



GRADUATE STUDY: **TRANSPORT**

SEMESTER (III)

Syllabus

Academic year 2025/2026

Course: Passenger Transportation Technology in Road Traffic						
Head of course: Assoc. Prof. Predrag Brlek , Ph. D.						
Co-lecturers: Nikola Kožul , univ. mag. traff. ing.						
Semester: III	Course code: 173390	Lectures: 30	Auditory exercises: 15	Laboratory exercises: 0	Seminars: 15	ECTS credits: 4
Group for lectures: 50 students			Group for auditory and laboratory exercises: 25 AE/ 25S			

Objective of the course:

- Acquiring the knowledge and information necessary for a holistic understanding of the functioning of the passenger transportation process in road traffic.
- Adoption of approaches, methods and procedures for the efficient and effective exploitation of resources in the process of transporting passengers on routes in public city, suburban and intercity passenger road traffic and tourist traffic.

Course enrolment requirements:

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Learning outcomes:

After completing the course, students will be able to:

1. To connect theoretical principles and advanced knowledge about the transport system to solve complex transport-technological problems, especially the structure and features of passenger transportation demand and structural technological elements in passenger road transportation.
2. Design the transport process, i.e. its static and dynamic technological elements, taking into account the features of passenger transportation demand, infrastructural elements of the passenger transportation system in road traffic, technical features of buses in city, suburban, intercity line as well as tourist traffic, the information system, human potential, first of all through dimensions of achieving a high level of efficiency and effectiveness of the operations of road transport companies.



3. Manage activities in all technological stages of the transport process in public road passenger traffic.
4. Choose the process of business optimization and modeling of company development in road passenger transportation.
5. Evaluate transport and technological solutions in public road passenger transportation according to the purpose of the trip, i.e. the length of the transport route.
6. Apply acquired learning skills in mastering new knowledge and insights from road passenger transport technology and for lifelong education.
7. Comment and present trends in the development of road passenger transportation technology.



LECTURES, EXERCISES and SEMINARS

Tjedan	Sadržaj	Oblik nast.	Izvodi	Sati	Napomena
1.	Introductory lecture (acquaintance with the content of the course, literature, teaching method and evaluation of students' achievements)	L	Predrag Brlek	2	
	Informations about the topics and preparation method of seminar papers	S	Predrag Brlek	1	
	Structure and analysis of the transport process in public road passenger transportation	AE	Nikola Kožul	1	
2.	Structure, professional and scientific content of passenger transportation technology in public road passenger transportation	L	Predrag Brlek	2	
	Adoption of topics of seminar papers	S	Predrag Brlek	1	
	Road transport means in public passenger transportation - essential technical and technological features and their impact on the efficiency and effectiveness of the transport process	AE	Nikola Kožul	1	
3.	Passenger demand, its variability and dynamics in the dimensioning of the road transport system	L	Predrag Brlek	2	
	Prognostic trend model of the development of passenger demand in public line passenger transportation	S	Predrag Brlek	1	
	Calculations in the prediction of passenger demand, transport demand in public road traffic	AE	Nikola Kožul	1	



4.	- Conditions and licenses for road passenger transportation activities - City and special passenger transportation in the road transport system	L	Predrag Brlek	2	
	Licenses in the activity of public transportation of passengers in road traffic	S	Predrag Brlek	1	
	Analysis of the static and dynamic degree of capacity utilization of the rolling stock	AE	Nikola Kožul	1	
5.	- Suburban and intercity passenger transportation in the road transport system - Distances and timetable in the passenger transportation system in public road passenger traffic	L	Predrag Brlek	2	
	The degree of utilization of transport capacities on lines in city, suburban and intercity traffic as a factor in the development of the system	S	Predrag Brlek	1	
	Spatial analysis of the transport process in public road passenger road traffic	AE	Nikola Kožul	1	
6.	Bus stations and stops in the function of passenger transportation process in the road transport system	L	Predrag Brlek	2	
	Technological features of bus platforms and drop-off points in the system of public passenger transport in road passenger traffic	S	Predrag Brlek	1	
	Time analysis of the transport process in public road passenger traffic	AE	Nikola Kožul	1	
7.	Technical-technological characteristics of means of transport in public road passenger transportation (regular and tourist transportation)	L	Predrag Brlek	2	
	The impact of technical - technological features of buses on the efficiency and effectiveness of the transport process	S	Predrag Brlek	1	



	Calculations related to the degree of utilization of the static and dynamic capacity of vehicles, as well as temporal and spatial analysis of the transport process in public road passenger traffic	AE	Nikola Kožul	1	
8.	Technical and technological features of means of transport on routes in public road local passenger transport - city-type buses	L	Predrag Brlek	2	
	Analysis of optimal technological features of city-type buses	S	Predrag Brlek	1	
	Model of optimal technological features of city-type buses	AE	Nikola Kožul	1	1. colloquium
9.	Technical and technological features of means of transport on routes in public road local passenger transport - city-type buses	L	Predrag Brlek	2	
	Analysis of optimal technological features of city-type buses	S	Predrag Brlek	1	
	Model of optimal technological features of city-type buses	AE	Nikola Kožul	1	
10.	Technical-technological features of means of transport in public linear intercity passenger transport and tourist traffic - intercity and tourist type buses	L	Predrag Brlek	2	
	Analysis of optimal technological features of intercity and tourist type buses	S	Predrag Brlek	1	
	Model of optimal technological features of intercity buses	AE	Nikola Kožul	1	
11.	Organizational scheme in the business system of carriers in public road passenger transportation	L	Predrag Brlek	2	



	▪ Review and final comment of seminar papers - remarks and suggestions	S	Predrag Brlek	1	
	▪ Modeling of optimal technological features of tourist type buses	AE	Nikola Kožul	1	
12.	▪ Elements and quality level of transport service in road passenger transportation	L	Predrag Brlek	2	
	▪ Presentation of seminar papers	S	Predrag Brlek	1	
	▪ Analysis of the transport process in the function of determining the quality of the transport service	AE	Nikola Kožul	2	
13.	▪ State and development trends of carriers in public road passenger transportation	L	Predrag Brlek	2	
	▪ Presentation of seminar papers	S	Predrag Brlek	1	
	▪ Analysis of the transport process in the function of determining the quality of the transport service	AE	Nikola Kožul	1	
14.	▪ Optimization of the carrier system in public road passenger traffic	L	Predrag Brlek	2	
	▪ Presentation of seminar papers	S	Predrag Brlek	1	
	▪ Analysis of the transport process in the function of determining the quality of the transport service	AE	Nikola Kožul	1	
15.	▪ Optimization of the passenger transportation technology system in road traffic	L	Predrag Brlek	2	



	▪ Presentation of seminar papers	S	Predrag Brlek	1	
	▪ Final assignments and exam preparation	AE	Nikola Kožul	1	2. colloquium

L = Lectures; **AE** = Auditory Exercises; **LE** = Laboratory Exercises; **S** = Seminars



STUDENT OBLIGATIONS AND EXAMS

Conditions for obtaining signatures:

In order to obtain an electronic signature, a student must attend at least 70% of lectures, exercises and seminars and prepare a seminar paper, i.e. fulfill the condition "Conditions for achieving the status of course attended/completed for a student".

Written Examination:

There are two ways of passing the exam:

1. in two parts via a colloquium: the first colloquium is held in the middle of the semester, and the second at the end of the semester. The number of points that a student can obtain in one colloquium is 15. Students who obtain less than 8 points per colloquium have not passed the colloquium, and the points for the written knowledge test will need to be obtained at the final written part of the exam. Students who score less than 16 on both colloquiums have not passed the written part of the exam.

The colloquium can be taken by all students who regularly attend classes (min. 70%).

2. in one part through the written final exam: 30 points can be obtained on the written exam. Students who score less than 16 have not passed the written part of the exam. All students who did not collect a sufficient number of points individually at the colloquia, or are not satisfied with the points collected at the colloquia, or did not attend the written knowledge test through the colloquia, take the written part of the exam.

Oral examination:

To attend the oral part of the exam, a minimum of 31 points must be obtained, of which 16 points are obtained through two colloquiums or a written exam, and 15 points are obtained through a seminar assignment. In the oral part of the exam, the student can get up to 30 points

Additional points:

By creating a more complex seminar paper (according to the criteria: difficulty of the topic, volume of literature and method of processing the topic), the student can earn an additional 5 points (total up to 20 points for the seminar paper). By creating a homework within the topic of the seminar work (analysis of the selected case and presentation of the results of the analysis), the student can obtain from 5 to 15 additional points.

LITERATURE

a) Obligatory literature:

1. Rajsman, M.: **Tehnologija prijevoza putnika u cestovnom prometu**, Fakultet prometnih znanosti, skripta, Zagreb, 2017.
2. Štefančić, G., Presečki, A., Presečki, I., Sikirica, N., Zubić, I.: **Autobusni kolodvori u Hrvatskoj**, monografija Sveučilišta u Zagrebu, Veleučilište Hrvatsko zagorje, Krapina, 2018.



b) Recommended literature:

METHODOLOGY OF THE IMPLEMENTATION OF THE COURSE PLAN

1. LECTURES

The lectures follow the material presented in the authorized lectures (teaching material) and mandatory literature and are conducted with the use of Power Point presentations and whiteboards. Video presentations are used for some units. During the lecture, discussion is encouraged from the issues being taught.

2. AUDITORY EXERCISES

Practical exercises are carried out in such a way that numerical tasks are solved in order for students to be trained to plan, implement and evaluate the passenger transport process and to adopt approaches, methods and procedures for the efficient and effective exploitation of the passenger transport technology system in road transport.

3. SEMINAR

Seminars are conducted in such a way as to analyze specific cases of bus operation in order to train students to detect the special features of certain technological elements, as well as to adopt procedures for adapting the technological system to changed transport requirements.

Note: Individual and/or group viewing negative written test

Individual viewing of negative written test is possible after each colloquium and/or final written exam, during teacher consultation hours (of teacher who held the exams) or during designated period which is published with the results of the colloquium and/or final written exam.

4. DOCUMENTATION

Records of attendance at lectures, seminars and exercises, successfully completed seminar papers and homework are kept.

5. SCORING SYSTEM

Table 1 The scoring system for the monitoring of students and explained credit values in ECTS credits

no	Segment:		Required credits to be achieved:		Remark:	ECTS credits
			Min.	Max.		
1.	Presence at the lectures		5	5	During the semester three absences are allowed, i.e. 20% of all forms of classes (lectures and exercises).	1
2.	Presence at the exercises (auditory and laboratory)		5	5		1
3.	Seminar		15	25	Students must successfully defend the seminar	0,6
4.	First colloquium	= Written exam	8	15	Students must pass both colloquiums or min 50% on written final exam.	0,4
5.	Second colloquium		8	15		0,4
6.	Oral exam		16	30	At the final exam, a final grade is formed based on the written examination and oral examination. The final grade is than entered in the ISVU system.	0,6
Σ	Overall points:		57	85	Overall ECTS points:	4,0

*During the course the student is evaluated based on the sum of the internal points earned through participating in class (lectures and exercises) and grading the seminar work. The student, in order to realize the condition "courses requirements achieved", must achieve a minimum of 30 points.



Table 2 - Explanation of the credit values in evaluations

CREDITS:	The final score [4 ECTS]:
57-64	Sufficient (2)
65-72	Good (3)
73-79	Very good (4)
80-85	Excellent (5)

Information for students (scoring system, implementation plan, learning outcomes, syllabus, literature, consulting teachers, announcement of results of examinations or colloquium, and all other information):

- <https://moodle.srce.hr/2025-2026/> (<https://merlin.srce.hr>)
- <http://www.fpz.unizg.hr/isvu/2022-en/>

Student assistants: