior lecturer	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(45 + 15 + 30 + 0)
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1 st , course materials are on-line, 0%
1.5. Course status (obligatory, optional)	Obligatory	1.12. Number of course revisions	4
1.6. Year of study	3 rd	1.13. Modernization	X yes □ no
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	classification, and categorization of roads, get acqua	cal knowledge and case studies: define the concept of roads, be ainted with the documentation needed for road design, distinguish a pastructions, sort the road equipment, and road works on regular and d parking arrangements.	nd describe the elements and parts
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification	ation level 4.2 according to the CROQF.	
2.3. Learning outcomes on the study programme level	in Croatian and English.	nnology and organization of road traffic in written and oral communi	cation with the professional public
	LO4: To apply knowledge from the field of natural	and technical sciences to problems in road traffic.	
	LO7: To apply computer tools for analysis and com	parison of data, and suggest an optimal solution in traffic process.	
	LO8: To solve problems in traffic by using analytic	al and/or graphical methods.	
	LO11: To identify, predict and propose solutions in	road traffic technology and technique.	
	LO12: To set up a minor traffic process and critical	ly evaluate it.	



	LO13: To track trends in the development of technique, technology and safety in traffic.								
	Learı	ning outcomes by Bloom: (maximu	m 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	. Define terms and categorize road		1, 3					
	2	. Calculate and sketch the basic ro		2, 4					
	3	 Distinguish and compare the low parking lots and garages. 	2, 4						
	4	. Enumerate and propose necessar		1, 6					
	5	. Distinguish and ranking the city	roads, streets,	, and road junctions.		4, 5			
	6	. Use materials and tools for searc	ching scientific	c and technical literature in the native and English	sh language.	3			
	7	. Present the acquired knowledge,	ideas, proble	ms, and solutions independently and in a team.		6			
	8	. Tell, summarize the history of ro	oad construction	on in the world and the Republic of Croatia.		1, 2			
	9	. Select and evaluate the location	for street park	ing spaces, parking lot, and parking garage.		5			
2.5. Course content according to detailed curriculum schedule	Const	ructive allignement							
	No	Thematic unit	LO of the course	Content/teaching methods	Evalu	ation	Time needed		
	1.	Introductory presentation	Course	Listening to the lecture. In the course of			necueu		
		(introducing students to the		seminars, they are introduced to the course					
		course content and obligations)	-	content and documents on the e-learning page	_	-	3 h		
		, , , , , , , , , , , , , , , , , , , ,		of the course by working independently on a					
	2.	Development of road		They listen to a lecture and read literature.	At the colloquium	n or written and			
		construction (the historical	6, 7, 8	They use multimedia and network. At the	oral exam, stud	lents know tell,	6 h		
		development of roads in the	0, 7, 0	seminar class, they individually explore the	summarize and c	comment on road	6 h		
				content of this topic area by searching the	construction thre	oughout history,			



		World and the Republic of		database, and on the basis of it and reading	isolate the most dangerous roads in	
		Croatia).		the literature, create a seminar paper that	the world, list the historical roads in	
				presents the acquired knowledge and presents	the Republic of Croatia, indicate the	
				their own ideas, and ways to solve problems.	country with the longest road	
				During exercises, students are knowing with	network in the world. Exercise	
				the general content of the transport project.	created, seminar paper created and	
					presented (by computer programs).	
	3.	Road classification		They listen to a lecture and read literature.	At the colloquium or the written and	
		(classification based on the law		They use multimedia and network. At the	oral exam, students can define the	
		of roads, the classification		seminar class, they individually explore the	concept of the road on the basis of	
		standards, types of roads in the		content of this topic area by searching the	the Roads Law of the Republic of	
		Republic of Croatia)		database, and on the basis of it and reading	Croatia, categorize roads, establish	
			1, 6, 7	the literature, create a seminar paper that	the difference between individual	6 h
				presents the acquired knowledge and presents	categories of roads, identify the	
				their own ideas, and ways to solve problems.	most important roads in the	
				During exercises, the topic is project	Republic of Croatia. Exercise	
				assignment.	created, seminar paper created and	
					presented (by computer programs).	
	4.	Road design I (project		They listen to a lecture and read literature. At	At the colloquium or the written and	
		documentation, road indicators,		the seminar class, they individually explore	oral exam, students can state and	
		tracing, layout elements)		the content of this topic area by searching the	differentiate the study project	
				database, and on the basis of it and reading	documentation, sort the order of the	
				the literature, create a seminar paper that	road design, determine the	
				presents the acquired knowledge and presents	difference between the individual	
			2, 6, 7	their own ideas, and ways to solve problems.	terrain paths that the road passes	7 h
				During exercises, the topic is routing of the	through, distinguish and explain and	
				road.	calculate speeds, and analyze the	
					layout elements of the road.	
					Exercise created, seminar paper	
					created and presented (by computer	
					programs).	
		I	l		2 0 1	



They use multimedia and network. They use not a multimedia and network. They use not a multimedia and network. They use not a conservation of the content of this topic area by searching the database, and on the basis of it and reading the literature, cause and the content of the content of this topic area by searching the database, and on the basis of it and reading the literature, cause and the content of the content of the level of the road, analyze and describe the road elements. Exercise created, seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. 7 h They use multimedia and network. They use multimedia and network. They is not a lecture and reading the literature, create a seminar paper that presents the acquired knowledge and presents the order of road design documentation, sort 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 iterature, create a seminar paper that presents the acquired knowledge and presents the acquired knowledge and presents the order of road design Analyze and describe the parts their own ideas, and ways to solve problems. 7 h They use multimedia and network. They grow the road is true and a describe the parts of the lower and upper road structure, distinguish to a describe the parts of the lower and upper road structure, distinguish to a lecture and reading the treature, create a seminar paper that presents the acquired knowledge and presents of the road. Exercise created, seminar paper that presents the acquired knowledge and presents the content of this topic area by searching the content of this topic area by searching the content of this topic area by searching the content of the lower and upper road structure, distinguish to additional treation of the present of the lower and upper road structure, distinguish road struc								
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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. During exercises, the topic is the calculation of elements. Government of this topic area by searching the database, and on the basis of it and reading the literature. At the content of this topic area by searching the seminar class, they individually explore the content of this topic area by searching the literature, create a seminar paper that presents the acquired knowledge and presents the study design documentation, sort the order of road design. Analyze and describe the part of road structure) 7. Road structure (lower and upper part of road structure) 8. Road structure (lower and upper part of road structure) 8. Road structure (lower and upper part of road structure) 9. They use multimedia and network. They listen to a leture and read literature. At the content of this topic area by searching the content of this topic area by searching the content of this topic area by searching the clambase, and on the basis of it and reading the literature. At the content of this topic area by searching the database, and on the basis of it and reading the literature. At the content of this topic area by searching the database, and on the basis of it and reading the literature, list and describe the parts of the lower and upper road structure, distinguish				longitudinal sections, road cross-		multimedia and network. They listen to a	oral exam, students know how to	
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2, 6, 7 on the basis of it and reading the literature, create a seminar paper that presents the own ideas, and ways to solve problems. During 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 seminar class, they individually explore 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. 7. Road structure (lower and upper part of road structure) 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. 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. 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. 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 there own ideas, and ways to solve problems. 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, distinguish to a service of the lower and upper road structure, distinguish road structure, distinguish in the describe the parts of the lower and upper road structure, distinguish road structure, d						class, they individually explore the content of	the level of the road, analyze and	
create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. During exercises, the topic is the calculation of elements of the horizontal and vertical bend. They listen a guest lecture about topic. 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 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. 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 reated and presented (by computer programs). 7. Road structure (lower and upper part of road structure) 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 reated and presented (by computer programs). 7. Road structure (lower and upper part of road structure) 3. 6. 7 They use multimedia and network. They listen to a lecture and read literature. At the seminar class, they individually explore the concept of the lower and upper road structure, list and describe the parts of the lower and upper road structure, distinguish road structure, distinguish road structure, draw the shapes of the hull, establish the difference in the build, establish the difference in the lower and upper road structure, draw the shapes of the lower and upper road structure, draw the shapes of the lull, establish the difference in the build end of ventilation in tunnels, identify factors for the choice of						this topic area by searching the database, and	describe the road elements,	
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presents the acquired knowledge and presents their own ideas, and ways to solve problems. They use multimedia and network. They part of road structure) 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 the irrown ideas, and ways to solve problems. During exercises, the topic is Creating a horizontal bend. They use multimedia and network. They computer programs). At the colloquium or the written and oral exam, students can define the concept of the lower and upper road structure, list and describe the parts of the lower and upper road structure, distinguish road structure, distinguish road structure, distinguish road structures, draw the shapes of the hull, establish the difference in the mode of ventilation in tunnels, identify factors for the choice of						database, and on the basis of it and reading	intersection. Specify and distinguish	
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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. During exercises, the topic is Creating a horizontal bend. structure, list and describe the parts of the lower and upper road structure, distinguish road structures, draw the shapes of the hull, establish the difference in the mode of ventilation in tunnels, identify factors for the choice of				part of road structure)		listen to a lecture and read literature. At the	oral exam, students can define 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. During exercises, the topic is Creating a horizontal bend. database, and on the basis of it and reading structure, distinguish road structures, draw the shapes of the hull, establish the difference in the mode of ventilation in tunnels, identify factors for the choice of						seminar class, they individually explore the	concept of the lower and upper road	
3, 6, 7 the literature, create a seminar paper that presents the acquired knowledge and presents their own ideas, and ways to solve problems. During exercises, the topic is Creating a horizontal bend. structure, distinguish road structures, draw the shapes of the hull, establish the difference in the mode of ventilation in tunnels, identify factors for the choice of						content of this topic area by searching the	structure, list and describe the parts	
presents the acquired knowledge and presents their own ideas, and ways to solve problems. During exercises, the topic is Creating a horizontal bend. structures, draw the shapes of the hull, establish the difference in the mode of ventilation in tunnels, identify factors for the choice of						database, and on the basis of it and reading	of the lower and upper road	
their own ideas, and ways to solve problems. During exercises, the topic is Creating a horizontal bend. hull, establish the difference in the mode of ventilation in tunnels, identify factors for the choice of					3, 6, 7	the literature, create a seminar paper that	structure, distinguish road	
During exercises, the topic is Creating a horizontal bend. mode of ventilation in tunnels, identify factors for the choice of						presents the acquired knowledge and presents	structures, draw the shapes of the	
horizontal bend. identify factors for the choice of						their own ideas, and ways to solve problems.	hull, establish the difference in the	
						During exercises, the topic is Creating a	mode of ventilation in tunnels,	
road curtain Exercise created,						horizontal bend.	identify factors for the choice of	
							road curtain Exercise created,	



					seminar paper created and presented	
					(by computer programs).	
8	8.	Road equipment (traffic signs		They listen to a lecture and read literature. At	At the colloquium or written and	7 h
		and signaling)		the seminar class, they individually explore	oral exam, students can sort the road	
				the content of this topic area by searching the	equipment, distinguish between	
				database, and on the basis of it and reading	road equipment and traffic	
			1, 4, 6, 7	the literature, create a seminar paper that	equipment, describe road signs,	
				presents the acquired knowledge and presents	vertical, horizontal and light traffic	
				their own ideas, and ways to solve problems.	signs. Exercise created, seminar	
				During exercises, the topic is Creating	paper created and presented (by	
				vertical bends.	computer programs).	
9	9.	Road equipment (traffic signs		They listen a guest lecture about topic. At the	At the colloquium or the written and	7 h
		and signaling) – guest lecture		seminar class, they individually explore the	oral exam, students know how to	
				content of this topic area by searching the	sort traffic signs and signaling.	
				database, and on the basis of it and reading	Make a difference between marking	
			1, 4, 6, 7	the literature, create a seminar paper that	road signs, describe road signs,	
				presents the acquired knowledge and presents	vertical, horizontal and light traffic	
				their own ideas, and ways to solve problems.	signs. Exercise created, seminar	
					paper created and presented (by	
					computer programs).	
1	10.	Maintenance of the road (the		They listen to a lecture and read literature. At	At the colloquium or written and	7 h
		main goals of maintenance,		the seminar class, they individually explore	oral exam, students can state the	
		regular and periodic		the content of this topic area by searching the	basic goals of road maintenance and	
		maintenance, machinery for road		database, and on the basis of it and reading	protection, identify the types of road	
		maintenance)		the literature, create a seminar paper that	maintenance, distinguish between	
			3, 4, 6, 7	presents the acquired knowledge and presents	regular and winter road	
			3, 4, 0, 7	their own ideas, and ways to solve problems.	maintenance, enumerate and	
				During exercises, the topic is making of	describe road maintenance works,	
				notches, cuts, and embankments.	categorize road maintenance	
					machinery. Exercise created,	
					seminar paper created and presented	
					(by computer programs).	



	11.	Urban roads and streets (division		They listen to a lecture and read literature.	At the colloquium or the written and	7 h	
		by economic and traffic		They use multimedia and network. At the	oral exam, students can enumerate		
		characteristics, elements of		seminar class, they individually explore the	parts of the city street network,		
		urban roads and streets in the		content of this topic area by searching the	choose the form of the city street		
		transversal sense)		database, and on the basis of it and reading	network, enumerate and distinguish		
			5, 6, 7	the literature, create a seminar paper that	between primary, secondary and		
				presents the acquired knowledge and presents	other city roads. Comment on the		
				their own ideas, and ways to solve problems.	city street network of individual		
				During exercises, the topic is the design of	settlements. Exercise created,		
				traffic intersections.	seminar paper created and presented		
					(by computer programs).		
	12.	Road intersections (basic		They use multimedia and network. They	At the colloquium or the written and	7 h	
		construction criteria, traffic		listen to a lecture and read literature. At the	oral part, students can define the		
		operations in intersections,	1, 4, 5, 6, 7	seminar class, they individually explore the	terms of road intersections in and		
		division of road intersections,		content of this topic area by searching the	out of level, state and identify traffic		
		special forms of intersections)		database, and on the basis of it and reading	operations in the intersection,		
				the literature, create a seminar paper that	distinguish intersections by location,		
				presents the acquired knowledge and presents	size, number of traffic. Find out the		
				their own ideas, and ways to solve problems.	difference between a road		
				During exercises, the topic is Budget	intersection and a hub. Exercise		
				bandwidth.	created, seminar paper created and		
					presented (by computer programs).		
	13.	Parking place and garages (basic		They listen to a lecture and read literature. At	At the colloquium or the written and		
		terms of stationary traffic, modes		the seminar class, they individually explore	oral exam, students can define the		
		of on-street and off-street		the content of this topic area by searching the	basic term of parking spaces,		
	parking, division of parking garages, equipment of parking garages)		database, and on the basis of it and reading	parking places, and parking garages.			
		garages, equipment of parking	3, 4, 5, 6, 7	the literature, create a seminar paper that	Analyze the ways to park vehicles	6 h	
		garages)	3, 4, 3, 0, 7	presents the acquired knowledge and presents	on-street and off-street surfaces. List	011	
				their own ideas, and ways to solve problems.	the parts and equipment of the		
				During exercises, the topic is elaborate on the	parking garage. Recommend		
				ideal and final design.	location for building parking lot and		
					parking garage. Exercise created,		



						seminar paper created an (by computer programs).			
	14.	Service facilities on the road	10	They listen to a lecture one	d mand litematuma. At				
	14.		stations, and the stations, gas the		-		At the colloquium or in the written		
				the content of this topic area by searching the		and oral exam, students can enumerate and describe the accompanying roadside service			
		stations)		1	the literature, create a seminar paper that fa				
			3, 6, 7				sh between	6 h	
			-, -, -	presents the acquired knowledge and presents		standpoint and guesswork. Evaluate			
				their own ideas, and ways	-	the location of the bus stations.			
				During exercises, the	•	Exercise created, sem			
				intersection elements and	traffic signs.	created and presented (b programs).	y computer		
	15.	Final considerations/Repeating	ıg	They listen to a course le	ecture and prepare			90 h	
		and preparing for the exam.	-	individuals for the exam.		-			
3. EVALUATION OF STUD	ENT V	VORK							
3.1. Student obligations	In acc	cordance with the Rulebook on S	tudy and the Rul	ebook on Student Assessmer	nt and Evaluation: f	or all full-time students atte	endance of at	least 70%.	
	Part-t	ime students are required to atte	nd a class of at l	east 50%. All students must	create, present and	positively colloquy semin	ar papers. Stu	idents who	
	have	achieved during the course: from	n 0 - 24,9% ECT	S credits- are rated F (unsuc	ccessful) and cannot	earn ECTS credits, and m	nust re-enroll	in the next	
	acade	mic year; from 25 - 49,9% - are	assessed by FX	(insufficient) and must pass	and pass the written	n exam (test). Written exai	m (test) can b	e held in a	
		ar or extraordinary exam period;	•	•	-				
	_	vays: a) during the course of teac		_					
		cam (written and oral part of the		C	\ 1 1	8	,,	, 1 &	
3.2. Student work monitoring (enter the share of ECTS credits			1,5	Written exam	1 (without colloqiums)	Project			
for each activity so that the total	Exp	erimental work		Research	1 /	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)			
	Tea	ching activities	1	The oral part of exam	1	(other)			
3.3. Student work-load	Student workload on all bases is 1 ECTS credit for 30 semester hours and is assessed as: attendance classes (45 hours), preparation of seminar work and presentation (30 hours), attending exercises and making the final exercise (15 hours), preparation for the midterm/exam through self-study (90 hours).								
4. GRADING SYSTEM	<u> </u>							, 	



4.1. Evaluation of seminar paper	Elements of	Bad	Satisfying		Above average	
	evaluation					
	Organization	The paper is not	The paper is well structured with	a clear distinction	The paper is well	structured with a clear
		organized in a logical	between the introduction, the mai	n body of the text	distinction between	n the introduction, the
		order and lacks structure.	and the conclusion.		main body of the	text and the conclusion,
					which are logically	interconnected.
	Terminolog, writing	Words and expressions	Words and expressions are in	line with official	Words and expres	ssions are aligned with
	style	are not in line with	terminology. The writing style i	s appropriate, the	official terminole	ogy and show an
		official terminology. The	sentence structure is clear, th	•		eir meaning. The writing
		writing style is not	appropriate and there are few gran	nmatical errors.		ne sentences are clear and
		appropriate, the sentences				lary is rich and there are
		are too long, of a modest			no grammatical erro	ors.
		vocabulary and with				
		frequent and repeated				
		grammatical errors.				
	Citing and	The sources are not listed	The sources are listed but inco	•		curately, completely and
	referencing	at all. The references do	errors. The references are relevan	-	•	. The references are
	references	not fit the topic and show	show a satisfactory research attitude	de.	appropriate, their	
		a cursory approach to				shows a detailed research
		exploring the topic.			approach.	
4.2. Gradeing of the		Bad	Satisfying		Above average	
colloquium/written and oral	7.					
exam		nory, without a deeper	It reproduces the basic concepts and without		Knowledge is at the level of analysis,	
	_	not know or apply basic	difficulty imparts new knowledge			luation. It observes the
	terms and concepts. It does not know how to apply		material, explains the terms and concepts that it			
	or explain the contents of the course with		supports with examples.		the content of the material, and logically	
	examples.				-	ns the terms and concepts
						with examples. Finds not originally given. It
						with related material.
4.3. Forming the final grade	Active attendance on				notes corretations w	Mental map created,
according to the evaluation	class	70-75% attendance	76-86% attendance	87-100%	attendance	Case studies resolved
elements	Class	2	4	7	-1-4-	
Cicinents		2 points	4 points	7 p	oints	3 points



	Saminar papar					
	Seminar paper	5 points	7 points		points	10 points
		2	3		4	5
	Colloquiums/	50 - 64,9%	65 - 79,9%	80 -	- 89,9%	90 - 100%
	Written part of exam	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 based on the absolute		ed knowledge, skills and aching + final exam)	Numerical grade	,	EC'	TS grade
distribution		- 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 (available in the library and via		Tit	ı	Number of copies in the library	Availability via other media	
other media)	Šego D., Ljubić Hinić M Šibenik, 2021.	1.: Infrastructure od Road T	c of Šibenik,	4	e-learning	
	Legac I.: Roads I, Facul 2001. or in 2006.	ty of Transportation and Tra		2	-	
	University of Zagreb, Z	of public Roads - Road II, Fa agreb 2008. (selected chapte on roads https://zakon.hr/z/24		-	- Internet website	
	Ministry of Maritime Affairs, Transport and Infrastructure, Rule book on traffic signs, signalization and equipment on the roads (the proposal), Zagreb 2015 (selected chapters)				-	Internet website
	Brčić D., Šoštarić M.: Parking and Garages, Faculty of Transportation and Traffic Sciences, University of Zagreb, Zagreb 2012. (selected chapters)				-	Internet website

5



5.2. Additional literature (at the	Teaching materials from lectures and seminars on the e-Learning system of the Polytechnic of Sibenik		a lagrain a					
moment of changes and/or	for the mentioned course.		e-learning					
amended of study programme)	Traffic Zone https://www.prometna-zona.com/	-	Internet website					
, i e	Traffic Signals https://www.prometna-signalizacija.com/		Internet website					
	Croatian Roads https://hrvatske-ceste.hr/		Internet website					
			Internet website					
	First Blinker http://prvitreptac.hr/		Internet website					
	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 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							
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 the	y can be contacted durin	g 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 s	soon as possible (no late	r 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 title	RESOURCES AND EXPLOITATION OF RESOURCES OF ROAD TRAFFIC	1.8. Course code at ISVU	142536					
1.2. Course lecturer	phD. Ernest Bazijanac, regural collegue professor	1.9. Course code at MOZVAG						
1.3. Assistants and/or associates	MSc. Ivo Jurić, senior lecturer phD. Ana-Mari Poljičak, senior lecuter	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 (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	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	
2.1. Course objectives	The goal is to provide students with theoretical knowledge: Define basic concepts in the field of road vehicle exploitation;, Differentiate the vehicle's performances, parts and assemblies; 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 CROQF
2.3. Learning outcomes on the	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	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.



		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,
2.4. Expected learning outcomes on the course level		6- synthesis.
on the course level	 define, describe and explain basic concepts in the field of road vehicle exploitation. 	1, 2
	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

	Const	tructive allignement				
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed
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
	1.	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
	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



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
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
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
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
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 conditions and vehicle trajectories and draw conclusions about safe driving during operation based on the factors given.	8 h
8.	Stability in the curve. Driving mechanics.	1, 6	They listen to a lecture and read literature. In the exercise classes, they	At the colloquium or the written and oral exam they know how to define, calculate	8 h



				sketch and explain the forces on the	and explain the effect of force systems on		
				vehicle as they move, and solve	vehicles during movement and their		
				problems in this thematic area by	influence on the driving mechanism.		
				analytical methods.			
					At the colloquium or the written and oral		
		Influence of roadway profile and		They listen to a lecture and read	exam they can define the influencing factors		
	9.	vehicle elements on driving	2.4.5	literature. In the exercise classes, tasks	of the elements, parts of the vehicle and to	8 h	
	9.		2, 4, 5	in this field are solved with analytical	anticipate the effects and consequences of	0 11	
		safety.		methods.	their technical condition on the safe driving		
					of the motor vehicle during operation.		
					At the colloquium or the written and oral		
				They listen to a lecture and read	exam they can define and describe the role		
				literature. In the exercise classes, they	of vehicle maintenance for a lifetime. They		
	10.	Maintenance of road vehicles.	1, 3, 4	sketch and explain the fault intensity	know how to distinguish and compare	8 h	
			1	curve.	different types and types of maintenance		
					and choose the optimal option for the given		
					operating conditions.		
		Vehicle assemblies, engine, coupler.	1, 2, 6		At the colloquium or written and oral exam		
				They listen to a lecture and read	knows define, outline and describe the role		
				literature. In the exercise classes, they	and operation of the engine and clutch. They		
	11.			sketch and explain the various designs	know how to choose and explain the choice	8 h	
				of clutches used on motor vehicles.	of vehicle assembly in the contemporary		
				of clutches used on motor venicles.	context of the development of vehicle		
					construction and its assemblies.		
					At the colloquium or the written and oral		
					exam they can define and describe the role		
				They listen to a lecture and read	and mode of operation of the transmission,		
	12.	Transmission, differential and	1, 2, 6	literature. In the exercise classes, they	differentials and drive shaft. They know	8 h	
	12.	drive shaft.	1, 2, 0	sketch and explain the various designs	how to choose and explain the choice of	011	
				of clutches used on motor vehicles.	vehicle assembly in the contemporary		
					context of the development of vehicle		
					construction and its assemblies.		



Diagnostics and diagnostic 1, 2, 6 sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in interrelations of structural and diagnostic sketch and apply the learned content in sketch and apply the	8 h
methods. parameters and to analyze on the basis of the diagnostic parameters the actual state of the vehicle element or assembly (ie structural parameters).	O II
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
Braking system diagnosis. Colloquium II. Concluding considerations. Repeating and preparing for the exam. 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 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.



	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	1	Writter	n exam	3,5 (with	out colloquia)	Project		
3.2. Monitoring student work (enter the share of ECTS credits	Experimental work	1	Resear	ch			Practical work		
for each activity so that the total number of ECTS points	Essay	1	Report				Continuous examination		
corresponds to the credit score of the course)	Colloquium	3,5 (without written exam)	Semina	ar paper			Other		
	Class activity	0,5	Oral ex	am	1 (withou	t colloquia)	Other		
	Student workload	on all bases is 1 ECTS credit 3	0 seme	ester hours and is e	stimated as	s:			
3.3. Student workload	Obligation					Hours (estimated)			
	1. Active class attendance 60 2. Preparing colloquia or exams through individual work 90								
	2. Preparin	g colloquia or exams through	ındıvıc	lual work	90				
4. GRADING SYSTEM									
4.1. Grading of seminar work	-								
		Bad		Sa	tisfying			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 concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		of the material, and logically connects an			
4.3. Forming the final grade	Active	70-75% of the presence		76-86% of the p			the presence	Case studies resolved	
according to the evaluation	attendance	2 points		4 points			oints	10 points	
elements		2		3	3 4		4	5	



	Examination /	xamination / 50-64,9% 65-79,9% 80-89		80-89,9%		90-100%	
	Written 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	
	Percentage of	acquired knowledge, skills and comp			EC'	TS grade	
		(teaching + final exam)		mber rating			
4.4. Formation of final grade		90 - 100%		(excellent)		A	
based on absolute distribution		80 – 89,9%		very good)		В	
based on absolute distribution		65 – 79,9%		3 (good)		С	
		60 - 64,9%	2	(sufficient)		D	
		50 – 59,9%	2	2 (sufficient)		E	
5. ADDITIONAL INFORMATION 5.1. Required literature	ON ON THE SUB	JECT Title	l l	Number of copies in the library	Availability via other media		
(available in the library and through other media)	Zavada J.: Means of 2000. (selected ch	of transport, Faculty of transport and apters)	of Zagreb, Zagreb,	6	media		
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	Krpan D.: Motor v	The technique of motor vehicles, Pulzehicles, Tehnical book, Zagreb, 1966 Fundamentals Motor Vehicle Tehnol		0 0 0			
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and	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. GENERAL INFORMATION								
1.1. Course title	TECHNOLOGY AND ORGANIZATION OF ROAD TRAFFIC	1.8. Course code at ISVU	201139						
1.2. Course lecturer	MSc. Martina Ljubić Hinić, senior lecturer	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 + 30 + 0 + 0)						
1.4. Study program (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	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	
2.1. Course objectives	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; 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 CROQF
LO82.3. Learning outcomes on	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.
the study program level	LO2: To organize and implement team work, and critically judge the opinions and attitudes of team members.
	LO3: To individually and responsibly search, interpret and integrate the relevant literature needed to make decisions.



	LO4: To apply knowledge from the field of natural and technical sciences to problems in road traffic.								
	LO5: To apply basic legal and economic principles in organization with socially responsible management in technical-technological subjects.								
	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.								
	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: 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.								
	Learning outcomes according to Bloom's taxonomy:	Level of LO: 1- remembering, 2- understanding, 3- application, 4- analysis, 5- evaluation, 6- synthesis							
2.4. Expected learning outcomes on the course level	 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, 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							

	Cons	structive alignment							
2.5. Course content according to	no	Thematic unit	LO of the	Content/teaching methods	Evaluation	Time			
detailed curriculum schedule	по	Thematic unit	course	Content/teaching methods	Evaluation	needed			
	1	Introduction into the course		They listen to a lecture. During the individual		1 h			
	1.	and detailed plan.	-	work on the computer, they are introduced to	-	1 11			



				the course content and documents on the e-		
				learning page of the course.		
		Elements of the transport system. Substrate.	1, 2, 3, 6, 7	Listen to lectures and read literature.	In colloquium or the written and oral exam they define the elements of the transport system, describe and define the theory and types of the system, and list the different types of substrates and describe the characteristics of the substrate important for handling and management in the traffic process.	4 h
	2.	Transport devices.	1, 2, 3, 6, 7	They listen to a lecture and read literature. In the course of the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read literature, come up with their own ideas, and ways to solve problems.	In colloquium or the written and oral exam they define the transport devices, and state and describe their technical and technological features that are important for the optimal transport process.	5 h
	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 proposal of measures to optimize the given transportation process.	5 h



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	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.	25 h



9.	Study trip (Faculty of Traffic Sciences in Zagreb, Center for Croatian Vehicles, ZET (maintenance of buses and trams and the Center for Supervision and Organization of Traffic), Croatian Auto Club and Croatian Highways).	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.	15 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,	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,	5 h



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						with discussion and proposal of measures to optimize the given transportation	
						process.	
		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 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.	25 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
	A THE ATTACKS OF CONTINUES	TT TT					

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.



		ntinuoı	us monitoring of stu						ays: a) during the course cipation in class and passin
	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			Continuo examinat		
corresponds to the credit score of the course)	Colloquium	1 (wi	thout written	Seminar paper			Other		
	Class activity	1		Oral exam	1		Other		
3.3. Student workload	Student workload or Preparation for the n				and is es	stimated as: Attendanc	e 45 h, Des	ign of seminar	work and presentation 30
4. GRADING SYSTEM									
	Element of evalua	tion]	Bad		Satisfying		A	bove average
	Organization		The paper is not order and lacks str	organized in a logical ructure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.		roduction,	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, w	riting	official terminologis not appropriate, long, of a modest	sions low in line with gy. The writing style the sentences are too vocabulary and with	officia is appr	s and expressions are in al terminology. The war ropriate, the sentence s the vocabulary is appro	iting style tructure is	Words and ex official term understanding writing style i	pressions are aligned wit inology and show a of their meaning. The is excellent, the sentence concise, the vocabulary

there are few grammatical errors.

The sources are listed but incomplete

and with errors. The references are

relevant to the topic and show a

satisfactory research attitude.

frequent and repeated grammatical

The sources are not listed at all. The

references do not fit the topic and show

a cursory approach to exploring the

errors.

topic.

Citing and referencing

references

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.

Stranica 7 od 9



		Bad		Satisfying			Above a	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.			erstanding. Does not know or apply basic as and concepts. Does not know how to apply explain the contents of the course with			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 no originally given. It notes correlations with related material.	
	Active	70-75% of the presence	76-86	5% of the presence	87-100%	of the presence	Ca	se studies resolved
	attendance	0 points		0 points	(points		0 points
	Seminar paper	2		3		4		5
4.3. Forming the final grade	Semmar paper	Made and handed over		Made and handed over Made and l		d handed over	Ma	de and handed over
according to the evaluation elements	Examination /	2	3			4		5
ciements	Written	50-64%		65-80%		31-90%		91-100%
	examination	n 25-32 points		33-40 points	41-	45 points		46-50 points
	Oral part of the	2	3			5		5
	exam	25-32 points	33-40 points		41-	41-45 points		46-50 points
	Percentage of ac	quired knowledge, skills and com (teaching + final exam)	petences	Number ratin	ıg	ECTS grade		de
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)			C	
		60 – 64,9%		2 (sufficient	,		D	
		50 – 59,9%		2 (sufficient)		Е	
5. ADDITIONAL INFORMATI								
	Title Number of copies in the library Mailability via other media							Availability via other media



5.1. Required literature (available in the library and through other media)	Županović, I.: Technology of road transport, Faculty of transport and traffic sciences, University of Zagreb, Zagreb, 2002. (selected chapters)	3	No			
5.2. Supplementary literature (at	Baričević, H.: Technology of land transport, Faculty of Maritime Studies, University of Rijeka, Rijeka,					
the time of the submission of	2001.	3	No			
changes and / or additions to the	Ortuzar, J. de D., Willumsen, L.G.: Modelling Transport, John Wiley & Sons, United Kingdom, 2011.	0	Yes			
study program)	Course lectures					
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured thr attendance and activity in the classroom and information obtained about student progress through the further guidance to students in order to increase their work efficiency. Students will be instructed in their and required literature. Quality assurance system indicators: Student survey, monitoring of CES annu employer survey and Alumni Association.	midterm will provide the rights and obligations as	e information needed for well as working methods			
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 of 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. GENERAL INFORMATION							
1.1. Course title	TRAFFIC TECHNIQUES	1.8. Course code at ISVU	201140					
1.2. Course lecturer	MSc. Martina Ljubić Hinić, senior lecturer	1.9. Course code at MOZVAG						
1.3. Assistants and/or associates	Darijo Šego, univ. spec. traff., senior lecturer	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(45+15+0+0)					
1.4. Study program (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of online 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	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	
2.1. Course objectives	The aim is to provide students with theoretical knowledge and case studies to: define road safety factors; know the lawfulness of traffic management; 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 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	LO2: To organize and implement teamwork, and critically judge the opinions and attitudes of team members.
study program level	LO3: To search, interpret and integrate the relevant literature needed to make decisions individually and responsibly.
	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.



	LO7: To apply computer tools for analysis and comparison of data and suggest an optimal solution in traffic process.							
	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- remembering, 2- understanding,						
		3- application, 4- analysis,						
		5- evaluation,						
		6- synthesis						
2.4. Expected learning outcomes	1. to demonstrate knowledge and understanding of course content by defining and describing the basic principles of traffic	1, 1						
on the course level	flow.	1, 1						
	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						

2.5. Course content according to	Constructive alignment								
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed			
	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 state of the s						
			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 for the safe and undisturbed flow of traffic flows.	3 h
		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, 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, as well as define what is the road and describe the elements of road safety, and analyze and	4 h



					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
		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. During the seminar, they individually explore the content of this topic area by searching the database, and on the basis of it and the read	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 and describe the types and ways of installing lighting on traffic structures and compare the	4 h



			literature, come up with their own ideas, and ways to solve problems.	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. During the seminar, they individually explore the content of this topic area by searching the database, and based on 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. During the seminar, they individually explore the content of this topic area by searching the database, and based on it and the read literature,	In colloquium or written and oral exams they define and list types of traffic signs and describe their characteristics. Seminar work is organized in groups, discussing, and	4 h



					come up with to	heir own ideas, and oblems.	proposing measures to calm conflict situations and improve		
	14.		lighting device Pedestrian signals. um.	1, 2, 3, 4, 5, 6, 7, 8, 9	They listen to a individually for t	lecture and prepare he colloquium.	In colloquium or written and of describe and specify ways to of signaling, define the types and signaling for pedestrians and versions.	control the light l cycles of light	34 h
	15.	_	considerations. ad preparing for the	6, 7	They listen to a individually for t	lecture and prepare he exam.	-		34 h
3. EVALUATION OF STUDEN	T WO	RK							
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								ents who iic year; regular or
	Atten	dance	1	Writter	n exam	1 (without colloquia)	Project		
3.2. Monitoring student work (enter the share of ECTS credits	Exper work	rimental		Resear	rch		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)	Collo	quium	1 (without written exam)	Semina	ar paper	1	Other		
		activity	1	Oral ex		1	Other		
3.3. Student workload			n all bases is 1 ECTS mid-term / midterm ex		mester hours and is	s estimated as: Attenda	nce 45 h, Design of seminar w	ork and presenta	ation $\overline{15}$,



4. GRADING SYSTEM									
	Element of evaluation	tion Bad			Satisfying		Above average		
4.1. Grading of seminar work	Organization	The paper is not organiorder and lacks structure	_	logical The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.		disti duction, and the conc inter	paper is well structured with a clear nction between the introduction, main body of the text and the clusion, which are logically connected.		
	Terminology, wr	Words and expressions official terminology. T is not appropriate, the s long, of a modest voca frequent and repeate errors.	he writing style entences are too bulary and with	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.		ne with office of the office o	ds and expressions are aligned with cial terminology and show an erstanding of their meaning. The ting style is excellent, the sentences clear and concise, the vocabulary is and there are no grammatical rs.		
	Citing and referen	references do not fit the	a cursory approach to exploring the		The sources are listed but incomplete and with errors. The references are relevant to the topic and show a satisfactory research attitude.		sources are accurately, completely consistently listed. The references appropriate, their list is "rich" and prehensive and shows a detailed arch approach.		
		Bad		Satisfying			Above average		
4.2. Grading of the colloguium / written and oral exam	understanding. Doo terms and concepts.	memory, without a deeper es not know or apply basic. Does not know how to apply ontents of the course with	_	ts new knowled blains the terms a	ots and without ge, understands nd concepts that	and evaluat accurately an of the mate explains the with example	s at the level of analysis, synthesis ion. It observes the legality, at thoroughly explains the content rial, and logically connects and terms and concepts that it supports es. Finds solutions that were not even. It notes correlations with ial.		
	Active	70-75% of the presence	76-86% of t	he presence	87-100% of t	he presence	Case studies resolved		
	attendance	0 points	0 po	ints	0 po	ints	0 points		



	G	2	3	4		5	
	Seminar paper	Made and handed over	Made and handed over	Made and hand	led over Mad	le and handed over	
4.3. Forming the final grade	Examination /	2	3	4		5	
according to the evaluation	Written	50-64%	65-80%	81-90%)	91-100%	
elements	examination	25-32 points	33-40 points	41-45 poi	nts	46-50 points	
	Oral part of the	2	3	5		5	
	exam	25-32 points	33-40 points	41-45 poi	nts	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		
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)		D		
		50 – 59,9%	2 (sufficient)		Е		
5. ADDITIONAL INFORMAT	ION ON THE SUB	JECT					
		Title			Number of copies in	Availability via other	
5.1. Required literature		Title	•		the library	media	
(available in the library and	Cerovac, V.: Traf	fic technique and safety, Faculty	of transport and traffic science	es, University of	2	Yes	
through other media)	Zagreb, Zagreb, 20	001. (selected chapters)				A 11-1-1 11	
		about road traffic safety Republic of				Available on-line	
5.2. Supplementary literature (at	Šego D., Ljubić H	inić M.: Infrastructure od Road Tr	raffic, Authorized script, Polyte	chnic of Šibenik,			
the time of the submission of	Šibenik, 2021. (sel	ected chapters)			0	Yes	
	McShane, W.R. R	oess, R.P., Prassas, E.S.: Traffic en	gineering, Prentice Hall, 1998.		1	Yes	
changes and / or additions to the	Modern traffic, Joi	irnal of Croatian scientific society t	for traffic. Zagreb		1	Yes	

Yes

Modern traffic, Journal of Croatian scientific society for traffic, Zagreb

Courses lectures

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 INFORMATION									
1.1. Course title	INFORMATION SYSTEMS IN ROAD TRAFFIC	1.8. Course code in ISVU	142540						
1.2. Course lecturer	MSc. Danijel Mileta, seinor lecturer	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%)	1st, 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	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 main objective of the course is to acquaint student function of road traffic, and the benefits they provide.	s with information systems as well as telecommunication a	and information infrastructure in the						
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification	level 4.2 according to the CROQF.							
2.3. Learning outcomes on the study programme level	IU1: To apply and link professional terms from technologin Croatian and English.	gy and organization of road traffic in written and oral commu	nication with the professional public						
	IU2: To organize and implement team work, and critical	ly judge the opinions and attitudes of team members.							
	IU3: To individually and responsibly search, interpret an	d integrate the relevant literature needed to make decisions.							
	IU4: To apply knowledge from the field of natural and to	echnical sciences to problems in road traffic.							
	IU6: To analyze and present relevant facts from the field	of traffic needed to reach conclusions.							
	IU11: To identify, predict and propose solutions in road	traffic technology and technique.							
	IU13: To track trends in the development of technique, t	echnology and safety in traffic.							



2.4. Expected learning outcomes on the course level (4-10 learning outcomes) 2.5. Course content according to	11 22 33 44	Learning outcomes by Bloom: (maximum 2 werbs for LO) 1- memory, 2- understa 3- applicate 4- analysis, 5- evaluatio 6- synthesis 1. Categorize intelligent transport systems and technologies that use them and analyze their benefits. 2. Compare different information and intelligent transport systems. 3. Critically evaluate and evaluate the best system to use. 4. Propose and properly present a solution for a problematic location or purpose Constructive allignement						
detailed curriculum schedule	Cons	ii uctive anighement						
	No	Thematic unit	LO of the	Content/teaching methods	Evalı	Evaluation		
			course				needed	
	1.	Introduction to the course and a detailed teaching plan.	-	Students listen to a lecture. On the computer, they are introduced to the course content and documents on the elearning course page.	-		2 h	
	2.	Basics	1	Students listen to a lecture and read literature.	they can define, des the basic concep	At the midterm, written and oral exam they can define, describe and categorize the basic concepts of information systems in road transport and set an example		
	3.	ITS	1, 2, 3, 4	Students listen to a lecture and read literature.	They can enumerate, distinguish and give an example of intelligent transport systems at the midterm, written and oral exam.			
	4.	Internet and intranet	2, 4	Students listen to a lecture and read literature.	exam they can de	n, written and oral efine, describe and ms in the domain of	3 h	



					Internet, intranet and extranet, and give	
					an example.	
	5.	Wireless data transmission		Students listen to a lecture and read	At the midterm, written and oral exam	
				literature.	they can define, describe and enumerate	
			1, 2, 3, 4		wireless data transfer for different	4 h
					technologies, and critically evaluate and	
					evaluate the best technology to use.	
	6.	ERP		Students listen to a lecture and read	At the colloquium, written and oral	
			1, 2	literature.	exam they can define and describe the	3 h
			1, 2		information system in business and the	311
					concepts related to it.	
	7.	Repetition of materials /		Students listen to a lecture and read	They know the matter from thematic	
		colloquium	1, 2, 3, 4	literature.	units 2-6. At the colloquium, the written	
			1, 2, 3, 4		and the oral exam they know how to	2 h
					define parking payment systems.	
	8.	Parking Billing Systems		Students listen to a lecture and read	At the colloquium, written and oral	
				literature.	exam they can define, describe,	
			1, 2, 3, 4		categorize, compare, judge and evaluate	3 h
					parking charging systems in open and	
					ramp-regulated parking lots.	
	9.	Highway billing systems		Students listen to a lecture and read	At the midterm, written and oral exam	
			1, 2, 3, 4	literature.	they know how to define, describe,	
			1, 2, 3, 1		categorize, compare, judge and evaluate	1 h
					highway billing systems.	
	10.	Autopilot		Students listen to a lecture and read	At the colloquium or the written and	
			1, 2, 3	literature.	oral exam they can define and describe	2 h
			1, 2, 0		the features of autopilot in cars and the	
					technologies used in it.	
	11.	Fleet management		Students listen to a lecture and read	At the colloquium or the written and	
		1, 2, 3, 4	1, 2, 3, 4	literature.	oral exam they can define and describe	
				the basic elements of fleet management	2 h	
					and critically evaluate, evaluate and	



					propose the right solution for a		
_	10				particular need.		
	12.	Speedometers on roads		Students listen to a lecture and read	They can define, describe and	4.1	
			1, 2, 3, 4	literature.	categorize road speed measuring	1 h	
					devices at the midterm or the written		
		-			and oral exam.		
	13.	Seminars		Students listen to a lecture and read	In defense of seminar paper, they are		
				literature. They use multimedia and	able to define and describe basic		
				networking. At the seminar teaching, they	concepts in the topic of seminar paper,	6 h	
				individually explore the content of this	to distinguish and compare similar		
		1		topic area by searching the database, and	technologies, to give an example, to		
			1, 2, 3, 4	on the basis of it and reading the literature,	critically judge, evaluate and propose		
			1, 2, 3, 4	create a seminar paper that presents the	the use of technology in question.		
				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.			
	14.	Seminars		Students listen to a lecture and read	In defense of seminar paper, they are		
				literature. At the seminar teaching, they	able to define and describe basic		
				individually explore the content of this	concepts in the topic of seminar paper,		
				topic area by searching the database, and	to distinguish and compare similar		
				on the basis of it and reading the literature,	technologies, to give an example, to		
			1, 2, 3, 4	create a seminar paper that presents the	critically judge, evaluate and propose	9 h	
				acquired knowledge and presents their	the use of the technology in question.		
				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.			
	15.	Repetition of materials / 2.			They know the subject matter from		
		colloquium	1, 2, 3, 4		topics 8-12. and domain of seminar	2 h	
		-			papers.		
4. 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 7							
	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	Attending classes	1	Written exam	1 (without	Project			
(enter the share of ECTS credits				colloqiums)				
for each activity so that the total	Experimental work		Research		Practical work			
number of ECTS credits corresponds to the course credit	Esaay		Report		Continuous check			
value)	Colloquiums	1 (without written part of exam)	Seminar paper	0,5	(other)			
	Teaching activities		The oral part of	0,5	(other)			
			exam					
3.3. Student work-load	Student workload on all bases is 1 ECTS credit for 30 semester hours and is assessed as attendance (60 hours), preparation of seminar work and presentation							
	(16 hours), preparation	(16 hours), preparation for the midterm/exam through self-study (44 hours).						
4. GRADING SYSTEM								
4.1. Evaluation of seminar paper	Elements of	Elements of Bad Satisfying Above average						
	evaluation							
	Organization	The paper is not organized in a		structured with a c		The paper is well structured with a clear		
		logical order and lacks structure.		the introduction, the m		distinction between the introduction, the		
			body of the text and t	the conclusion.	•	main body of the text and the conclusion,		
						which are logically interconnected.		
	Terminolog, writing	Words and expressions are not in	_	ns are in line with offi	_	Words and expressions are aligned with		
	style	line with official terminology.	· ·	riting style is appropri	•	official terminology and show an		
		The writing style is not		e is clear, the vocabular	•	neir meaning. The writing		
appropriate, the sentences are appropriate and there are few grammatical						ne sentences are clear and		
		too long, of a modest vocabulary						
		and with frequent and repeated			no grammatical err	ors.		
		grammatical errors.						



	Citing and	The sources are not listed at all.	I. The sources are listed but incomplete and with		The sources are ac	curately, completely and
	referencing	The references do not fit the topic and show a cursory and show a satisfactory research attitude.		•	•	I. The references are
	references			appropriate, their list is "rich" and		
		approach to exploring the topic.			_	shows a detailed research
					approach.	
4.2. Gradeing of the colloquium/written and oral		Bad	Satisfying		Above average	
exam	It responds by memor	y, without a deeper understanding.	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	
		apply basic terms and concepts. It				
	does not know how to	o apply or explain the contents of				
	the course with exam	ples.			the content of the material, and logically	
					connects and explains the terms and concepts	
					that it supports with examples. Finds	
					solutions that were not originally given. It	
					notes correlations with related material.	
4.3. Forming the final grade	Active attendance on class	0-69,9% attendance	70-79,9% attendance	80-89,9% attendance		90-100% attendance
according to the evaluation elements		0 points	5 points	7 points		10 points
Cicinontis	Seminar paper Colloquiums/ Written part of exam	2	3	4		5
		15 points	20 points	25 points		30 points
		2	3	4		5
		50 - 64,9%	65 - 79,9%	80 - 89,9%		90 - 100%
		15 points	20 points	25 points		30 points
	Out out of any	2	3	4		5
	Oral part of exam	15 points	20 points	25]	points	30 points
4.4. Formation of the final grade	Percentage of acquired knowledge, skills and competencies (teaching + final exam)		Numerical grade		ECTS grade	
based on the absolute						
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	Number of copies in the	Availability via other			
(available in the library and via			library	media		
other media)	Bošnjak I.: Intelligent transport systems, Faculty of transp	ort and traffic sciences, University of	3			
	Zagreb, (selected chapters)					
	Mileta D.: Electronic business (selected chapters) on-lir					
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 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					
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								
1.1. Course title	TRANSPORT GEOGRAPHY	201141						
1.2. Course lecturer	Darijo Šego, univ. spec. traff., senior lecturer	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)	Optional 1.12. Number of course revisions		4					
1.6. Year of study	3 rd 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	9	ledge and case studies: become familiar with the creation and change in the world, distinguish main transport corridors in E	-					
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification	level 4.2 according to the CROQF.						
2.3. Learning outcomes on the study programme level	LO1: To apply and link professional terms from technologin Croatian and English.	gy and organization of road traffic in written and oral commu	nication with the professional public					
	LO2: To organize and implement team work, and critical	lly judge the opinions and attitudes of team members.						
	LO3: To individually and responsibly search, interpret a	nd integrate the relevant literature needed to make decisions.						
	LO6: To analyze and present relevant facts from the fiel	d of traffic needed to reach conclusions.						
	LO10: To compare and choose technical and technological solutions in traffic and/or goods flows.							
	LO12: To set up a minor traffic process and critically ev	aluate it.						
	Learning outcomes by Bloom: (maximum 2 werbs for	LO)	Level of LO:					
	1- memory,							



2.4. Expected learning outcomes on the course level (4-10 learning outcomes)						2- understandi 3- application, 4- analysis, 5- evaluation, 6- synthesis.	0.
	1.	Present and comment on the histor	rical developn	nent of the traffic branches.		6, 3	
	2.	List and explain the main factors f	for the creation	and development of commodity flows.		1, 2	
	3.	Analyze and evaluate world trade	in goods.			4, 5	
	4.	Present and comment on the traffi-	c connections	of the countries in Western, Central and Eastern	Europe.	6, 4	
	5.	List and compare major transport	corridors in A	sia, North America, and Europe.		1, 2	,
	6.	Comment on the objective and str	ategy of the M	Iarco Polo Program and the current EU Transpor	rt White Paper.	4	
	7.	Use materials and tools to search	scientific and 1	professional literature in native and English lang	guages.	3	
	8.	Present the acquired knowledge, i	deas, problem	s, and solutions independently and in a team.		6	
2.5. Course content according to detailed curriculum schedule	Constr	uctive allignement					
	No	Thematic unit	LO of the	Content/teaching methods	Evaluati	on	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.	-		needed 2 h
	2.	Development of transport branches throughout history (road, rail, pipeline)	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.	At the colloquium oral exam students comment and evaluat development of ropipelines. Seminar papresented (by comput	can present, the historical toad, rail and per created and	3 h



	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.	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
	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.	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.	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, 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	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, Benelux, France, Spain) of all	3 h



				knowledge and presents their own ideas, and	branches of transport. List the	
				ways to solve problems.	countries through which each	
					transport corridor passes. Seminar	
					paper created and presented (by	
					computer programs).	
	7.	Geographical location of		They listen to a course lecture and read	At the colloquium or the written and	3 h
		transport corridors in Central and		literature. At the seminar lectures, they	oral exam, students can define the	
		Eastern Europe		individually explore the content of this topic	term traffic corridor. List and	
		_		area by searching the database, and on the	compare major transport corridors in	
				basis of it and reading the literature, create a	Poland, Czech Republic, Slovakia,	
			4 7 7 0	seminar paper that presents the acquired	Hungary, Croatia, Bulgaria,	
			4, 5, 7, 8	knowledge and presents their own ideas, and	Romania, Serbia, Greece, and	
				ways to solve problems.	Russia of all branches of transport.	
					List the countries through which	
					each transport corridor passes.	
					Seminar paper created and presented	
					(by computer programs).	
	8.	Geographical location of North		They listen to a course lecture and read	At the colloquium or the written and	3 h
		American transport corridors		literature. At the seminar lectures, they	oral exam, students can define the	
				individually explore the content of this topic	term traffic corridor. List and	
			1570	area by searching the database, and on the	compare major traffic corridors of	
			4, 5, 7, 8	basis of it and reading the literature, create a	Canada and the United States of all	
				seminar paper that presents the acquired	branches of transport. Seminar paper	
				knowledge and presents their own ideas, and	created and presented (by computer	
				ways to solve problems.	programs).	
	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	
			4, 5, 7, 8	area by searching the database, and on the	compare major transport corridors in	
			7, 3, 7, 0	basis of it and reading the literature, create a	East and South Asia (China, Japan,	
				seminar paper that presents the acquired	South Korea, Singapore) of all	
				knowledge and presents their own ideas, and	branches of transport. List the	
				ways to solve problems.	countries through which each	



					transport corridor passes. Seminar 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	Categorize, analyze and evaluate the	
			2 2 7 0	basis of it and reading the literature, create a	trade in fruits and vegetables, milk	
			2, 3, 7, 8	seminar paper that presents the acquired	and dairy products, meat, fish in the	
				knowledge and presents their own ideas, and	World. List the countries with the	
				ways to solve problems.	largest importers and exporters of all	
					types of food. Seminar paper created	
					and presented (by computer	
	4.4				programs).	4.1
	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	Categorize, analyze and evaluate the	
				basis of it and reading the literature, create a	world trade of oil, petroleum	
			2, 3, 7, 8	seminar paper that presents the acquired	products, cotton, bauxite, iron ore,	
				knowledge and presents their own ideas, and	and natural gas. List the countries	
				ways to solve problems.	with the largest importers and	
					exporters of all types of raw	
					materials. Seminar paper created	
					and presented (by computer programs).	
	12.	Spatial distribution of industrial		They listen to a course lecture and read		4 h
	12.	product flows (cars, machines,		literature. At the seminar lectures, they	oral exam, students know how to	4 11
		electronics, ships)		individually explore the content of this topic	define the concept of goods traffic.	
		electronics, simps)	2, 3, 7, 8	area by searching the database, and on the	Categorize, analyze and evaluate the	
			2, 3, 1, 0	basis of it and reading the literature, create a	progress of trade in cars, electronic	
				seminar paper that presents the acquired	products, ships, machines in the	
				semma paper mat presents the acquired	World. List the countries with the	
					Will the countries with the	



					knowledge and presents	their own ideas, and	largest importers and	exporters of	
					ways to solve problems.		industrial products. Se	eminar paper	
							created and presented	(by computer	
							programs).		
	13.	Marco Polo Progra	am (program		They listen to a cours	e lecture and read	At the colloquium or th	ne written and	3 h
		objective, prograr	n activities,		literature. They use	multimedia and	oral exam, students ca	an define the	
		program projects)			networkAt the semin	nar lectures, they	goal and strategy of the	e Marco Polo	
					individually explore the	content of this topic	program. Distinguish	h activities	
				6, 7, 8	area by searching the d	atabase, and on the	Marco Polo. Critically	evaluate the	
					basis of it and reading th	ne literature, create a	professional video fil	ms program.	
					seminar paper that pre	esents the acquired	Seminar paper created a	and presented	
					knowledge and presents	their own ideas, and	(by computer programs	s).	
					ways to solve problems.				
	14.	European Union W	hite Paper on		They listen to a cours	e lecture and read	At the colloquium or	written and	3 h
		Transport (White	Paper titles,		literature. At the sem	inar lectures, they	oral exem, students k	now how to	
		key content areas,	preparing the		individually explore the	content of this topic	define the objective an	nd strategy of	
		European transport	area for the	6, 7, 8	area by searching the d	atabase, and on the	the current EU Whi	te Paper on	
		future, visions for	developing a	0, 7, 6	basis of it and reading th	ne literature, create a	transport. Comment	on EU	
		competitive and	sustainable		seminar paper that pre	esents the acquired	professional projects in	n the field of	
		transport system, st	rategy - what		knowledge and presents	their own ideas, and	transport. Seminar pape		
		needs to be done)			ways to solve problems.		presented (by computer	r programs).	
	15.	Final consideration	ons/Repeating		They listen to a course	lecture and prepare			45 h
		and preparing for th	ne exam.		individuals for the exam.		_		
3. EVALUATION OF STUD	ENT W	ORK							
3.1. Student obligations	In acco	rdance with the Rulel	book on Study a	and the Rule	book on Student Assessmer	nt and Evaluation: for	all full-time students atte	endance of at le	east 70%.
	Part-tin	ne students are requir	red to attend a	class of at le	ast 50%. All students must	create, present and pe	ositively colloquy semina	ar papers. Stud	ents who
		_			S credits- are rated F (unsuc				
					insufficient) and must pass				
	regular	or extraordinary exam	m period; more	than 50% -	students have the right to ta	ke the final exam. Stu	idents can take the final of	exam from the	course in
		•	_	_	inuous monitoring of studer	nts (active participation	on in classes and through	two exams); b) passing
	the exa	m (written and oral p	art of the exam).					
3.2. Student work monitoring	Atter	nding classes	0,5		Written exam	1 (without	Project		
(enter the share of ECTS credits						colloqiums)			



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	0,5	The oral part of exam	0,5	(other)	
3.3. Student work-load	Student workload on all	bases is 1 ECTS credit for 30 sem	nester hours and is assessed a	as attendance (30 hours), preparation of semin	ar work and presentation
	(15 hours), preparation	for the midterm/exam through se	lf-study (45 hours).			
4. GRADING SYSTEM						
4.1. Evaluation of seminar paper	Elements of evaluation	Bad	Satisfy	ing	Above	e average
	Organization	The paper is not organized in a	The paper is well stru	ctured with a clear	The paper is well	structured with a clear
		logical order and lacks	distinction between the in	ntroduction, the main	distinction between the	he introduction, the main
		structure.	body of the text and the c	onclusion.	•	he conclusion, which are
						eted.
	Terminolog, writing	Words and expressions are not			•	sions are aligned with
	style	in line with official	terminology. The writing		official terminolog	e.
		terminology. The writing style	the sentence structure is	•	_	ir meaning. The writing
		is not appropriate, the	is appropriate and there	are few grammatical	•	e sentences are clear and
		sentences are too long, of a	errors.			ary is rich and there are
		modest vocabulary and with			no grammatical error	rs.
		frequent and repeated grammatical errors.				
	Citing and	The sources are not listed at all.	The sources are listed but	t incomplete and with	The sources are acc	eurately, completely and
	referencing	The references do not fit the	errors. The references are	e relevant to the topic	consistently listed.	The references are
	references	topic and show a cursory	and show a satisfactory re	esearch attitude.	appropriate, their	list is "rich" and
		approach to exploring the			comprehensive and s	hows a detailed research
		topic.			approach.	
4.2. Gradeing of the colloquium/written and oral		Bad	Satisfy	ing	Above	e average
exam	It responds by memory,	without a deeper understanding.	It reproduces the basic of	concepts and without	Knowledge is at	the level of analysis,
	It does not know or ap	ply basic terms and concepts. It	difficulty imparts new kn	owledge, understands	1 -	uation. It observes the
					legality, accurately a	and thoroughly explains



	does not know how to a	apply or explain the contents of	the material, explains the terr	ms and concepts	concepts the content of the material, and logically		
	the course with example	es.	that it supports with examples.	•	connects and explain	ns the terms and concepts	
						with examples. Finds	
						not originally given. It	
					notes correlations w		
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	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%	
	written part of exam	25 points	30 points	35]	points	40 points	
	Onel ment of enem	2	3	3		5	
	Oral part of exam	25 points 30 points		35	points	40 points	
4.4. Formation of the final grade based on the absolute		ired knowledge, skills and (teaching + final exam)			EC	TS grade	
distribution	9	90 – 100%		5 (excellent)		A	
	80	0 – 89,9%	4 (very good)		В		
	65	5 – 79,9%	3 (good)	3 (good) 2 (sufficient)		С	
	60	0 – 64,9%	2 (sufficient)			D	
	50	0 – 59,9%	2 (sufficient)		Е		
5. ADDITIONAL INFORMATI	ON ABOUT COURSE						
5.1. Compulsory literature (available in the library and via		Title			er of copies in the library	Availability via other media	
other media)		Šego Darijo: Traffic corridors and merchandise flows, Script for internal use, Polytechnic of				e-learning system	
	Šibenik, Šibenik 2016. World trade organization http://www.wto.org/ (selected chapters)				-	Internet website	



	Transport in EU http://ec.europa.eu/transport/index en.htm (selected chapters)		Internet website
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	Šibenik for the mentioned course.		
amended of study programme)	International trade statistics https://www.trademap.org/Index.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 necessary knowledge and skills will be	e 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 three	ough short colloquiums and ho	mework, information for
knowledge, skills and	further guidance to students will be provided in order to increase the efficiency of their work. Students	dents will be informed about the	eir rights and obligations
competences	as well as the methods of work and the required literature. Indicators of quality assurance system	m: 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	vebsite 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	ons they can be contacted durin	g 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 INFORMATION									
1.1. Course title	TRAFFIC IN TOURISM	1.8. Course code at ISVU	201142						
1.2. Course lecturer	phD. Ana-Mari Poljičak, senior lecturer	1.9. Course code at MOZVAG	-						
1.3. Assistants and/or associates	-	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(30+0+15+0)						
1.4. Study programme (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of on line course performance (max. 20%)	1st, course materials are on-line, 0%						
1.5. Course status (obligatory, optional)	Optional	1.12. Number of course revisions	4.						
1.6. Year of study	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				
2.1. 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 Four-year secondary education completed; qualification level 4.2 according to the CROQF.				
	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 werbs for EO)	4- analysis,
2.4. Expected learning outcomes		5- evaluation,
on the course level		6- synthesis.
	 define and explain the basic concepts in transport and tourism. 	1, 2
	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

	Constructive allignement							
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed		
2.5. Course content according to detailed curriculum schedule	Introduction into the course and detailed plan. 1. Theoretical basis of traffic 2. Interdependence of transport and tourism.		-	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		
		1	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the	At the colloquium or the written and oral exam, they can enumerate and explain ways of influencing tourism on traffic and explaining the impact of traffic on tourism. Explain the limiting impact of transport on tourism and tourism on transport. Define	6 h			



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



			brainstorming method and the discussion method on the topic are applied.	Seminar paper created and presented (using computer programs independently).	
6.	Field teaching - travel agency Pražen putovanja d.o.o.	3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain the excursions and multi-day bus trips, explain the rental of road vehicles in the tourist destination and give an example of panoramic and shuttle transportation. Seminar paper created and presented (using computer programs independently).	5 h
7.	Guest lecture in English: Tourism and Railways (Basic knowledge), Glacier Express - the slowest express Train in the World, the Trans-Siberian Railway (Russian tourism offer).	1, 3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can describe the first rail trip in the World. Give an example of rail transport as part of a tourism product and describe it. Define high-speed rail and give examples. Seminar paper created and presented (using computer programs independently).	9 h
8.	The repetition and preparation for the colloquium. Colloquium I.	1, 2, 3, 4, 5	They listen to a lecture and read literature. They prepare individually for the colloquium.	-	12 h
9.	Field teaching - Airport Zadar/Split	1, 3, 4, 5	They listen to a lecture and read literature. At the seminar teaching, they individually explore the content of this topic area by searching the database, and on the basis of it and the literature read, create a seminar paper that presents the acquired knowledge. In the group work on seminar teaching, the brainstorming method and the discussion method on the topic are applied.	At the colloquium or the written and oral exam they can explain regular and charter air traffic. Explain the features of low-cost companies. Give examples of low cost airlines. Explain pick-up and departure technology for airport passengers. Give an example of air traffic services to tourists with special requirements.	3 h



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



				brainstorming method on the topic				
	Parking destination	in tourist ns. Colloquium II.	4, 5	the seminar teach explore the content searching the databas and the literature react that presents the acq group work on se	re and read literature. At ing, they individually of this topic area by se, and on the basis of it d, create a seminar paper uired knowledge. In the seminar teaching, the od and the discussion are applied.	At the colloquium or writte knows define basic terms differentiate ways of pa destinations.	of parking and	3 h
		g considerations. and preparing for		They listen to a individually for the e	lecture and prepare xam.	-		17 h
3. EVALUATION OF STUDEN	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 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).							who have c year; regular or ticipation ss (active	
3.2. Monitoring student work	Attendance		Wri	tten exam	1,5 (without colloquia)	Project		
(enter the share of ECTS credits for each activity so that the total	Experimental work		Reso	earch		Practical work		



number of ECTS points corresponds to the credit score	Essay		Report		Continuous examination		
of the course)	Colloquium	1,5 (without written exam)	Seminar paper	0,5	Other		
	Class activity	0,5	Oral exam	0,5	Other		
	Student workload on all bases is 1 ECTS credit 30 semester hours and is estimated as:						
	Obligatio	n		Hot	Hours (estimated)		
3.3. Student workload	Active class attendance				45		
	Designing a seminar paper and presentation				10		
	3. Preparing colloquia or exams through individual work				35		

4. FORMATION OF GRADES

	Element of evaluation	Bad	Satisfying	Above average
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.
4.1. Evaluation of a of seminar work	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.



	Bad		Satisfying		Above average		
4.2. Grading of the colloguium / written and oral exam	understanding. I terms and concep	memory, without a deeper Does not know or apply basic tts. Does not know how to apply contents of the course with	It reproduces the basic concepts and without difficulty imparts new knowledge, understands the material, explains the terms and concepts that it supports with examples.		the material, and logically connects and explain		bbserves the legality, ly explains the content of ly connects and explains s that it supports with ations that were not
	Active	70-75% of the presence	76-86% of the presence	87-100% of t	he presence	Ca	se studies resolved
	attendance	2 points	4 points	7 poi	-		10 points
	Ci	2	3	4			5
4.3. Forming the final grade	Seminar paper	5 points	7 points	7 points 8 points			10 points
according to the evaluation	Examination /	2	3	-			5
elements	Written	50-64,9%	65-79,9%	80-89	,9%		90-100%
	examination	25 points	30 points	35 po	ints		40 points
	Oral part of the	2	3	4			5
	exam	25 points	30 points	35 po	ints		40 points
		of acquired knowledge, skills and nees (teaching + final exam)	Number rating	Number rating		ECTS grade	
4.4. Formation of final grade		90 – 100%	5 (excellent)	5 (excellent)		A	
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)			D	
		50 – 59,9%	2 (sufficient)		Е		
5. ADDITIONAL INFORMATI	ION ON THE SUB.	JECT					
		Title Number of copies in the library media					Availability via other media



5.1. Required literature	Mrnjavac E.: Traffic in tourism, Faculty of tourism and hotel management, University of Rijeka,	5				
(available in the library and	Opatija, 2006. (selected chapters)					
through other media)	Maršanić R.: Parking in tourist destination, IQPLUS d.o.o., Rijeka, 2008.	5				
5.2. Supplementary literature (at the time of the submission of changes and / or additions to the study program)	Baričević H.: Traffic in tourism, Collegue of tourism, Šibenik, 2003. Lumsdon L. M., Page S. J.: Tourism and Transport, Issues and Agenda for the New Millennium, Routledge, 2003.	11 0	Available online			
5.3. Quality assurance methods that ensure the acquisition of knowledge, skills and competences	Quality control of students' work and the acquisition of necessary knowledge and skills will be ensured through interactive work. Keeping records of students' attendance and activity in the classroom and information obtained about student progress through the midterm will provide the information needed for further guidance to students in order to increase their work efficiency. Students will be instructed in their rights and obligations as well as working methods and required literature. Quality assurance system indicators: Student survey, monitoring of CES annual data on annual employment status of students, employer survey and Alumni Association.					
5.4. Informing about the course and contacting the teacher	It is the responsibility of each student to be regularly informed about the course, the coursework, and the classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address at @ vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).					



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 title	SAFETY AND PROTECTION OF TRANSPORT PROCESSES	1.8. Course code at ISVU	214577				
1.2. Course lecturer	PhD. Ana-Mari Poljičak, senior lecturer	1.9. Course code at MOZVAG					
1.3. Assistants and/or associates	MSc. Martina Ljubić Hinić, senior lecturer	1.10. Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	(45+0+15+0)				
1.4. Study program (specialist, undergraduate, graduate)	Undergraduate professional study of Traffic	1.11. Level of e- learning application (1 st , 2 nd , 3 rd level), percentage of online course performance (max. 20%)	1st - course materials are online, 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	
2.1. Course objectives	The aim is to provide students with theoretical knowledge and case studies to: Define the basic concepts of safety and protection of transport processes; Understand the function of safety and protection of transport processes; 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 CROQF
2.3. Learning outcomes on the study program level	LO1: To apply and link professional terms from technology and organization of road traffic in written and oral communication with the professional public in Croatian and English. LO2: To organize and implement teamwork, and critically judge the opinions and attitudes of team members. LO3: To search, interpret and integrate the relevant literature needed to make decisions individually and responsibly. LO5: To apply basic legal and economic principles in organization with socially responsible management in technical-technological subjects.



All y	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.						
	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	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. 	1, 1					
	2. distinguish and comment on the basic characteristics of hazardous substances in the transport system.	2, 4					
	 connect and critically evaluate technological procedures related to traffic safety and protection. 	3, 5					
	4. select appropriate packaging and accompanying documentation for the transport of dangerous goods.	3					
	5. present the acquired knowledge independently and in a team.	6					

2.5. Course content according to	Constructive alignment							
	no	Thematic unit	LO of the course	Content/teaching methods	Evaluation	Time needed		
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.	-	2 h		



2.	Legislation.	1	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 based on 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 what the regulations of protection and safety in traffic regarding traffic branches.	2 h
3.	Ergonomic factors and anthropotechnical characteristics.	1	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 based on 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 based on 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	At the colloquium or written and oral exam, they can state and explain the procedures in case of traffic accidents.	7 h



			by searching the database, and based on 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.	State and explain the role of intervention services in the Republic of Croatia. Prepared and presented seminar paper (independent use of computer programs).	
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 based on 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 based on 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	At the colloquium or written and oral exam, they can explain how static electricity is generated and how to prevent	7 h



			by searching the database, and based on 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.	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).	
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 based on 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 based on 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 based on it and the read literature, they prepare a	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	6 h



			seminar paper which presents the	paper (independent use of computer	
			acquired knowledge. In the seminar	programs).	
			classes, the brainstorming method and the		
			method of discussion on the presented		
			topic are applied.		
			They listen to lectures and read literature.		
			At the seminar classes, they individually		
13.	Transport of dangerous goods in transport branches.	3, 5	research the content of this thematic area by searching the database, and based on 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 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;
- \bullet 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 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			
	Monitoring student work er the share of ECTS credits	Experimental work		Research		Practical work				
	each activity so that the total other of ECTS points	Essay		Report		Continuous examination				
	responds to the credit score he course)	Colloquium	3 (without written exam)	Seminar paper	0,5	Other				
		Class activity	0,5	Oral exam	1 (without Colloquium)	Other				
3.3.	Student workload		udent workload on all bases is 1 ECTS credit 30 semester hours and is estimated as: Attendance 60 h, Design of seminar work and presentation 20 h, eparation for the mid-term / exam 70 h.							

4. GRADING SYSTEM

	Element of evaluation	Bad	Satisfying	Above average
	Organization	The paper is not organized in a logical order and lacks structure.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion, which are logically interconnected.
4.1. Grading of seminar work	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.



		Bad	Satisfying		Above average		
4.2. Grading of the colloguium / written and oral exam	understanding. D	memory, without a deeper loes not know or apply basic ts. Does not know how to apply contents of the course with	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.		serves the legality, y explains the content ogically connects and oncepts that it supports oblutions that were not
	Active	70-75% of the presence	76-80% of the presence	81-90% of t	ne presence	91-10	00% of the presence
	attendance	2 points	4 points				10 points
	Seminar paper	2	3	4	4		5
4.3. Forming the final grade		5 points	7 points	8 po	8 points		10 points
according to the evaluation	Examination /	2	3	4	4		5
elements	Written	50-64,9%	65-79,9%	81-89	9,9%		90-100%
	examination	25 points	30 points	35 p	oints		40 points
	Oral part of the	2	3 5			<u> </u>	
	exam	25points	30 points	35 p	oints		40 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	
		65 – 79,9%	3 (good)			C	
		60 - 64,9%	2 (sufficient)			D	
5. ADDITIONAL INFORMAT	ON ON THE SUB	50 – 59,9% JECT	2 (sufficient)			Е	
		Ti	tle		Number of the lib	-	Availability via other media



5.1. Required literature	Bukljaš Skočibušić M., Bukljaš Z.: Protection in traffic, Faculty of transport and traffic sciences,	2	NI.			
(available in the library and	University of Zagreb, Zagreb, 2015.	3	No			
through other media)	Aurer Jezerčić I., Žunić M.: Transport of dangerous goods by road, Institute for research and security	3	No			
	development d.o.o., Zagreb, 2020. (selected chapters)					
	Ministry of Maritime, Transport and Infrastructure: Ordinance on the handling of dangerous goods,					
5.2. Supplementary literature (at	conditions and manner of performing transport in maritime transport, loading and unloading of					
the time of the submission of	dangerous goods, bulk and other cargo in ports, and the manner of preventing the spread of spilled oils		Yes			
	in ports (NN 51/05, 127/10, 34/13, 88/13, 79/15), Zagreb, 2005.	0	No			
changes and / or additions to the	Perić T., Ivaković Č.: Protection in traffic process, Faculty of transport and traffic sciences, University	U	Yes			
study program)	of Zagreb, Zagreb, 1996					
	Croatian Parliament: Law on Transport of Dangerous Goods, Zagreb, 2007					
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 title	PROFESSIONAL PRACTICE	1.8. Course code in ISVU	214573				
1.2. Course lecturer	Darijo Šego, univ. spec. traff., senior lecturer	1.9. Course code in MOZVAG					
1.3. Assistants and/or associates	-	Forms of teaching (number of hours Lecturing + Practical exercises + Seminars + e-learning)	0+0+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 , 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	X yes □ no				
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	_	the practical work of legal entities that perform transport activi and work. Thanks to the previously acquired theoretical knowl ad transport.					
2.2. Terms of course entry and required competences	Four-year secondary education completed; qualification	level 4.2 according to the CROQF, Enrolled VI. semester					
	LO1: To apply and link professional terms from technologublic in Croatian and English.	ogy and organization of road traffic in written and oral commu	nication with the professional				
2.3. Learning outcomes on the	LO3: To individually and responsibly search, interpret at	nd 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	d of traffic needed to reach conclusions.					
	LO9: To assess and organize processes in the area of road traffic and/or traffic logistics.						



	LO11	: To identify, predict and propose sol	utions in ro	ad traffic technology and technique.			
	LO12	: To set up a minor traffic process and	d critically	evaluate it.			
2.4. Expected learning outcomes on the course level (4-10 learning outcomes)	Lear	ning outcomes by Bloom: (maximum		Level of LO: 1- memory, 2- understanding, 3- application, 4- analysis, 5- evaluation, 6- synthesis.			
	1	engaged in transport.		e from the course and practical knowledge from	a company	3, 4	
,	2	1				4	
	3	•	U	susiness situation of a transport company.		4, 5	
	4	Present the company and the acqu	6				
	5	. Use materials and tools to search		3, 4			
	6	To propose and choose the best so	lution for i	mproving the business processes of a transport com-	npany.	6, 5	
2.5. Course content according to detailed curriculum schedule	Cons	tructive allignement					
	No	Thematic unit	LO of the course	Content/teaching methods		Evaluation	Time
	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.		rofessional Practice Diary prepared and presented.	
3. EVALUATION OF STUD	ENT V	VORK					
3.1. Student obligations				ng professional practice as well as the conditions an are prescribed by the Ordinance on professional			



3.3. Student work-load		y of professional practice (90)		per semester and is assess	ed as, attending a Pi	olessional fractice			
,	Teaching activities	all bases amounts to 1 ECTS	The oral part of exam	Profession practice d	iary	3			
number of ECTS credits corresponds to the course credit value)	Colloquiums		Seminar paper	Execution profession practice	nal	12			
(enter the share of ECTS credits for each activity so that the total	Esaay		Report	Continuo					
3.2. Student work monitoring	Experimental work		Research	Practical					
	Attending classes		Written exam	Project					
	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.								
	-				•	•			
	_	lo the internship, submit a wr of the legal entity where he w		=		=			
	jobs that correspond to the i	intended practice in terms of c	ontent and complexity. In o	order for the course to be re	cognized, the studer	nt should, in the semester			
	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								
	Professional Practice course in the next academic year. Professional practice is terminated in the event of justified reasons and continues when such reasons								
	-	actice Diary, he enters "not sa				•			
	-	rs "satisfied" in the Certificate	•			•			
	-	e of completed professional no later than the end of the c		•	•	-			
	_	e Ordinance on professional professional			-				
	_	person in the legal entity in w	_			=			
	-	the Ordinance on professional	•	•	-				
	-	this behavior or actions do no	•	•	•	•			
	•	ly perform the tasks entrusted rescribed measures of safety	•			-			
	_	Professional practice is perform				=			
	be admitted to a professional internship, the course leader signs the Instruction for performing the professional internship (Appendix 2 of the Ordinance								
	· ·	ined by the holder of the cour	•		•	• •			
	summary form. Students ar	e required to complete a profes	ssional practice. The studen	t performs professional pr	actice in a legal entit	y that performs transport			



4. GRADING SYSTEM

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 (available in the library and via	Title	Number of copies in the library	Availability via other media						
other media)	The literature of the Undergraduate Professional Study of Traffic.								
	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 ensured through interactive work. By keeping track attendance and student activity during classes and provided information on students` progress through short colloquiums and homework, information further guidance to students will be provided in order to increase the efficiency of their work. Students will be informed about their rights and obligation as well as the methods of work and the required literature. Indicators of quality assurance system: Student survey, monitoring of annual data from the Croatian employment service on the annual state of student employment, surveys from employers and Alumni association.								
5.4. Informing about the course and contacting the course lecturer	It is the responsibility of each student to be regularly informed about the course, the coursework, and classroom activities. All notices of classes or possible adjournment will be published in a timely manner on the e-learning site of the course and on the website of the Polytechnic. Students can contact teachers during the consultation period (at least one hour per week), while for short questions and explanations they can be contacted during class. It is also possible to ask questions by e-mail (from the official e-mail address name@vus.hr), which will be answered as soon as possible (no later than five working days after receiving the e-mail).								



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	214575								
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 + 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	the 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 eepening 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	Four-year secondary education completed; qualification level 4.2 according to the CROQF, 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.
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	-	Students 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 a	ll bases is 1 ECTS cred	lit 30 semester hours a	nd is esti	mated as:							
3.3. Student workload	Obligation				Hours (estimated)							
5.5. Student Workload	1. The written	part of the Batchelor th	nesis	210								
	2. Oral defense	e of the Batchelor thesi	S	90								
4. GRADING SYSTEM												



	Element of evaluation	Bad				Satisfyin	ıg		Above average			
4.1. Evaluation of the Batchelor thesis	Organization	The paper is not organ	gical	The paper is well structured with a clear distinction between the introduction, the main body of the text and the conclusion.			ction, d the	the main body of the text and the				
	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.			e with or style urure is we and arrive	understanding of their meaning. The			
	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.			s 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.			
40.5	The written part of the	2		3			4		5			
4.3. Forming the final grade	Batchelor thesis	5 points	1	0 poir	ints		15 points	s		20 points		
according to the evaluation elements	The written part of the	2		3			5		5			
elements	Batchelor thesis	5 points	1	0 poir	ints 1:		15 points		15 points			
	Percentage of acquired k	nowledge, skills and co	mpetences		Number rating				ECTS grade			
	Ç	90 – 100%			5 (excellent)			A				
4.4. Formation of final grade	8	80 – 89,9%			4 (very good)			В				
based on absolute distribution	6	55 – 79,9%			3 (good)				С			
	6	60 – 64,9%			2 (sufficient)			D				
	5		2 (sufficient)				Е					
5. ADDITIONAL INFORMATIO	N ON THE SUBJECT											
		Title							of copies in library	Availability via other media		



5.1. Required literature (available in the library and through other media)	Rulebook on the Batchelor thesis. Instructions for writing a seminar paper and Batchelor thesis. Books and professional literature in the field of writing the Batchelor thesis. 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	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).								

10. MATRIX OF LEARNING OUTCOMES OF THE STUDY PROGRAMME OF THE UNDERGRADUATE PROFESSIONAL STUDY OF TRAFFIC FOR THE ACADEMIC YEAR 2022./2023.

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 2022./2023. was adopted at the 16^{en} session of the Traffic Department Council, which was held on Thursday, September 15. 2022..

Curriculum for the Undergraduate Professional Study of the Traffic at the Polytechnic of Šibenik, for the academic year 2022./2023. was confirmed at the 48th session of the Expert Council of the Polytechnic of Šibenik, which was held on Tuesday, September 27. 2022..

Curriculum for the Undergraduate Professional Study of Traffic at the Polytechnic of Šibenik for the academic year 2022./2023. 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: 007-02/22-09/05

REGISTRY NUMBER: 103-09-22-03

Šibenik, 28.09.2022.

Head of Undergraduate professional study of Traffic

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

Dean of Polytechnic of Šibenik

bhD/Ljubo Runjić, collegue professor