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3.2. Course description

Generic information			
Head of Course	Biserka Draščić Ban, PhD Ivoslav Ban, MSc		
Course	Mathematics 1		
Study Programme	Transport and Mobility		
Type of Course	obligatory		
Year of Study	1.st	1.st semester	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		45 + 30 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main objective of the course is to provide general educational content and education about the mathematical apparatus used in other basic and elective courses during undergraduate studies and to

emphasize the importance of accurately expressing and defining all the terms used in the courses during study.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

After passing the exam, students will be able to: 1. Use the basic concepts of linear algebra, functions of one variable, and differential calculus of functions of one variable in applications of mathematics in all other courses 2. Express and correctly interpret basic results from linear algebra and differential calculus of functions of one variable 3. Interpret basic computational operations with matrices, vectors, and determinants 4. Calculate solutions to arbitrary linear systems of equations, as well as limit values and derivatives of functions of one variable.

1.4. Course Outline

Elements of the set theory. Number sets N,Z Q,R,C. Elements of Combinatorics. Binomial and polynomial formula. Sequences. Determinants. Matrices. Systems of linear algebraic equations. Vectors. Mapping, relation, function of one variable. Limits of functions. Derivative. Differential. Theorems of differential calculus. Application of differential calculus on describing real functions.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

Regular attendance at classes and passing midterm exams.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2.5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1.5	Essay		Research	
Project		Continuous Assessment	2	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure for evaluating the acquired learning outcomes is carried out according to the Regulations on Studies of the University of Rijeka and the Regulations on Studying at the Faculty of Maritime Studies in Rijeka as follows: • 1st midterm exam – 30 points Learning outcome: 1., 2., 3.
• 2nd midterm exam – 30 points Learning outcome: 4., 5.
• Class attendance – 10 points Learning outcome: 1.
• Final exam – 30 points Learning outcome: 1., 2., 3., 4., 5.
• The student must achieve a minimum of 35 points to take the final exam. • To pass the final exam, the student must achieve a minimum of 50% of the points. •

1.10. Main Reading

1. Teaching material on the e-learning system – Merlin (https://moodle.srce.hr)
2. Group of authors, Mathematics I, Faculty of Maritime Studies, Rijeka, 2001.
3. Group of authors, Mathematics – collection of tasks, Faculty of Maritime Studies, Rijeka, 1999.
4. Demidovič, Problems and solved examples from mathematical analysis for technical faculties, Danjar, d.o.o, Zagreb 2003.

1.11. Recommended Reading

1. Štambuk, Ljubica, Mathematics I, Faculty of Technology, Rijeka, 2002.
2. Kurepa, Svetozar, Mathematical Analysis I, Technical Book, Zagreb, 1970.
3. Skenderović, J., Matejčić-Ružička, V., Computer Exercises, Faculty of Maritime Studies, Rijeka 2000.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Group of authors, Mathematics I, Faculty of Maritime Studies, Rijeka, 2001.	8	30
Group of authors, Mathematics - a collection of problems, Maritime Faculty Rijeka, 1999.	8	30
Demidovič, Problems and solved examples from mathematical analysis for technical faculties, Danjar, d.o.o, Zagreb 2003.	8	30

1.13. Quality Assurance

The quality of studies is monitored in accordance with the ISO 9001 SYSTEM AND IN ACCORDANCE WITH THE EUROPEAN STANDARDS AND GUIDELINES FOR QUALITY ASSURANCE IMPLEMENTED AT THE Faculty of Maritime Studies in Rijeka. Once a year, the passing results are analyzed and appropriate measures are taken.

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3.2. Course description

Generic information		
Head of Course	Goran Vukelić, PhD Rikard Miculinić, MSc	
Course	Engineering graphics	
Study Programme	Transport and mobility	
Type of Course	Obligatory	
Year of Study	1.	
Estimated Student Workload and Methods of Instruction	ECTS student workload coefficient	4
	Number of hours (M+V+S)	1+2+0

1. 1. GENERAL COURSE DESCRIPTION

1.1. Course objectives

Training students to solve technical problems and apply acquired knowledge in traffic technology.

1.2. Prerequisites for Course Registration

1.3. Expected learning Outcomes

After passing the course, the student will be able to:

1. Apply the ISO standards of engineering graphics and the rules for making technical drawings.
2. Create and apply orthogonal and spatial projections.
3. Explain and apply sections and dimensions.
4. Explain and apply tolerances and machining symbols.
5. Interpret existing and create new technical drawings of simple machine elements with all necessary data for production.

1.4. Course Outline

he course contains the rules and recommendations of ISO and DIN standards for the design of technical drawings (lines, formats and measurements).
Orthogonal projection on two and three planes (points, lengths, planes and solids). Spatial presentation of shapes (isometric, dimetric and oblique projection).
Section drawing and dimensioning. Tolerances and surface roughness.
Symbols in marine engineering, electrical engineering and architecture.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Fieldwork	☒ Practical work ☐ Multimedia and network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student obligations

Student obligations are: regular attendance at classes, 1st and 2nd midterm exams, programs, exercises, and final exam .

1.8. Assessment1 of Learning Outcomes

Course	1.5	Class participation		Seminar paper		Experiment	

attendance							
Written exam	0.5	Oral exam		Essay		Research	
Project		Continuous Assessment	2	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The process of evaluating acquired learning outcomes is carried out according to the Regulations on Studies of the University of Rijeka and
Regulations on studying at the Faculty of Maritime Studies in Rijeka as follows: 70% in class, 30% in the final exam (outcomes 1 – 6). Of the possible 70% during the semester, 50% is for two written exams, 20% for the developed programs.
The requirement for taking the final exam, according to the regulations, is 35%.
Examples of evaluation by individual outcome in the preliminary and final exams:
1. Two graphic tasks (learning outcomes 1,2,3) comprise 25% of the first preliminary exam
2. Two spatial projection tasks (learning outcomes 1,2,5) included in the second preliminary exam
3. 20% refers to two completed program tasks (learning outcomes 1,2,3,5,6)
4. The final exam includes a written assessment of all learning outcomes and two assignments (learning outcome 4).
Examples of evaluation by individual outcome in the preliminary and final exams:
1. The object is given in spatial projection according to the figure. Draw a plan and a side view in section at the given scale, and a plan view and dimension it (outcome 1,2,3).
2. The object is given in orthogonal projection. Draw the object in isometric (diametric or oblique projection) at the given scale (outcome 5).
3. Determine all necessary measurements/deviations of the fit, the type of fit, and draw a fit diagram with all necessary dimensions (outcome 4).

1.10. Main Reading

Bukša, A., Grafičke komunikacije – Zbirka zadataka, Pomorski fakultet Rijeka, 2001.

1.11. Recommended Reading

1. Marunić, Gordana, Elementi inženjerske grafike, Rijeka,Tehnički fakultet, 1998.
2. Bogolyubov, S., Exercises in machine drawing, Moscow, Mir Publishers, 1989.
3. Duff J. - Ross W., Freehand Sketching: For Engineering Desing, London, An International Thomson Publishing, 1995.
4. Lamit, L. – Kitto, K., Principles of Engineering Drawing, St. Paul, West Publishing Company, 1994.
5. Prebil, Ivan, Tehnična dokumentacija, Ljubljana, Tehniška založba Slovenije, 1995.
6. Parker M.- Dennis L., Engineering drawing fundamentals, Cheltenhan, Stanley Thornes, 1990.
7. Parker M.- Pickup F., Engineering drawing with worked examples 1, Cheltenhan, Stanley Thornes, 1990.
8. Hercigonja, Eduard, Tehnička grafika, Zagreb, Školska knjiga, 1996.
9. Kovač, Branko, Tehničko crtanje, Zagreb, Školska knjiga, 1975.

1.12. Number of Main Reading Examples

Title	*Number of copies*	*Number of students*
Bukša, A., Grafičke komunikacije – Zbirka zadataka, Pomorski fakultet Rijeka, 2001.	12	20
The course material is available on the e-learning system – Merlin in electronic form.	-	20

1.13. Quality Assurance

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The quality of studies is constantly monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. An analysis of exam taking is prepared annually, and a survey among students is conducted once a semester.

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3.2. Course description

Generic information			
Head of Course	Siniša Vilke, PhD		
Course	Fundamentals of transport technology		
Study Programme	Transport and mobility		
Type of Course	Mandatory		
Year of Study	1		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to provide basic knowledge of transport and traffic engineering, including the main characteristics of all branches of transport and the features of their manifestations and transport technologies.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After completing and passing the course, students will be able to:
1. Explain individual transportation technologies and interpret their progress.
2. Identify and compare the strengths, weaknesses, and effectiveness of individual transportation modes.
3. Explain and interpret the dependence of transportation infrastructure characteristics on the progress of the transportation process.
4. Differentiate between operational problems in the transportation process and analyze their solutions
5. Interpret the specifics of land transportation technology and its forms of development.
6. Interpret the specifics of water transportation technology and its forms of development.
7. Interpret the specifics of air transportation technology and describe appropriate technological processes.
8. Interpret the specifics of non-motorized transport and mobility.
9. Prepare and present a research assignment on specific transportation technology or a given traffic solution as part of independent research.

1.4. Course Outline

Theoretical features of traffic technology and organization. Fundamentals of maritime transport technology. Fundamentals of inland waterway transport engineering. Fundamentals of road transport engineering. Fundamentals of rail transport engineering. Fundamentals of air transport engineering. Operational problems in the transport process. Transport technologies and related technological processes.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

The student must attend at least 70% of the total lecture and exercise hours, prepare and present a seminar paper, and pass the exams (continuous assessment) in order to take the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendan	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam		Oral exam	1,5	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of acquired learning outcomes is carried out by the Study Regulations of the University of Rijeka and the Study Regulations at the Faculty Maritime Studies in Rijeka as follows:
- through continuous knowledge assessment during classes, 70% of the acquired learning outcomes are evaluated within the 1st exam (25%), 2nd exam (25%), and through the presentation of a research task – seminar paper (20%); in this case, the student must achieve a minimum of 50% of points in each exam, and the presentation of the research task is evaluated based on the developed assessment criteria;
- in the final part of the exam, 30% of the acquired learning outcomes are evaluated, whereby the student must achieve a minimum of 50% of points in order to pass the final exam.

Examples of evaluation by individual learning outcome are:
1. Interpret individual transport technologies.
2. Explain the basic characteristics, advantages and disadvantages of individual branches of transport.
3. Explain the dependence of traffic and technical characteristics of the transport infrastructure on the development of the appropriate transport process.
4. Explain the most common operational problems in a given transport process and analyze the possibility of solving them.
5. Explain the characteristics of individual land transport technologies.
6. Explain the characteristics of individual water transport technologies.
7. Explain the characteristics of air transport technology.

1.10. Main Reading

1. Baričević, H.: Tehnologija kopnenog prometa, Pomorski Fakultet, Rijeka, 2001.
2. Baričević, H., Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet, Rijeka, 2016.
3. Zelenika, R.: Ekonomika prometne industrije, Ekonomski fakultet Sveučilišta u Rijeci, Rijeka, 2010.
4. Baričević, H.; Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2016.
5. Dundović, Č.: Pomorski sustav i pomorska politika, Pomorski Fakultet, Rijeka, 2005.
6. Radačić, Ž, i dr..: Tehnologija zračnog prometa I, Fakultet prometnih znanosti, Zagreb, 2008.
7. Teaching material for the e-course available on the LMS Merlin *(https://moodle.srce.hr)*

1.11. Recommended Reading

1. Baričević, H.: Tehnologija kopnenog prometa, Pomorski fakultet, Rijeka, 2001.
2. Baričević, H: Promet u turizmu, Visoka škola za turistički menadžment, Šibenik, 2003.
3. Badanjak, D., Bogović, B., Jenić, V.: Organizacija željezničkog prometa, Fakultet prometnih znanosti, Zagreb, 2006.
4. Županović, I.: Tehnologija cestovnog prometa, Fakultet prometnih znanosti, Zagreb, 2003.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Baričević, H.: Tehnologija kopnenog prometa, Pomorski Fakultet, Rij 2001.	10	30
Baričević, H., Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet, Rijeka, 2016.	10	30
Zelenika, R.: Ekonomika prometne industrije, Ekonomski fakultet u Rijeci, Rijeka, 2010.	10	30
Baričević, H.; Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2016.	10	30
Dundović, Č.: Pomorski sustav i pomorska politika, Pomorski Fakultet, Rijeka, 2005.	10	30
Radačić, Ž, i dr..: Tehnologija zračnog prometa I, Fakultet prometnih znanosti, Zagreb, 2008.	10	30
Teaching material for the e-course available on the LMS Merlin *(https://moodle.srce.hr)*	-	30

1.13. Quality Assurance

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Course description

Generic information			
Head of Course	Tanja Poletan Jugović, PhD		
Course	Cargo Flows		
Study Programme	Transport and Mobility		
Type of Course	Mandatory		
Year of Study	1		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30+0+15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The primary objectives of the course are to acquire knowledge about the basic elements, principles, as well as the geo-transport, socio-economic, and logistical factors influencing the formation and distribution of cargo flows; to analyze relevant indicators of cargo flow formation worldwide with an emphasis on maritime and land transport; and to gain knowledge of the fundamental prerequisites for attracting cargo flows and valuing transport routes in the transport services market.

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

After attending and passing the course, the student will be able to:

1. Describe and interpret the basic elements, key principles, and specific characteristics of the formation of cargo flows within logistics and transport networks.
2. Differentiate and explain types of cargo flows according to various criteria such as type of goods, direction of cargo flows, types of transport modalities, territorial scope, etc.
3. Describe and interpret geo-transport, socio-economic, and logistical factors that influence the distribution and consolidation of cargo flows in a global and regional context.
4. Explain the general and specific characteristics of the development and sustainability of modern transport at the global, regional, and national levels.
5. Argue the significance of key components in the valuation and competitiveness of transport routes (corridors) in the transport services market.
6. Analyze and interpret the intensity, structure, and dynamics of cargo flows on various transport routes and corridors (maritime, land, river, air, etc.).
7. Compare relevant indicators of cargo flows at different types of cargo terminals (port, land, air terminals), including intensity, structure, and dynamics of cargo flows.
8. Apply the acquired knowledge to a specific practical example through the preparation of a research assignment using relevant theoretical and statistical data sources.

1.4. Course Outline

Theoretical determinants and principles of the formation and distribution of cargo flows that govern the consolidation, distribution, and optimization of cargo flows in global and regional networks. Geo-transport factors influencing the formation and distribution of cargo flows. Socio-economic factors influencing the formation and distribution of cargo flows. Other assumptions and criteria for the formation and distribution of cargo flows. The state and general characteristics of cargo transport worldwide. International cargo flows in maritime transport. International cargo flows in land transport. International cargo flows on inland waterways. International cargo flows in air transport. Cargo flows in the context of sustainability.

1.5. Modes of Instruction	☒ Lectures ☒ Seminars and workshops ☐ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

- 1st exam (with a minimum achievement of 50% of the points)
- 2nd exam (with a minimum achievement of 50% of the points)
- Seminar – independent research and presentation (evaluation according to detailed criteria with a minimum achievement of 50% of the points)
- Final exam (with a minimum achievement of 50% of the points)

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	1	Oral exam		Essay		Research	0,5
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure for assessing acquired learning outcomes is conducted in accordance with the Regulations on Studies at the University of Rijeka and the Regulations on Studying at the Faculty of Maritime Studies in Rijeka as follows:

- continuous knowledge assessment during classes – evaluates 70% of the acquired learning outcomes (LO): 1st exam – 25% (LO 1-5), 2nd exam – 25% (LO 6-7), seminar (preparation and presentation of the seminar within the research work) – 20% (LO 8), which is evaluated based on detailed criteria; the student must achieve at least 50% of the points in each activity.
- final exam – evaluates 30% of the acquired learning outcomes (LO 1-7), whereby the student must achieve at least 50% of the points to pass.

Examples of assessing learning outcomes in relation to the established learning outcomes are:

1. Define the key elements influencing the formation of maritime cargo flows.
2. Classify cargo flows according to the criteria of territorial coverage and direction of cargo flows, and explain the specificities and significance of different types of cargo flows.
3. List the geo-transport factors influencing the formation of cargo flows and argue their relative or absolute impact on cargo flows

4. Name the key maritime regions and the leading ports by region in the context of global container cargo flows.
5. Systematize the factors affirming cargo flows using the example of a corridor (e.g., Baltic–Adriatic corridor).
6. Identify the routes of the most significant global maritime routes for liquid cargo flows.
7. Explain the intensity, structure, and dynamics of cargo flows using the example of the Northern Adriatic ports (Koper, Trieste, Rijeka).
8. Apply and present the acquired knowledge through a concrete practical example (independent research and presentation).

1.10. Main Reading

1. teaching material for the e-course Cargo Flows – accessible on the e-learning platform - Merlin (https://moodle.srce.hr) during the current academic year
2. Tanja Poletan Jugović, „Robni tokovi“, Faculty of Maritime Transport, University in Rijeka, 2014.

1.11. Recommended Reading

1. Rodrigue, Jean-Paul, The Geography of Transport Systems, Fifth edition, New York: Routledge, 2020. (selected chapters)
2. Current statistical sources with up-to-date data: Review of Maritime Transport – UNCTAD, Shipping Statistics and Market Review, ISL (Institute of Shipping Economics and Logistics), Bremen; Statistical Yearbook of the Republic of Croatia, Croatian Bureau of Statistics, and others.
3. Scientific and professional papers by the course instructor and other authors published in international journals (Journal of Transportation Geography, Transportation Research, etc.) and domestic journals (Pomorstvo, Naše more, etc.), as well as projects and other research on the topic of cargo flows

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
teaching material for the e-course Cargo Flows – accessible on the e-learning platform - Merlin (https://moodle.srce.hr) during the current academic year	unlimited	30
Tanja Poletan Jugović, Robni tokovi, Faculty of Maritime Transport, University in Rijeka, 2014.	5	30

1.13. Quality Assurance

The quality of studying is continuously monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. An analysis of exam results is prepared annually, and a student survey is conducted once per semester.

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3.2. Course description

Generic information			
Head of Course	Darko Glažar, PhD		
Course	Ship design and construction		
Study Programme	Transport and Mobility		
Type of Course	Mandatory		
Year of Study	1		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	5	
	Number of Hours (L+E+S)	45 + 15 + 0 (3 + 1 + 0)	

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The objective of the course is to acquaint students with the basic ship's dimensions and measures, transversal and longitudinal constructional elements, elementary concepts of ship's strength and constructional features of different transversal and longitudinal constructional elements, elementary concepts of ship's strength and constructional features of different ships.

1.2. Prerequisites for Course Registration

No prerequisites.

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. Describe the historical development of ships and interpret international rules for ship construction.
2. Interpret and analyse type of ship construction and structural elements of longitudinal and transversal ship strength.
3. Explain the performance characteristics of ship mooring, anchoring and cargo handling systems
4. Interpret the main measurements and dimensions of the ship
5. Compare different ways of performing maritime navigation (liner or free navigation) and the organization and tasks of ship services
6. Analyse the division of ships according to purpose, type of cargo, categories of navigation, material of construction, nature of transport service, etc.
7. Break down the technical and technological characteristics of different types of ships (liquid cargo ships, bulk carriers, container carrier ships, general cargo, passenger carriers, special purpose ships, etc.).

1.4. Course Outline

International rules for ship construction and historical development of ships. Construction materials, welding, bulkheads, watertight bulkheads, watertight doors. Types of ships. Structural elements of longitudinal and transversal ship's strength. Strength and stress of ship structure. Ship compartments, cargo compartments, navigational bridge and engine room. Ship's cargo handling equipment for different types of ships. Ship’s operational equipment.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments	None.	

1.7. Student Obligations

Attendance on 70% of classes and exercises. Passing the two written tests in continuous assessment and the final oral exam and completing formative assignments.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1,3	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio		Formative assignments	0,2				

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The course grade is based on two written tests throughout continuous assessment and formative assignments equalling to 70% (70 grade points) of the course grade. The remaining 30 % (30 grade points) of the course grade is based on the final oral exam according to the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka.

Formative assignments:

- In formative assignments students will complete various assignments which will reinforce their learning and knowledge on course topics (Maximum 10 grade points). Students must obtain at least 50% score of formative assignments which equals to 5% course grading total (5 grade points from maximum of 10). Learning outcomes 1 to 7.

Continuous assessment:

- Written test 1 (Maximum 30 grade points) students must obtain at least 60 % test score equalling to 15 % of grading total (15 grade points). Learning outcomes 1 to 5.
- Written test 2 (Maximum 30 grade points) students must obtain at least 60 % score equalling to 15 % of grading total (15 grade points). Learning outcomes 6 and 7.

Final oral exam:

- Assesses the student's adoption of learning outcomes and obtained knowledge (Maximum 30 grade points). To pass, students must achieve at least 50 % of the grading points (15 grade points). Learning outcomes 1 to 7.

Examples of evaluation of learning outcomes in relation to set learning outcomes are:

1. Describe the development of the double hull throughout history.
2. Classify and describe the transverse elements of the structure on which the deck of the ship rests.
3. Explain the anchoring system of the ship and list and classify the different types of anchors.
4. Explain what ship's draught is and draw draught marks between 8 and 9 meters.
5. Explain the characteristics of liner shipping and indicate which types of ships operate on regular services.
6. Explain and specify the types of ships by cargo type.
7. Draw and explain the cross-section of the bulk carrier with the associated structure with elements

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.10. Main Reading

1. Course materials from the Ship design and construction course on the Merlin eLearning System of Faculty of Maritime Studies in Rijeka.
2. Komadina, P., Brodovi multimodalne prijevozne tehnologije, Pomorski fakultet u Rijeci, Rijeka, 2001.
3. Komadina, P., Ro-Ro brodovi, Pomorski fakultet u Rijeci, Rijeka, 2001.
4. Komadina, P., Tankeri, Pomorski fakultet u Rijeci, Rijeka, 1994.

1.11. Recommended Reading

1. Vademecum Maritimus, Podsjetnik pomorcima, Pomorski fakultet u Rijeci, Rijeka, 2014.
2. Uršić, J., Stabilitet broda I. dio, Sveučilište u Zagrebu, Zagreb, 1968.
3. Uršić, J., Stabilitet broda II. dio, Sveučilište u Zagrebu, Zagreb, 1968.
4. Fatur, J., Teorija broda, Uredništvo časopisa Brodogradnja, Zagreb, 1954.
5. Milošević, M., i Š., Osnove teorije broda 1, Sveučilište u Zagrebu, Zagreb, 1981.
6. Milošević, M., i Š., Osnove teorije broda 2, Sveučilište u Zagrebu, Zagreb, 1981.
7. Barrass, B., Derrett, D. R., Ship stability for Masters and Mates, Elsevier, 2008.
8. Eyres, D. J., Ship Construction, Butterworth-Heinemann, London, 2007.
7. Munsart, Craig A., A Cruise ship primer: history & operations, Atglen: Schiffer, cop. 2015.
8. Nautical Institute, A guide to bulk carrier operations, London, 2020.
9. Todorov, D.M., Ro-Ro handbook: a practical guide to roll-on roll-off cargo ships, Atglen: Schiffer, cop. 2016.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Course materials on Merlin eLearning system (https://moodle.srce.hr)	On-line	19
Komadina, P., Brodovi multimodalne prijevozne tehnologije, Pomorski fakultet u Rijeci, Rijeka, 2001.	10	19
Komadina, P., Ro-Ro brodovi, Pomorski fakultet u Rijeci, Rijeka, 2001.	10	19
Komadina, P., Tankeri, Pomorski fakultet u Rijeci, Rijeka, 1994.	10	19

1.13. Quality Assurance

The quality is monitored in accordance with the ISO 9001 system and European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, quantitative evaluation is carried out based on exam passing results, and qualitative evaluation is based on student surveys at the end of the semester, with appropriate measures adopted.

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Generic information			
Head of Course	Mirjana Borucinsky, PhD		
Course	English Language 1		
Study Programme	Transport and Mobility		
Type of Course	core		
Year of Study	1		
EstimatedStudentWorkloadandMethodsofInstruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		15+30+0

1.GENERALCOURSEDESCRIPTION

1.1. Course Objectives

The goal of the course is to develop the students' ability for written and oral communication in English language using the basic terminology related to the technology and organization of transport and different modes of transport.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After passing the exam, the students will be able to:

1. Demonstrate the four basic language skills in English: reading, writing, listening and speaking on B1 level (independent user) according to the Common European Framework of Reference for Languages (CEF).
2. Demonstrate language knowledge and skills for performing professional work in maritime business and transport in English.
3. Express oneself and discuss about professional topics in English.
4. Describe present, past and future events.
5. Translate simple sentences covering vocational topics from English into Croatian, using a dictionary.

1.4. Course Outline

The terminology and relevant elements of grammar (tenses – past, present, future) in selected professional written and spoken texts about the following extra-linguistic topics: Theoretical characteristics of technology and organization of transport. Basics of maritime transport technology. Transport technology in inland waterways. Basics of road transport technology. Basics of railroad transport technology. Air transport technology. Combined transport technologies.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1st midterm exam, 2nd midterm exam, final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of learning outcomes is performed according to the University of Rijeka Regulations on the Studies and the Regulations on the Studies of the Faculty of Maritime Studies in the following way:

60 % of outcomes are assessed through continuous assessment in class. The 1st midterm exam assesses the outcomes 1 and 2 (30 %), while the 2nd midterm exam assesses the outcomes 4 and 5 (30 %). The student is obliged to score a min. of 50% of test points on each of the exams.
Through attendance and participation in course a maximum of 10 % of outcomes can be achieved.
The final exam assesses 30 % of learning outcomes (1-5), whereby the student is obliged to score a min. of 50% of test points:

Examples of outcome assessment in relation to the set outcomes are:

1. Define the difference between: *'traffic'*, *'transport'* and *'transportation'.*
2. See and explain the advantages of combined transport technologies using professional terminology.
3. Explain the relation between the subordinate and superordinate terms (*modes of transport - air, water, land transport).*
4. Describe present, past and future events.
5. Translate simple sentences from English into Croatian, using a dictionary.

1. 10. Main Reading

1. Evans, V., Dooley, J., Buchannan, D. 2013. *Logistics*. Express Publishing.
2. Grussendorf, M. 2009. *English for Logistics*. Oxford: OUP.
3. Luzer, J.; Spinčić, A. 2001. *Gramatička vježbenica za pomorce*. Rijeka: Pomorski fakultet.
4. Skračić, T. 2016. *Fairway*. *Coursebook for students of Maritime English*. Split: Redak Ltd.
5. Teaching material available on the e-learning platform Merlin.
6. MarEng

1.11. Recommended Reading

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Evans, V., Dooley, J., Buchannan, D. 2013. *Logistics*. Express Publish	5	30
Grussendorf, M. 2009. *English for Logistics*. Oxford: OUP.	5	30
Luzer, J.; Spinčić, A. 2001. *Gramatička vježbenica za pomorce*. Rijeka: Pomorski fakultet.	5	30
Skračić, T. 2016. *Fairway*. *Coursebook for students of Maritime English*. Split: Redak Ltd.	5	30
Teaching material available on the e-learning platform Merlin.	-	30

[1] **NOTE**: Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.13.	*Quality Assurance*
The quality of the course is monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the course are analyzed and a survey is conducted among the students once per semester.	

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3.2. Course description

Generic information			
Head of Course	Maja Skendžić, mag.cin.		
Course	Physical and Health Education 1		
Study Programme	Transport and mobility		
Type of Course	Core		
Year of Study	1		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		1
	Number of Hours (L+E+S)		0+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goals of physical and health education are: understanding the principles of the biopsychosocial characteristics of the human being, acquiring knowledge about the factors that cause diseases and injuries, gaining a set of motor skills and information necessary for more meaningful use of free time,fulfilling the human biopsychosocial need for movement, developing humane interpersonal relationships, increasing creative abilities and adapting to modern living and working conditions, and through appropriate programs, enabling individuals to independently and responsibly take care of preserving and promoting their personal health, work capacity and other abilities.

1.2. Prerequisites for Course Registration

1.3. Expected Learning Outcomes

After completing the course, the student will be able to:

1. Positively influence anthropological characteristics (anthropometric traits)
2. Improve the acquisition of general and specific motor abilities, knowledge, skills and habits
3. Apply and utilize methods for maintaining and promoting health
4. Preserve health status through the application of physical exercise

1.4. Course Outline

Course Content Overview introducing students to the curriculum, class locations, and specific equipment. Assessing students' health status and levels of (in)activity. Measuring heart rate in various starting positions: lying down, sitting, standing. Running with changes in direction. Volleyball technique elements (V). Running; cyclic running up to 6 minutes. Running technique: coordination of breathing, arm and leg movement. Elective activity. Stretching exercises, including sport-specific flexibility routines. Loosening and relaxation exercises. Basic kinesiological transformations on board (ship). Movement coordination. Kinesiotherapeutic exercises for spine preservation in seafarers. Overhead passing and rebounding, underhand passing with forearms (V). Stretching – F. Climbing up and down ship ladders and ropes – M. Catching, passing, and shooting a basketball; ball handling (B). Development of general motor abilities (speed, precision). *Field work. Incorrect posture – physical exercise and prevention. Dance structures (English waltz) – F. Ball handling and play (N) – M. Player positions – playing with multiple players over the net (V). Evaluation of students' individual attendance status, based on presence or absence and participation in class activities. Elective game.

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1.5. Modes of Instruction	☐ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☒ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments	Seminar paper is written by part-time students. Field work will be conducted if conditions and weather permit.	
1.7. Student Obligations		
Active attendance and participation in at least 70% of classes is required.		
1.8. Assessment[1] of Learning Outcomes		

Course attendance	0.5	Class participation	0.5	Seminar paper		Experiment	
Written exam		Oral exam		Essay		Research	
Project		Continuous Assessment		Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The course is not graded.
Students' motor activity is positively evaluated during classes. Each lesson, student attendance and participation are carefully monitored and recorded in a dedicated semester-long Physical and Health Education Attendance Sheet. The course *Physical and Health Education* is assessed for the respective semester by entering "PASSED" in the ISVU system.

1.10. Main Reading

1.11. Recommended Reading

1.Redžić A., Redžić M.: Križobolja i tjelesno vježbanje, HSSR Sport za sve. Godina XXXVI, broj 93.,2018
2. Findak V.: Metodika tjelesne i zdravstvene kulture, Školska knjiga Zagreb, 1999.
3. Anderson B.: Stretching, Vježbe istezanja za svakodnevni fitness: trčanje, plivanje, tenis, biciklizam, skijanje, košarka, nogomet i ostale sportove, Gopal, d.o.o., Zagreb, 1997
4. Anderson B., Burke E., Pearl B.: Fitnes za sve, Gopal, d.o.o., Zagreb, 1997.
5. Janković V. , N. Marelić.: Odbojka, Fakultet za fizičku kulturu Sveučilišta u Zagrebu, Zagreb 1995.
6. Kosinac, Z.: Kineziterapija, tjelesno vježbanje i sport kod djece i omladine oštećena zdravlja, Split, 1989.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in line with European standards and guidelines for quality assurance, as implemented at the Faculty of Maritime Studies in Rijeka.
Once a year, pass rate results are analyzed and appropriate measures are taken.

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3.2. Course description

Generic information		
Head of Course	Biserka Draščić Ban, PhD Ivan Tudor, MSc	
Course	Mathematics 2	
Study Programme	Transport and Mobility	
Type of Course	Mandatory	
Year of Study	1st year	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	6
	Number of Hours (L+E+S)	45+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course Mathematics 2 is to enable students to acquire fundamental mathematical knowledge and skills necessary for understanding and solving problems in the maritime profession and related technical disciplines. Special emphasis is placed on the application of differential and integral calculus, developing analytical skills and establishing a foundation for further professional education. Through practical examples, students will connect mathematical methods to challenges in the maritime sector.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

Upon completion of the course, students will be able to:

1. Calculate indefinite integrals using various methods (direct integration, substitution method, integration by parts)
2. Calculate and apply definite integrals and theorems of integral calculus
3. Use improper integrals and numerical methods of integration
4. Solve first-order differential equations
5. Analyze the domain, limits, and continuity of multivariable functions
6. Calculate partial derivatives of multivariable functions and determine extrema of functions of two variables
7. Apply differential and integral calculus in solving practical problems in engineering, physics, and other fields
8. Differentiate between functional series and numerical series, and apply basic rules for analyzing and working with functional series

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1.4. Course Outline

Antiderivative (primitive function), tabulated integrals, methods of integration, definite integral, properties of definite integrals, Newton-Leibniz formula, improper integrals, series: convergence of series with positive real terms, convergence criteria, alternating series, power series, differential equations: homogeneous, linear, Bernoulli's equation, functions of multiple real variables, limits of multivariable functions, partial derivatives, total differential, Schwarz's theorem, extrema of multivariable functions, conditional extrema.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

Students are required to actively attend lectures and exercises. All continuous assessments and tests influence the final grade.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2.5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1.5	Essay		Research	
Project		Continuous Assessment	2	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Two knowledge checks are conducted during the course, covering 60% of the learning outcomes:

- 1st check (30%): outcomes 1, 2, 7
- 2nd check (30%): outcomes 3, 4, 5, 6, 7, 8

Two tests assess 10% of the outcomes:

- 1st test (5%): outcome 1
- 2nd test (5%): outcome 3

The final exam covers the remaining 30%: theoretical part, outcomes 2, 5, 7, 8.

Examples of evaluation questions:

1. Compute:
   $\int \frac{4x+2}{x^2+x+1}dx$ (outcome 1)
2. Compute the volume of the solid formed by rotating the region bounded by the curve $y^2 = x^2 + 2$ and the line $y = x$ in the first quadrant around the x-axis. Draw the figure. (outcome 2)
3. Compute a given integral using trapezoidal and Simpson's rule (n = 8, 5 decimal places).
   $\int_2^4 \frac{\sqrt{1+2x}}{e^x-1}dx$ (outcomes 3 and 4)
4. Solve a first-order differential equation. (outcome 4)
5. Determine the domain of a two-variable function.
   (outcome 5)
6. Find extrema of a two-variable function. (outcome 6)
7. A ship's hull has a semicircular cross-section with radius R = 5 m. The ship is L = 10 m long and submerged up to height h = 3 m. Calculate the volume of the submerged part. (outcome 7)
8. Given the series $F(x) = \sum_{n=0}^{\infty} x^n.$ Determine the interval of convergence of the functional series, and if x = 0.5, compute the approximate value F(x) using the sum of an infinite geometric series. (outcome 8)

1.10. Main Reading

- Teaching material on the e-learning system – Merlin (https://moodle.srce.hr)

- R. Dobrosavljević, Ž. Glavan, I. Kitarović, Z. Zenzerović, *Mathematics 2*, Maritime Faculty in Rijeka, 1982

- B. P. Demidovič, *Problems and Solved Examples in Mathematical Analysis: For Technical Faculties*, Tehnička knjiga, 2003, Zagreb

1.11. Recommended Reading

- P. Miličić, M. Uščumlić, *Collection of Higher Mathematics Problems II*, Naučna knjiga, Belgrade, 1971
- S. Kurepa, *Mathematical Analysis, Part Two: Functions of One Variable*, Tehnička knjiga, Zagreb, 1971
- S. Kurepa, *Mathematical Analysis 3: Multivariable Functions*, Tehnička knjiga, Zagreb, 1989
- D. Blanuša, *Higher Mathematics, Part I*, Tehnička knjiga, Zagreb, 1963

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
R. Dobrosavljević, Ž. Glavan, I. Kitarović, *Mathematics II*, Maritime Faculty, 1993	8	60
B. P. Demidovič, *Problems and Solved Examples in Mathematical Analysis*	8	60

1.13. Quality Assurance

The quality of studies is monitored in accordance with the ISO 9001 system and European standards and guidelines for quality assurance as implemented by the Maritime Faculty in Rijeka. Success rates are analyzed annually and appropriate measures are taken.

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Course description

Generic information			
Head of Course	Biserka Draščić Ban, PhD		
Course	Statistics		
Study Programme	Transport and Mobility		
Level	Undergraduate degree programme		
Type of Course	Mandatory		
Year of Study	first		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		2+2

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main course objective is to teach the students how to apply statistical methods to determine the natural laws of the observed traffic phenomena.

1.2. Prerequisites for Course Registration

none

1.3. Expected Learning Outcomes

1. To recognize the meaning and the task of statistics and the phases of statistical analysis
2. To recognize and analyze different kinds of data sets and their characteristics
3. To explain the terms of random variables and probability distributions
4. To differe the theoretical probability distributions, and connect them with empirical ones
5. To describe the sampling method and, by using the estimation methods and statistical testing on a random sample, make some conclusions about the population
6. To recognize the Chi-Square Test
7. To interpret the terms of correlation and regression

1.4. Course Outline

The meaning and the task of statistics. Graphical methods in data analysis. Relative numbers. Numerical data analysis. Random variables. Theoretical distribution functions. Chi-Square Test. Sampling method. Time series analysis. Correlation and regression.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____

1.6. Comments	

1.7. Student Obligations

Taking classes regularly and doing homework assignments.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation	0,5	Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Assessment of learning outcomes is done by conducting three partial written tests and by final exam (oral exam).

Examples:

Written exam:

1) (outcome 2) In period from 2010. until 2017. a certain mass phenomenon has been investigated and the following data was collected:

Year	Y	
2010	5565	
2011	5334	
2012	4734	
2013	4690	
2014	4497	
2015	4356	
2016	4172	
2017	3359	

a) Find the average number of occurences per year?
b) Determine the curve of the linear trend (with the origin in the center of the time period) and by it calculate the number of occurences that is expected in 2020.

2) (outcome 5) A statistical feature X has mean 9,72 and standard deviation 1,4. A sample of 36 statistical units gave the mean 8,93 . Is the difference between means statistically significant with the risk of 5%?

Oral exam questions:

1) (outcome 2) Make an example for attributive, numerical and time series, and for every one of them name the statistical indicators that can be calculated.
2) (outcomes 3 and 4) Say what is the probability of a certain, and of an impossible event. Name a few continuous probability distribution and a few discrete ones, and for every of them write down the DF.
3) (outcome 6) How (meaning by which statistical test) can we determine the correspondence of some empirical PD with a certain theoretical PD? Describe the procedure.
4) (outcome 7) Explain the meaning of the correlation and regression.

1.10. Main Reading

1. Z. Zenzerović, Statistički priručnik, Pomorski fakultet u Rijeci, Rijeka, 2004.

2. I. Šošić-V.Serdar, Uvod u statistiku, Školska knjiga, Zagreb, 2002.

1.11. Recommended Reading

1. Z. Zenzerović, Statističke metode u tehnologiji prometa, Fakultet za pomorstvo i saobraćaj, Rijeka, 1988.
2. T. Pogány-Z. Zenzerović, Statističke tablice s uputama za primjenu, Pomorski fakultet u Rijeci, Rijeka, 1993
3. J. Čaval, Statističke metode u privrednim i društvenim istraživanjima, Sveučilište u Rijeci, Rijeka, 1981.
4. I.Šošić, Zbirka zadataka iz statistike, Mikrorad, Ekonomski fakultet, Zagreb, 1998.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Z. Zenzerović, Statistički priručnik, Pomorski fakultet u Rijeci, Rijeka,	9	80
I. Šošić-V.Serdar, Uvod u statistiku, Školska knjiga, Zagreb, 2002.	5	80

1.13. Quality Assurance

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3.2. Course description

Generic information		
Head of Course	Marko Gulić, PhD	
Course	**Programming**	
Study Programme	**Transport and mobility**	
Type of Course	**Compulsory**	
Year of Study	**1st**	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	5
	Number of Hours (L+E+S)	30+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The course provides a fundamental understanding of programming approaches, concepts, and techniques, with a particular emphasis on modular program construction. It covers topics related to algorithm development, the use of programming languages to write simple code, and the identification and correction of programming errors. Students will also become familiar with commonly used algorithms and programming techniques using a specific programming language.

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

After attending and passing the course, students will be able to:

1. Apply the basic principles of program design
2. Develop and write a simple program and debug compiler-reported errors
3. Construct algorithms using programming language control flow constructs
4. Explain the use cases of specific control flow structures using appropriate algorithmic examples
5. Implement a program that uses arrays for data storage
6. Analyse parts of a given algorithm and encapsulate them within functions
7. Design a program that utilizes one or more data structures

1.4. Course Outline

Basics of a programming language (variables and assignment, input and output, data types and expressions, debugging written code). Control flow statements (IF-ELSE statement, nested IF statement, extended IF-ELSE statement using ELSE IF blocks, SWITCH statement). Loops (WHILE, DO-WHILE, and FOR loops). Arrays. Structures. Strings. Functions. Files.

1.5. Modes of Instruction

☒ Lectures	☐ Practical work
☐ Seminars and workshops	☒ Multimedia and Network
☒ Exercises	☒ Laboratory
☐ E-learning	☐ Mentorship
☐ Field work	☐ Other _____

1.6. Comments

The course is delivered through a combination of classroom instruction and

	individual work in the computer laboratory. Upon enrollment, students will be introduced to the use of the distance learning platform. A detailed teaching schedule, including lectures and exercises, will be published in the course implementation plan.

1.7. Student Obligations

- Regularly attend classes (lectures and exercises) and take short tests at the beginning of each exercise session
- Take the 1st and 2nd midterm exams
- Take the final (oral) exam if the criteria for eligibility are met

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	2	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure for evaluating the acquired learning outcomes is carried out according to the Regulations on Studies of the University of Rijeka and the Rulebook on Studies at the Faculty of Maritime Studies in Rijeka as follows:

- 70% of the acquired learning outcomes are evaluated through continuous knowledge assessment during the teaching process: through the 1st intermediate exam (colloquium) - learning outcomes 1-4 (30%), 2nd intermediate exam (colloquium) - learning outcomes 1-7 (30%), weekly short tests before exercises - learning outcomes 1-7 (10%); a student must have completed a minimum of 50% points in each intermediate exam (colloquium)
- 30% of the acquired learning outcomes (1, 3-7) are evaluated at the final (oral) part of the exam, with a minimum of 50% of available points necessary for passing the final exam.

Examples of evaluating learning outcomes respecting set learning outcomes are:

1. Design and write the basic parts of the algorithm for calculating the surface of the square in the programming language
2. Identify the errors within the entered algorithm for calculating the surface of the squares and correct them
3. Design and write an algorithm in programming language that tests whether the number entered is positive, negative, or zero
4. Describe the case of using the DO-WHILE loop on the appropriate algorithm example
5. Design and write a program that loads 20 numbers and displays only entered numbers greater than the arithmetic mean of all entered numbers.
6. Design and write a function to calculate the factorial of a given number sent from the main program
7. Design and write a program that stores student information (first name, last name, JBMAG and average grade) within the structure. Furthermore, the program should print data only for those students whose average grade is less than 2.5

[1] NOTE: Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.10. Main Reading

• Julijan Šribar, Boris Motik: Demistificirani C++, Dobro upoznajte protivnika da biste njime ovladali, 5. Revised edition, Element, Zagreb, 2018.

• Course materials are available on the e-learning platform Merlin (https://moodle.srce.hr)

1.11. Recommended Reading

• Ali Arya: Anyone Can Code: Algorithmic Thinking, CRC Press, 2020.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Julijan Šribar, Boris Motik: Demistificirani C++	2	50
E-course teaching materials available on the Merlin e-learning system	-	50

1.13. Quality Assurance

The quality of studies is continuously monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. At the end of each semester, an anonymous evaluation of the quality of instruction is conducted by the students. Additionally, an annual analysis of student success in the course is performed (the percentage of students who passed the course and their average grades).

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3.2. Course description

Generic information		
Head of Course	Goran Vizentin, PhD	
Course	Engineering Mechanics	
Study Programme	Transport and Mobility	
Type of Course	Compulsory	
Year of Study	1	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	5
	Number of Hours (L+E+S)	30+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Acquiring theoretical knowledge that is the basis for problem solving in the field of solid mechanics statics, kinematics and dynamics.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After passing the exam, the student will be able to:
1. Interpret the axioms of statics and the basic laws of mechanics.
2. Apply the laws of mechanics to solve the problem of determining the reactions of rigid body connections for a smooth and real surface.
3. Apply the laws of mechanics for dimensioning of a loaded solid beam.
4. Analyse the strength of a loaded beam.
5. Apply the laws of mechanics to solve the point motion problem.
6. Analyse the motion of a material point.

1.4. Course Outline

Planar system of collinear, concurent, parallel and arbitrary forces. Determination of the resultant force and equilibrium conditions. Moment of force for a point. Moment rule. Force coupling and its properties. Force decomposition into three components. Sliding friction and rolling friction. Centre of gravity of lines, surfaces and bodies. Pappus-Guldin theorems. Beams. Trusses.
Stress, normal and tangential. Stresses and strains corellation. Allowable stress, safety coefficient. Axial load, stresses and strains. Torsion, stresses and strains. Plane bending, stresses and strains. Dimensioning of beams according to the strength and stiffness criterion.
Coordinate systems and the position of a body in them. The concept of motion. Degrees of freedom. Kinematics of a material point (particle): rectilinear and curvilinear motion and special cases. Dynamics of a material particle: inertia, inertial force, D'Alembert's principle, force impulse, momentum. Work, energy and strength.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments	-	
1.7. Student Obligations		
Attending the lectures and exercises (min. 70%), attending the assessment and exams, submitting results of assignments.		
1.8. Assessment[1] of Learning Outcomes		

Course attendance	2	Class participation	0.5	Seminar paper		Experiment	
Written exam	1	Oral exam	1	Essay		Research	
Project		Continuous Assessment	0.5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The process of evaluating the acquired learning outcomes is carried out according to the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka in the following way:

- through continuous assessment during the semester (70% of learning outcomes)
  - 1. colloquium - learning outcomes 1-2 (25%),
  - 2. colloquium - learning outcomes 3-4 (25%),
  - short tests - learning outcomes 1-6 (20%),
- through final exam (30% of learning outcomes (5-6)) with passing rate set at minimum 50% of final exam points.

Examples of evaluation in correlation to learning outcomes:

1. Determine equilibrium of a body exposed to a system of forces.
2. Determine free body diagram of a rigid body.
3. Dimensioning of a beam loaded with axial load, bending or torsional moment.
4. Comparing actual stress and strain with allowed stress and strain.
5. Determine motion equilibrium of a rigid body in planar movement.
6. Comparing the motion of several bodies based on a set criterion.

1.10. Main Reading

Brnić, J.: Mehanika i elementi konstrukcija, Školska knjiga, Zagreb, 1996.
Jecić, S.: Kinematika i dinamika, Tehnička knjiga, Zagreb, 1995.

1.11. Recommended Reading

Brnić, J.: Statika, Sveučilište u Rijeci, Tehnički fakultet, Rijeka, 2004.
J. Brnić, G. Turkalj: Nauka o čvrstoći I, Sveučilište u Rijeci, Tehnički fakultet, Rijeka, 2004.
Žigulić, R, Braut, S.: Kinematika, Sveučilište u Rijeci, Tehnički fakultet, Rijeka, 2012.
Krpan, M., Butković, M., Žigulić, R., Braut, S., Franulović, A.: Dinamika, Sveučilište u Rijeci, Tehnički fakultet, Rijeka, 2001.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Brnić, J.: Mehanika i elementi konstrukcija, Školska knjiga, Zagreb, 1996.	5	55
Jecić, S.: Kinematika i dinamika, Tehnička knjiga, Zagreb, 1995.	5	55

1.13. Quality Assurance

According to ISO 9001 system set at Faculty of Maritime Studies, Rijeka. Once a year analysis of passing exam rate. Once a semester anonymous students online survey.

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3.2. Course description

Generic information			
Head of Course	**Ines Kolanović, PhD**		
Course	**Maritime system**		
Study Programme	**Transport and mobility**		
Type of Course	**Mandatory**		
Year of Study	1.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		30+0+15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of this course is for students to identify, understand and connect the basic features of the maritime economy and maritime system by applying a systematic approach to the analysis of maritime activities that make up these systems. The aim is also for students to identify and evaluate the activities of the Republic of Croatia and the European Union in the function of sustainable development of the maritime system.

1.2. Prerequisites for Course Registration

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. Understand and interpret basic concepts: maritime, system, maritime system, maritime economy
2. Understand the importance and meaning of a systematic approach in studying the maritime system
3. Interpret the connection and relationship between individual activities of the maritime system in the transport and economic system of the Republic of Croatia and the European Union
4. Identify and connect the structure of individual activities of the maritime system
5. Evaluate relevant activities of the Republic of Croatia and the European Union aimed at developing a sustainable maritime system

1.4. Course Outline

Terminological explanations:
The concept and types of systems. Systemic approach and principles of the systemic approach. Activities of the maritime system. Economic and non-economic activities of the maritime system. Place and role of the maritime system activities in the economic and transport system of the Republic of Croatia and the EU. Sustainability of the maritime system.

1.5. Modes of Instruction	☒ Lectures ☒ Seminars and workshops ☐ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

Students are required to: attend classes, pass 2 midterm exams (continuous knowledge assessment), prepare and present a seminar paper (independent assignment) and pass a final exam. Students must be present in class for at least 70% of the total number of hours of lectures and seminars.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	0,4	Oral exam	0,4	Essay		Research	
Project		Continuous Assessment	1,2	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Procedure:

- The final grade in the course is the sum of the points earned by the student during the course (70% of the grade) and the points earned on the final exam (30% of the grade), in accordance with the Regulations on Studies of the University of Rijeka and the Regulations on Studying at the Faculty of Maritime Studies in Rijeka.
- Continuous knowledge assessment:
  Midterm Exam 1 – 25%; Learning outcomes: 1 to 5
  Midterm Exam 2 – 25%; Learning outcomes: 4 and 5
  Research assignment – 20%; Learning outcomes: 1 to 5
  - Final exam – 30%; Learning outcomes: 1 to 5

A minimum of 50% of the points must be achieved on each midterm exam.
A minimum of 50% of the points must be achieved on the research assignment.
A minimum of 50% of the points must be achieved on the final exam.

Examples of learning outcome evaluation:
1. Define the terms: maritime, system, maritime system, maritime economy (LO1)
2. Apply the principles of the systematic approach on a concrete example (LO2)
3. Explain the relationship of the selected subsystem of the maritime system with the maritime and economic system in the Republic of Croatia (LO3)
4. Analyze the technical and technological level of the seaport system as a subsystem of the maritime system (LO4)
5. Analyze EU activities aimed at the sustainable development of seaports (LO5)

1.10. Main Reading

1. Kolanović, Ines: Teaching material on the e-learning platform (Merlin)
2. Dundović, Čedomir: Pomorski sustav i pomorska politika, sveučilišni udžbenik, Pomorski fakultet u Rijeci. Rijeka, 2003.

1.11. Recommended Reading

1. Kožić, Zlatka; Kolanović, Ines; Poletan Jugović, Tanja: Post-Covid European recovery plans in the context of sustainable development of maritime transport and seaports in the European Union and the Republic of Croatia // Proceedings of the 10th International Conference on Maritime Transport. Barcelona: Universitat Politècnica de Catalunya. Iniciativa Digital Politècnica, 2024.
2. Žanić Mikuličić, Jelena; Kolanović, Ines; Jugović, Alen; Brnos, Dalibor: Evaluation of Service Quality in Passenger Transport with a Focus on Liner Maritime Passenger Transport - A Systematic Review // Sustainability, 16 (2024), 3; 1125, 15.
3. Kolanović, Ines; Čišić, Dragan; Jugović, Alen; Smojver, Željko: Climate-Friendly Transport - Analysing Structural Relationships // Scientific Journal of Gdynia Maritime University, (2022), 121; 7-19.
4. Dundović, Č., Poletan-Jugović, T., Jugović, A., Hess, S.: Integracija i koordinacija lučkog i prometnog sustava Republike Hrvatske, Znanstvena monografija, Pomorski fakultet u Rijeci, Rijeka, 2006.
5. Assessment of the Potential of Maritime and Inland Ports and Inland Waterways and of Related Policy Measures, Including Industrial Policy Measures, Final report, European Commission, Directorate-General for Mobility and Transport, European Union, 2020. (izabrana poglavlja)
6. COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on a new approach for a sustainable blue economy in the EU Transforming the EU's Blue Economy for a Sustainable Future, COM/2021/240 final

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Teaching material on the e-learning platform (Merlin)	unlimited	20

Pomorski sustav i pomorska politika	20	20

1.13. Quality Assurance

The quality of studies is continuously monitored in accordance with the requirements of the ISO 9001 standard and in accordance with European standards and guidelines for quality assurance implemented at the Faculty of Maritime Studies in Rijeka. At the end of the semester, teachers and associates are evaluated by students, in accordance with the Manual for the Quality of Studies at the University of Rijeka.

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Generic information		
Head of Course	Mirjana Borucinsky, PhD	
Course	English Language 2	
Study Programme	Transport and Mobility	
Type of Course	core	
Year of Study	1	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	15+30+0

1.GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to develop the students' ability for written and oral communication in English language using the basic terminology related to the ship types, parts and dimensions, as well as the basics of engineering drawing.

1.2. Prerequisites for Course Registration

Passing the exam for English Language 1.

1.3. Expected Learning Outcomes

After passing the exam, the students will be able to:

1. Demonstrate the four basic language skills in English: reading, writing, listening and speaking on B1 level (independent user) according to the Common European Framework of Reference for Languages (CEF).
2. Demonstrate language knowledge and skills for performing professional work in maritime business and transport in English.
3. Transform active statements into passive.
4. Express real and possible events using conditional clauses.
5. Translate simple sentences dealing with vocational topics from English into Croatian, using a dictionary.

1.4. Course Outline

The terminology and relevant elements of grammar (modal verbs, passive, conditional clauses) in selected professional written and spoken texts about the following extra-linguistic topics: types of ships, basic terms from ship construction, parts of a ship, ship dimensions, mathematical symbols and reading mathematical expressions, signalization in transport.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1st midterm exam, 2nd midterm exam, final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of learning outcomes is performed according to the University of Rijeka Regulations on the Studies and the Regulations on the Studies of the Faculty of Maritime Studies in the following way:

60 % of outcomes are assessed through continuous assessment in class. The 1st midterm exam assesses the outcomes 1, 2 and 3 (30 %), while the 2nd midterm exam assesses the outcomes 4 and 5 (30 %). The student is obliged to score a min. of 50% of test points on each of the exams.
Through attendance and participation in course a maximum of 10 % of outcomes can be achieved.
The final exam assesses 30 % of learning outcomes (1-5), whereby the student is obliged to score a min. of 50% of test points:

Examples of outcome assessment in relation to the set outcomes are:

1. After reading the given text, answer the following: *What are the main characteristics of bulk carriers?*
2. Using modal verbs, give instructions, orders and requests.
3. Transform active statements into passive.
4. Express real and possible events using conditional clauses.
5. Translate simple sentences from English into Croatian, using a dictionary.

1.10. Main Reading

1. Capt. Sheppard, T. S., Evans, V., Dooley, J. 2013. *Merchant Navy*. Express Publishing.
2. Luzer, J.; Spinčić, A. 2001. *Gramatička vježbenica za pomorce*. Rijeka: Pomorski fakultet.
3. Van Kluijven, P. C. 2003. *The International Maritime Language Programme*. Alkmaar: Alk & Heijnen Publishers, pp. 62-97.
4. Teaching material available on the e-learning platform Merlin.
5. MarEng

1.11. Recommended Reading

1. Wieslawa , B. 2014. *Marine Engine English Underway*. Dokmar Maritime Publishers

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Capt. Sheppard, T. S., Evans, V., Dooley, J. 2013. *Merchant Navy*. Express Publishing	5	20
Luzer, J.; Spinčić, A. 2001. *Gramatička vježbenica za pomorce*. R fakultet.	5	20
Van Kluijven, P. C. 2003. *The International Maritime Language Programme*. Alkmaar: Alk & Heijnen Publishers, pp. 62-97.	5	20
Teaching material available on the e-learning platform Merlin.	-	20

[1] **NOTE**: Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.13. Quality Assurance

The quality of the course is monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the course are analyzed and a survey is conducted among the students once per semester.

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3.2. Course description

Generic information			
Head of Course	Maja Skendžić, mag.cin.		
Course	Physical and Health Education 2		
Study Programme	Transport and mobility		
Type of Course	Core		
Year of Study	1		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		1
	Number of Hours (L+E+S)		0+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goals of Physical and Health Education are: to understand the principles of the biopsychosocial characteristics of the human being, to acquire knowledge about the factors that cause illnesses and injuries, to adopt a set of motor skills and information necessary for more meaningful use of free time, to satisfy the human biopsychosocial need for physical activity, to develop humane interpersonal relationships, to enhance creativity, to adapt to modern living and working conditions, and through appropriate programs, to equip individuals for independent and responsible care for the preservation and promotion of personal health, as well as work and other abilities.

1.2. Prerequisites for Course Registration

1.3. Expected Learning Outcomes

Upon completion of the course, the student will be able to:

1. Demonstrate a positive impact on functional abilities.
2. Develop more meaningful use of leisure time.
3. Assess and improve the ability to solve everyday motor tasks.
4. Choose appropriate ways to perform motor tasks in urgent situations.

1.4. Course Outline

Measuring resting heart rate, measuring heart rate after 6 minutes of physical effort (M) and measuring heart rate after a 2-minute run (F). Optional activity. Volleyball skills – underhand and overhand serves, blocking, setting, spiking and playing the third hit. Volleyball rules and their application in the game (O). Catching, passing and dribbling in basketball. Basketball rules and their application in the game (K). Weightlifting and other strength exercises aimed at preserving spinal health (mariners). Polystructural complex movements: soccer (M), volleyball (F). Rope exercises in place and in motion. A new basketball game involving three teams. Adapted dodgeball with a large Pilates ball. Tug of war. Elective polystructural complex movements. Volleyball rules and their application in the game (O). Development of general motor skills (coordination, flexibility). *Field work. Situational passing and setting in volleyball (O). Dance structures (Viennese waltz) – (F). Football technique, playing in groups of three (N). Group work to develop basketball motor skills (K).
Low and high starts (technique refinement), cyclic movements at various tempos. Assessment of individual student status based on attendance and participation in class activities.
Elective kinesiology activity.

1.5. Modes of Instruction	☐ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☒ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments	Seminar paper is written by part-time students. Field work will be conducted if conditions and weather permit.	

1.7. Student Obligations

Active attendance and participation in at least 70% of classes is required.

1.8. Assessment[1] of Learning Outcomes

Course attendance	0.5	Class participation	0.5	Seminar paper		Experiment	
Written exam		Oral exam		Essay		Research	
Project		Continuous Assessment		Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The course is not graded.
A prerequisite for attending and completing this course is passing the course Physical and Health Education 1.
During the course, students' motor activities are positively evaluated.
Each student's attendance and participation are carefully recorded in a dedicated semester-long Physical and Health Education Attendance Sheet during every class.
The course is recorded in the ISVU system as "PASSED" (POLOŽIO) for the respective semester.

1.10. Main Reading

1.11. Recommended Reading

1.Redžić A., Redžić M.: Križobolja i tjelesno vježbanje, HSSR Sport za sve. Godina XXXVI, broj 93.,2018
2. Findak V.: Metodika tjelesne i zdravstvene kulture, Školska knjiga Zagreb, 1999.
3. Anderson B.: Stretching, Vježbe istezanja za svakodnevni fitness: trčanje, plivanje, tenis, biciklizam, skijanje, košarka, nogomet i ostale sportove, Gopal, d.o.o., Zagreb, 1997
4. Anderson B., Burke E., Pearl B.: Fitnes za sve, Gopal, d.o.o., Zagreb, 1997.
5. Janković V. , N. Marelić.: Odbojka, Fakultet za fizičku kulturu Sveučilišta u Zagrebu, Zagreb 1995.
6. Kosinac, Z.: Kineziterapija, tjelesno vježbanje i sport kod djece i omladine oštećena zdravlja, Split, 1989.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in line with European standards and guidelines for quality assurance, as implemented at the Faculty of Maritime Studies in Rijeka.
Once a year, pass rate results are analyzed and appropriate measures are taken.

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3.2. Course description

Generic information			
Head of Course	Svjetlana Hess, PhD		
Course	Quantitative Methods in Transport		
Study Programme	Technology and Organization of Transport		
Type of Course	Mandatory		
Year of Study	2		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		45+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main objective of this course is to enable students to apply selected quantitative methods in transport by acquiring techniques and generating solutions (with the help of computer software), as well as conducting comprehensive analysis of results that lead to real-world application in the transport process as a basis for optimal and efficient decision-making.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

Upon completion of the course, the student will be able to:

1. Describe basic principles and theoretical foundations of quantitative methods applicable in transport
2. Identify decision-making criteria and methods for specific transport problems
3. Construct a model for specific transport problems and identify the appropriate quantitative method for obtaining an optimal solution
4. Solve a real-world transport problem using the appropriate method and use computer software to verify the results
5. Interpret optimal and possible alternative solutions based on the criteria and constraints
6. Design a practical example using real data and analyze the optimal solution

1.4. Course Outline

Theoretical foundations of selected quantitative methods in transport. Maximization, minimization, and mixed constraint problems (graphical method and simplex method). Northwest corner method, least cost method, Vogel's approximation method. "Stepping-stone" method. Task allocation in transport, Hungarian method. Emphasis is placed on solution techniques (with computer support) and examples of applying selected optimization quantitative methods to practical transport technology problems, especially where quantification and optimization of transport service are required.

1.5. Modes of Instruction		
	☒ Lectures	☐ Practical work
	☐ Seminars and workshops	☒ Multimedia and Network
	☒ Exercises	☐ Laboratory
	☐ E-learning	☐ Mentorship
	☐ Field work	☐ Other _____

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1.6. Comments	

1.7. Student Obligations

Minimum 70% attendance, three midterm exams, and a final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2.5	Class participation		Seminar paper		Experiment	
Written exam	1.0	Oral exam		Essay		Research	
Project		Continuous Assessment	2.5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Evaluation Procedure:
During the course, three colloquia are used to assess the mastery of techniques for solving problems using selected quantitative methods, accounting for up to 70% of the final grade (learning outcomes: 3, 4, and 5). The remaining 30% is earned through the final exam (learning outcomes: 1, 2, and 6). The final exam assesses the completeness of theoretical knowledge and understanding of specific quantitative methods and their application to real-world transport and logistics cases. To take the final exam, the student must earn at least 35% of total points during the course and must score at least 50% on the final exam to pass.
Examples of Learning Outcome Assessment:

1. Write the theoretical foundations of one quantitative method applicable in transport technology
2. Identify an arbitrary transport problem and determine the appropriate decision criterion
3. Define a practical problem, describe how data will be collected, formulate a model, and determine the appropriate method for finding an optimal solution
4. Solve the defined problem using the selected quantitative method and verify the solution using a computer program
5. Interpret the obtained solution and perform a constraint analysis
6. Design a real-life example and indicate which method you would use to solve it

1.10. Main Reading

1. Course materials available on the e-learning platform – Merlin (https://moodle.srce.hr)
2. Stanivuk, T., Kovačević, G., Primjena operacijskih istraživanja u pomorstvu, Sveučilište u Split, Pomorski fakultet, Split, 2024.

1.11. Recommended Reading

1. Hess, S., Hess, M., Novaselić, M., Grbić, L., Assessment of the Position of North Adriatic Terminals in Container Market Based on Different Indices, Logistics 8(4), 97, 2024.
2. Babeli, K., Hess, S., Hess, M., Capacity utilization of the container terminal as multiphase service system, European Transport \ Trasporti Europei, Issue 86, Paper n° 4, 2022.
3. Brajdić, I., Matematički modeli i metode poslovnog odlučivanja, Fakultet za menadžment u turizmu i ugostiteljstvu, Opatija, 2013
4. Lukač, Z., Neralić, L., Operacijska istraživanja, Element, Zagreb, 2012.
5. Babić, Z., Linearno programiranje, Ekonomski fakultet u Splitu, Split, 2010.
6. Barković, D., Operacijska istraživanja, Ekonomski fakultet, Osijek, 2001.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Course materials on e-learning platform – Merlin	web	20
Stanivuk, T., Kovačević, G., Primjena operacijskih istraživanja u pomorstvu, Sveučilište u Split, Pomorski fakultet, Split, 2024.	6	20

1.13. Quality Assurance

The quality of education is monitored in accordance with the ISO 9001 system and aligned with European standards and guidelines for quality assurance, implemented at the Faculty of Maritime Studies in Rijeka. Exam pass rate analysis is conducted annually, and student surveys are carried out once per semester.

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3.2. Course description

Generic information			
Head of Course	Neven Grubišić, PhD		
Course	Traffic Engineering and Microsimulation		
Study Programme	Technology and Organization of Transport		
Type of Course	Obligatory		
Year of Study	2.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		45+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

To gain knowledge of the methods and engineering techniques, analytic and microsimulation tools used by traffic engineers in solving operational traffic problems.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

Upon completing the course, the student will be able to:

1. Interpret the main parameters used to describe uninterrupted traffic flow and their interrelationships.
2. Calculate the influence of road user behavior and vehicle performance on road design.
3. Calculate the road capacity, volume-to-capacity (v/c) ratio, and determine the level of service based on the calculated values.
4. Identify the main elements and safety conditions of movement through an intersection.
5. Calculate the capacity of unsignalized and signalized intersections.
6. Plan the signal control system of a specific intersection in a simulated environment based on given traffic demand.
7. Compare the performance of an intersection under different control strategies based on micro-simulation results.

1.4. Course Outline

Traffic Flow Parameters: vehicle flow rate, density, speed, headway, spacing. Types and structure of traffic flow, homogeneity and uniformity of flow. Relationships between traffic flow parameters. Traffic volume, data collection, sampling, traffic measurement and counting. Road capacity, volume-to-capacity (v/c) ratio, level of service. Issues related to the intersection of traffic flows, traffic flow management. Signal devices, programming of time intervals and phases, signal control management.
Definition and Purpose of Traffic Micro-Simulation: structure and features of the VISSIM simulator. Vehicle categories and their physical-technical attributes, types of reactions in traffic. Geometry of links and connectors, design of the movement dynamics of traffic entities, distribution of traffic loads by directions and categories. Control and management of movements at intersections: conflict zones, traffic priorities, and safety gaps. Setup and adjustment of signal controllers. Output variables and data. Setting up measurement zones and detectors. Simulation result display. Simulator and time interval configuration.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other
1.6. Comments	Lectures and exercises are conducted in a specialized classroom using computer software for traffic micro-simulations.	

1.7. Student Obligations

Students are required to regularly attend classes and actively participate in solving example exercises during computer-based practice sessions. A minimum number of course credits, in accordance with the Study Regulations, is a prerequisite for taking the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2,5	Class participation	0,5	Seminar paper		Experiment	
Written exam	1	Oral exam	0,5	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The evaluation of achieved learning outcomes is conducted in accordance with the Regulations on Study Programs of the University of Rijeka and the Study Regulations of the Faculty of Maritime Studies in Rijeka as follows:

Classroom Activities
Thematic control tests to check understanding of the material, with points awarded for consistent completion.
Learning outcomes 1–7: 10 points

Continuous Assessment
Assignments 1–3: Simulations of uninterrupted traffic flow, evaluated based on the quality of execution and obtained results.
Learning outcomes 1–3: 25 points

Assignments 4–7: Simulations of interrupted traffic flow, evaluated based on the quality of execution and obtained results.
Learning outcomes 4–7: 35 points

Assignments must be completed with at least 70% success rate (a prerequisite for taking the final exam).
A minimum of 50% of available points from classroom activities must be achieved.
Final Exam - assesses 30% of the learning outcomes, with a minimum of 50% success rate required to pass.

Examples of evaluation by individual learning outcome:

1) Create a fundamental diagram (F-D diagram) and mark the coordinates of the point representing road capacity. (LO1)
2) Calculate the stopping distance based on perception-reaction time, braking distance, and total stopping distance using given input parameters. (LO2)
3) Determine the level of service for a high-speed road segment during the most congested 15-minute interval within the peak hour, using HCM methodology. (LO3)
4) Construct the geometry of an intersection and define movement rules through conflict points for a selected control method using a simulation tool. (LO4)
5) Calculate the capacity of an unsignalized intersection based on a given sketch and input parameters using a provided spreadsheet model. (LO5)
6) Design a signal plan for a four-leg intersection according to movement rules and traffic load distribution time profiles. (LO6)
7) Use a simulation tool to test two intersection control scenarios and present results for performance-determining variables in a report. (LO7)

1.10. Main Reading

1. Teodorović, D., Janić, M.: Transportation Engineering: Theory, Practice and Modeling, 2nd edition, Butterworth-Heinemann, 2022.
2. Šraml, M., Jovanović, G.: Mikrosimulacije u prometu (radni udžbenik s primjenom VISSIM-a), Univerza v Mariboru, Fakulteta za gradbeništvo, Maribor, 2014.
3. Grubišić, N.: Prometno inženjerstvo i mikrosimulacije – recenzirani nastavni materijali, Sveučilište u Rijeci, Pomorski fakultet, 2023.

1.11. Recommended Reading

1. Roess, R., McShane, W., Prassas, E: Traffic Engineering, Prentice Hall, New Jersey, 1998.
2. Dadić, I., Kos, G., Ševrović, M.: Teorija prometnog toka, Sveučilište u Zagrebu, Fakultet prometnih znanosti, Zagreb, 2014.
3. Pašagić, H.: Matematičke metode u prometu, Sveučilište u Zagrebu, Fakultet prometnih nanosti,Zagreb,2003.
4. Highway Capacity Manual, 7th edition, TRB, 2022.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Teodorović, D., Janić, M.: Transportation Engineering: Theory, Practice and Modeling, 2nd edition, Butterworth-Heinemann, 2022.	5	30
Šraml, M., Jovanović, G.: Mikrosimulacije u prometu (radni udžbenik s primjenom VISSIM-a), Univerza v Mariboru, Fakulteta za gradbeništvo, Maribor, 2014.	accessible online	30
Grubišić, N.: Prometno inženjerstvo i mikrosimulacije – recenzirani nastavni materijali, Sveučilište u Rijeci, Pomorski fakultet, 2023.	accessible online	30

1.13. Quality Assurance

The quality is monitored in accordance with ISO 9001 standard carried out at the Faculty of Maritime Studies. The results of passed exams are analyzed once a year and proper measures taken.

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3.2. Course description

Generic information			
Head of Course	Ines Kolanović, PhD		
Course	Port and terminal technology		
Study Programme	Technology and Organization of Transport		
Type of Course	Mandatory		
Year of Study	2.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		45 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of this course is for students, upon completion, to be able to identify, analyze, and interpret the technical and technological characteristics of ports and terminals, as well as to distinguish between different transport and technological processes at port terminals.

1.2. Prerequisites for Course Registration

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. Interpret the terms: transport technology, port and terminal technology, and transport-technological process
2. Analyze the elements and demonstrate the relationship between the port, transport, and economic systems
3. Identify and explain the basic characteristics of port-maritime facilities in relation to the provision of port services
4. Classify different groups of port warehouses according to various criteria
5. Present the technical and technological features of a terminal using a concrete example for different types of cargo
6. Distinguish and compare technological processes at port terminals

1.4. Course Outline

Terminological explanations: transport technology, port and terminal technology, transport-technological process. The impact of technological changes in shipping on the development of ports and terminals. Port infrastructure and superstructure. Planning and design of ports and terminals. Port and maritime facilities. Port warehouses. Special-purpose ports. River ports. Types of terminals. Methodology for assessing the capacity of port terminals. Technological processes at port terminals. Specialized terminals.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☒ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

Students are required to: attend classes, pass two midterm exams (continuous knowledge assessment), complete and present an individual assignment, and pass the final exam. A student must attend at least 70% of the total number of lecture and seminar hours.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation		Seminar paper		Experiment	
Written exam	0,9	Oral exam		Essay		Research	0,6
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Procedure:

- The final grade in the course is the sum of the points earned by the student during the course (70% of the grade) and the points earned on the final exam (30% of the grade), in accordance with the Regulations on Studies of the University of Rijeka and the Regulations on Studying at the Faculty of Maritime Studies in Rijeka.

Continuous knowledge assessment:

Midterm Exam 1 – 25%; Learning outcomes: 1 to 4
Midterm Exam 2 – 25%; Learning outcomes: 5 and 6
Individual assignment – 20%; Learning outcomes: 1 to 6
- Final exam – 30%; Learning outcomes: 1 to 6

A minimum of 50% of the points must be achieved on each midterm exam.
A minimum of 50% of the points must be achieved on the individual assignment.
A minimum of 50% of the points must be achieved on the final exam.

Examples of learning outcome evaluation:

1. Define the terms: transport technology, port and terminal technology, transport-technological process (LO1)
2. Show and comment on the relationship between the port, transport and economic system using the example of the Republic of Croatia (LO2)
3. Using a specific example, highlight the basic characteristics of port-maritime facilities (LO3)
4. Group port warehouses according to different criteria (LO4)
5. Summarize the technical-technological characteristics of a container terminal using the example of the Port of Rijeka LO5)
6. Explain the technological process of transhipment and storage at a RO-RO terminal (LO6)

1.10. Main Reading

1. Kolanović, Ines: Teaching materials on the e-learning platform (Merlin)
2. Dundović, Čedomir: Lučki terminali, sveučilišni udžbenik, Pomorski fakultet u Rijeci, Rijeka, 2002.
3. Dundović, Čedomir, Kesić, Blanka: Tehnologija i organizacija luka, sveučilišni udžbenik, Pomorski fakultet u Rijeci, Rijeka, 2001.

1.11. Recommended Reading

1. Paulić, Mateja; Kolanović, Ines; Borucinsky, Mirjana: Logistics Processes and Port Operations in RO-RO terminals // Naše more 2021.Conference Proceedings / Mišković, Darijo; Hasanspahić, Nermin (ur.). Dubrovnik: Sveučilište u Dubrovniku, 2021. str. 254-262.
2. Dundović, Č., Poletan-Jugović, T., Jugović, A., Hess, S.: Integracija i koordinacija lučkog i prometnog sustava Republike Hrvatske, Znanstvena monografija, Pomorski fakultet u Rijeci, Rijeka, 2006.
3. Notteboom, T., Pallis, A., Rodrigue, J. R.: Port Eoconomics, Management and Policy, New York, Routledge, 2021. (poglavlja: Port Terminals, Port Planning and Development)

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Teaching materials on Merlin	unlimited	30
Lučki terminali	16	30
Tehnologija i organizacija luka	16	30

1.13. Quality Assurance

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The quality of studies is continuously monitored in accordance with the requirements of the ISO 9001 standard and in accordance with European standards and guidelines for quality assurance implemented at the Faculty of Maritime Studies in Rijeka. At the end of the semester, teachers and associates are evaluated by students, in accordance with the Manual for the Quality of Studies at the University of Rijeka.

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Course description

Generic information		
Head of Course	Tanja Poletan Jugović, PhD Siniša Vilke, PhD	
Course	Cargo in Transport	
Study Programme	Technology and Organization of Transport	
Type of Course	Mandatory	
Year of Study	2	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	5
	Number of Hours (L+E+S)	30+0+15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Defining relevant terms and forms of products, goods, and cargo in transport. Understanding the role and importance of knowing the nature of materials and cargo in transport. Familiarization with the nature of materials and cargo in transport as an essential prerequisite for the organization of transportation and handling operations. Introduction to basic and specific classifications, divisions, and categorizations of cargo. Analysis of the basic properties of cargo and methods for testing the quality of cargo properties. Defining the specificities and rules for the transport, transhipment, handling, storage, packaging, packing, and marking of various types of cargo (liquid, bulk, general, dangerous, heavy, and oversized cargo) with regard to different modes of transport (maritime, land, and air).

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

After attending and passing the course, students will be able to:

1. Classify basic and specific types of cargo/goods according to various criteria (e.g., properties, type of transport, degree of processing, etc.).
2. List and explain international trade classifications of goods in the context of transport and trade.
3. Analyze and interpret the concept of cargo/goods quality in the context of transportation, transport, and storage.
4. Understand and interpret the fundamental properties and characteristics of cargo/goods relevant to transport logistics.
5. Interpret and break down the specific properties and characteristics of particular types of cargo (e.g., liquid, bulk, general, dangerous, and other types of cargo).
6. Explain methods and procedures for testing the properties of different types of cargo/goods.
7. Interpret the rules and specificities of transport, handling, and storage of various types of cargo with an emphasis on safety, regulations, and quality preservation.
8. Explain and differentiate marking, packing, and packaging systems for different types of cargo/goods, with an emphasis on international standards.
9. Independently research and present a practical example of a type of cargo/goods in the context of the specificities of transport, handling, packaging, and storage, using relevant sources and methods.

1.4. Course Outline

Relevant terms and forms of products, goods, and cargo in transport. The importance of understanding the nature of materials in transport. The concept of goods quality in transport. Classification and nomenclature of goods in transport. Systems for identification and labeling of goods. Specifics of packaging, packing, and storage of cargo/goods in transport. Basic properties and testing of materials. Metallic and non-metallic raw materials. General cargo, bulk cargo, and other dry cargo in transport. Liquid cargo in transport. Gaseous cargo in transport. Perishable cargo in transport. Heavy and oversized cargo in transport. Dangerous cargo in transport.

1.5. Modes of Instruction	☒ Lectures ☒ Seminars and workshops ☐ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

- 1st exam (with realization of minimum 50% points)
- 2nd exam (with realization of minimum 50% points)
- Preparation and presentation of seminar paper in framework of research (evaluated on the basis of elaborated assessment criteria with realization of minimum 50% points)
- Final exam (with realization of minimum 50% points)

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	1	Oral exam		Essay		Research	0,5
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure for assessing acquired learning outcomes is conducted in accordance with the Regulations on Studies at the University of Rijeka and the Regulations on Studying at the Faculty of Maritime Studies in Rijeka as follows:

- continuous knowledge assessment during classes – evaluates 70% of the acquired learning outcomes (LO): 1st exam– 25% (LO 1-4), 2nd exam – 25% (LO 5-8), preparation and presentation of a seminar within the research work – 20% (LO 9), which is evaluated based on detailed criteria; the student must achieve at least 50% of the points in each activity;
- final exam – evaluates 30% of the acquired learning outcomes (LO 1-8), whereby the student must achieve at least 50% of the points to pass the final exam.

Examples of assessing learning outcomes in relation to the established learning outcomes are:

1. List and classify the basic types of cargo/goods according to criteria such as physical state, value, quality, and other specific criteria for dividing cargo/goods in transport.
2. Explain the role of trade classification (e.g., SITC – Standard International Trade Classification) and highlight its importance in the organization and optimization of international transport and trade.
3. Describe the basic definitions of the concept of cargo/goods quality in transport.
4. Explain the fundamental properties and characteristics of the main groups of cargo/goods (general, bulk, liquid, dangerous cargo) in the context of logistics operations.

5. List and explain the rules and specificities of transporting dangerous types of cargo, considering international regulations (ADR, RID, IMDG) and safety standards.
6. List and explain the specific properties of different types of cargo, including conditions for transport, handling, and storage.
7. Interpret the methods of testing the properties of various types of cargo/goods, including relevant methods and procedures.
8. Define the types and assess the importance of marking (labeling) cargo/goods in logistics and transport processes.
9. Apply and present the acquired knowledge through the preparation and presentation of a seminar by researching a concrete practical example of a type of cargo.

1.10. Main Reading

1) Hrvoje Baričević, Tanja Poletan Jugović, Siniša Vilke, Tereti u prometu, Faculty of Maritime Transport, University in Rijeka, 2010.
2) teaching material for the e-course "Cargo in Transport" - accessible on the e-learning platform - Merlin (https://moodle.srce.hr) during the current academic year

1.11. Recommended Reading

1) Vilke, S., Mance, D., Debelić, B.,Maslarić, M: Correlation between freight transport industry and economic growth – panel analysis of CEE countries, Promet - Traffic & Transportation, 33 (2021), 4, 517 – 526.
2) Štrumberger, N., Rukovanje materijalima u prometu, Faculty of Transport and Traffic Sciences, University of Zagreb, Zagreb, 2000.
3) Musil, B., Pregrad, N., Turina, N., Žerjal, B., Poznavanje robe, Faculty of Economics, University in Zagreb, Zagreb, 1997.
4) Turina, N, i dr., Poznavanje robe, Zagreb, 1997.
5) Džanić, H., Tehnologija materijala u prometu, Faculty of Transport and Traffic Sciences, University of Zagreb, Zagreb, 1989.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Hrvoje Baričević, Tanja Poletan Jugović, Siniša Vilke, Tereti u prometu, Faculty of Maritime Transport, University in Rijeka, 2010.	5	30
teaching material for the e-course "Cargo in Transport" - accessible on the e-learning platform - Merlin (https://moodle.srce.hr) during the current academic year	unlimited	30

1.13. Quality Assurance

The studying quality is monitored following the ISO 9001 system, as well as European standards and guidelines for quality assurance, carried out at the Faculty of Maritime Studies, University of Rijeka. Analysis of exam passing is given annually and a survey among students is conducted by the semester.

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3.2. Course Description

Generic information		
Head of Course	Igor Vio, PhD	
Course	Maritime Administrative Law	
Study Programme	Technology and Organization of Transport	
Level	Undergraduate degree programme	
Type of Course	Core (compulsory course)	
Year of Study	2	
Estimated Student Workload and Methods of Instruction	ECTS Coefficient of Student Workload	4
	Number of Hours (L+E+S)	45 + 0 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Students should become familiar with international and national legal framework regulating the boundaries of national jurisdiction at sea, rights and duties of states at sea, their mutual relations related to exploration and exploitation of marine and submarine resources and their protection, their relations concerning war and neutrality in armed conflicts at sea, as well as safety of navigation and protection of the marine environment, organization of maritime administration, labour relations of seafarers, flag state and port state control, maintenance of order in ports and harbours, and regime of maritime domain.

1.2. Prerequisites for Course Registration

none

1.3. Expected Learning Outcomes

After passing the exam, the students will be able:

1. To list and compare the international conventions and other sources of the international law of the sea, to describe its basic principles and to explain their influence on the regimes of navigation of ships in various parts of the sea, as well as on the regime of the exploitation of the resources of the sea and the seabed.
2. To explain the regime of entry and navigation of various foreign ships (merchant, government, military, fishing or scientific) and foreign yachts and boats in internal waters, territorial sea and protected ecological and fishery zone of the Republic of Croatia.
3. To enumerate and interpret rules and regulations of international maritime law governing the safety of navigation and the protection of the marine environment.
4. To explain the structure and describe the activities of the International Maritime Organization (IMO) and the European Maritime Safety Agency (EMSA).
5. To list the laws and regulations of the Republic of Croatia in the area of maritime administrative law and explain their application to ships and other maritime vessels and crafts, maritime navigation, sea lanes, pilotage and order in ports.
6. To describe the organization of the maritime administration in the Republic of Croatia, explain the role and organization of harbour master's offices, to enumerate their functions, highlight the features of the certificate of registration and other ship documents and books, indicate the principles and procedures of inspection, explain the technical control and list other activities of the Croatian Register of Shipping.

7. To explicate the legal regulation of the maritime domain and seaports in the Republic of Croatia, describe the concept of the maritime domain and highlight the features of its concession, interpret the notion and list the types of seaports, and to describe the structure of the port authority and indicate its activities.

1.4. Course Outline

Part I: International Law of the Sea: definition and codification: UNCLOS I, II and III - Geneva Conventions (1958) and UN Convention on the Law of the Sea (1982); internal waters, ports, bays, historic bays and historic waters, archipelagic waters, regime of islands, territorial sea, contiguous zone, straits used for international navigation, canals, continental shelf, exclusive economic zone, maritime boundary delimitation, area, high seas, land-locked states, geographically disadvantaged states, enclosed and semi-enclosed seas, marine scientific research, marine pollution, marine and submarine areas of the Republic of Croatia, status of foreign ships in Croatian internal waters and territorial sea; International Law of Armed Conflicts at Sea: rights and duties of neutral and belligerent states, war zones at sea, status of neutral ships in convoy, status of military and merchant ships in armed conflicts, naval blockade, contraband of war.
Part II: International Maritime Organization (IMO) – structure, goals and functions. International conventions on safety of navigation and protection of the marine environment: SOLAS, COLREG, LOADLINES, TONNAGE, INTERVENTION, LDC, MARPOL, OPRC, AFS and BWC. Principles of ISM and ISPS Code, Paris Memorandum of Understanding on Port State Control, problems of flags of convenience. European Maritime Safety Agency (EMSA) - structure and functions. Master and crew, STCW Convention, Maritime Labour Convention and other Conventions and Resolutions of the International Labour Organization (ILO). Croatian maritime legislation, Maritime Code, harbour master's offices and inspection of safety of navigation, categories of navigation, sea lanes, pilotage, ships – legal regime, ownership, nationality, registration, classification, name and call sign, ship registers, ship's documents, log book. Croatian Register of Ships, technical supervision of ships, jurisdiction – flag state, coastal state and port state jurisdiction. Maritime Domain and Seaports Act, concept of maritime domain, concessions, definitions and characteristics of ports and harbours, concessions for port activities, port fees.

1.5. Modes of Instruction	☒ Lectures	☐ Practical work
	☐ Seminars and workshops	☐ Multimedia and Network
	☐ Exercises	☐ Laboratory
	☐ E-learning	☐ Mentorship
	☐ Field work	☐ Other _____
1.6. Comments		

1.7. Student Obligations

a) Students' main obligations are active course attendance with the preparation and presentation of seminar paper and they are required to pass two mid-term exams.

b) As a prerequisite for the final exam, students must score at least 35 out of a possible 70 points (50%) during the classes.

c) Students must score at least 15 out of a possible 30 points on final exams (50%).

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	1,0	Oral exam		Essay		Research	

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

Project		Continuous Assessment	1,0	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The evaluation procedure consists of continuous examination of knowledge in the form of two tests and a final exam. Examples of evaluating learning outcomes during classes and on the final exam:

1. Compare the concept and legal regime of the contiguous zone according to the Convention on the Territorial Sea and Contiguous Zone (1958) and the UN Convention on the Law of the Sea (1982).
2. Indicate and explain conditions for entry and navigation of ships, yachts and boats of foreign nationality in internal waters of the Republic of Croatia, including their stay in seaports and shipyards.
3. List and discuss international acts regulating the protection of the marine environment from pollution.
4. Describe the structure of the International Maritime Organization (IMO) and highlight the role and functions of each body (Assembly, Council, Secretariat, Committees and Subcommittees).
5. Interpret the term and types of pilotage according to the provisions of the Maritime Code of the Republic of Croatia, specify and the rights and duties of the pilot, and explain potential responsibility and liability of the pilot and of the pilot company.
6. Describe the structure of the maritime administration in the Republic of Croatia, highlight the most important powers of harbour master's office, and in particular explain and describe the rules of procedure for maritime offenses.
7. Explain the legal concept of maritime domain and indicate which parts of land and sea have this status.

1.10. Main Reading

Luttenberger, Axel, Pomorsko upravno pravo, Pomorski fakultet, Rijeka, 2005.
Luttenberger, Axel, Osnove međunarodnog prava mora, Pomorski fakultet, Rijeka, 2006.
Luttenberger, Axel, Pomorsko ratno pravo, Pomorski fakultet, Rijeka, 2008.

1.11. Recommended Reading

Capar, Rudolf, Međunarodno pravo mora, Pomorski fakultet, Rijeka, 1994.
Capar, Rudolf, Međunarodno pomorsko ratno pravo, Školska knjiga, Zagreb, 1989.
Grabovac, Ivo, Pomorsko pravo, Knjiga I: Pomorsko javno i upravno pravo,VPŠ Split, 2001
Grabovac, Ivo – Petrinović, Ranka, Pomorsko javno, upravno i radno pravo, Pomorski fakultet, Split, 2006.
Ibler, Vladimir, Međunarodno pravo mora i Hrvatska, Barbat, Zagreb, 2001.
Rudolf, Davorin, Međunarodno pravo mora, JAZU, Zagreb, 1985.
Pomorski zakonik, N.N. 181/04. (s kasnijim izmjenama i dopunama)
Zakon o pomorskom dobru i morskim lukama, N.N. 158/03. (s kasnijim izmjenama i dopunama)

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Osnove međunarodnog prava mora	Sufficient (in library and book shop)	75
Pomorsko ratno pravo	Sufficient (in library and book shop)	75
Pomorsko upravno pravo	Sufficient (in library and book shop)	75

1.13. Quality Assurance

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Quality assurance of the course performance is continuously monitored according to ISO 9001 system applied at the University of Rijeka Faculty of Maritime Studies. An analysis of results of the final exams and a student survey are conducted and appropriate measures are adopted for each academic year.

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Generic information			
Head of Course	Mirjana Borucinsky, PhD		
Course	English Language 3		
Study Programme	Technology and Organization of Transport		
Type of Course	core		
Year of Study	2		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		15+30+0

1.GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to develop the students' ability for written and oral communication in English language using the basic terminology related to the types of cargo, technology of ports and terminals and technology of cargo handling, warehousing and customs clearance.

1.2. Prerequisites for Course Registration

Successful completion of *English Language 2.*

1.3. Expected Learning Outcomes

After passing the exam, the students will be able to:

1. Demonstrate the four basic language skills in English: reading, writing, listening and speaking on B2 level (independent user) according to the Common European Framework of Reference for Languages (CEF).
2. Demonstrate language knowledge and skills for performing professional work in maritime business and transport in English.
3. Notice and explain the differences in English and Croatian terminology related to the means of transport and transhipment.
4. Use plural of nouns, comparison of adjectives and adverb correctly in descriptions.
5. Translate simple sentences dealing with vocational topics from English into Croatian, using a dictionary.

1.4. Course Outline

The terminology and relevant elements of grammar (nouns, adjectives, pronouns, adverbs) in selected professional written and spoken texts about the following extra-linguistic topics: types of cargo, technology of ports ad terminals, cargo handling technology and means of transport and transhipment, warehousing and customs.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1st midterm exam, 2nd midterm exam, final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of learning outcomes is performed according to the University of Rijeka Regulations on the Studies and the Regulations on the Studies of the Faculty of Maritime Studies in the following way:

60 % of outcomes are assessed through continuous assessment in class. The 1st midterm exam assesses the outcomes 1, 3 and 5 (30 %), while the 2nd midterm exam assesses the outcomes 2 and 4 (30 %). The student is obliged to score a min. of 50% of test points on each of the exams.
Through attendance and participation in course a maximum of 10 % of outcomes can be achieved.
The final exam assesses 30 % of learning outcomes (1-5), whereby the student is obliged to score a min. of 50% of test points:

Examples of outcome assessment in relation to the set outcomes are:

1. After reading the given text, explain the meaning of the expression '*last in-last out*'. (O1)
2. Explain the difference in meaning between: *wharf, pier, quay*. (O2)
3. What is the Croatian equivalent to '*straddle carrier*'. (O3)
4. Make a correct plural form of the nouns, comparison of adjectives and adverbs (O4).
5. Translate simple sentences from English into Croatian, using a dictionary. (O5)

1.10. Main Reading

1. Grussendorf, M. 2009. *English for Logistics*. Oxford: OUP.
2. Powell, D. et al. 2007. *Grammar practice for upper intermediate students*. Harlow: Pearson/Longman.
3. Skračić, T. 2016. *Fairway. Coursebook for students of Maritime English*. Split: Redak Ltd.
4. Teaching material available on the e-learning platform Merlin.

1.11. Recommended Reading

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1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Grussendorf, M. 2009. *English for Logistcs*. Oxford: OUP.	5	20
Powell, D. et al. 2007. *Grammar practice for upper intermediate students.* Harlow: Pearson/Longman.	5	20
Skračić, T. 2016. *Fairway. Coursebook for students of Maritime English*. Split: Redak Ltd.	5	20
Teaching material available on the e-learning platform Merlin.	-	20

1.13. Quality Assurance

The quality of the course is monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the course are analyzed and a survey is conducted among the students once per semester.

[1] **NOTE**: Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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3.2. Course description

Generic information			
Head of Course	Svjetlana Hess, PhD		
Course	Transport Demand Planning		
Study Programme	Technology and Organization of Transport		
Type of Course	Mandatory		
Year of Study	2		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	5	
	Number of Hours (L+E+S)	30+15+0	

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

To enable students to apply methods for determining the current and future demand for transport

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After completing this course, the student will be able to:

1. Define the concept of transport demand and supply
2. Explain the factors influencing the demand for transport services and mobility
3. Distinguish between qualitative and quantitative forecasting methods
4. Compare and assess the advantages and limitations of forecasting methods in specific cases
5. Select and apply an appropriate method or combination of methods to determine transport demand
6. Evaluate current demand and predict future demand for transport services/mobility (including with computer support)

1.4. Course Outline

Definition of transport demand and supply. Factors influencing transport demand and mobility. The role of models in transport demand forecasting. Qualitative forecasting methods and their application. Quantitative forecasting methods and their application. Demand assessment using regression analysis: model selection, data collection on variables, determining the form of the demand function, testing econometric results. Use of appropriate computer tools.

1.5. Modes of Instruction		
	☒ Lectures	☐ Practical work
	☐ Seminars and workshops	☒ Multimedia and Network
	☒ Exercises	☐ Laboratory
	☐ E-learning	☐ Mentorship
	☐ Field work	☐ Other _____

1.6. Comments

1.7. Student Obligations

Minimum 70% attendance, two midterm exams, individual test and a final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1.5	Class participation		Seminar paper		Experiment	
Written exam	1.0	Oral exam		Essay		Research	
Project		Continuous Assessment	2.5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Evaluation Procedure:
During the course, two colloquia and a test check theoretical knowledge of qualitative methods and calculations using selected quantitative forecasting methods, contributing up to 70% of the final grade (learning outcomes 3, 5, and 6). The final exam accounts for 30% of the grade (learning outcomes 1–6). The final exam assesses the completeness of theoretical knowledge and understanding of specific forecasting methods and their application in real transport and mobility scenarios. To take the final exam, a student must earn at least 35% of points during the course and must score at least 50% on the final exam to pass.
Examples of Learning Outcomes Evaluation:

1. Define the concept of transport demand and supply
2. Identify and list the factors influencing demand for a selected transport service
3. Describe key features of qualitative and quantitative forecasting methods
4. Explain real-life cases where a specific forecasting method is applied
5. Formulate a practical problem, describe data collection, build a model, and determine an appropriate solution method
6. Based on the forecast model result, predict future transport demand for a specific period, including with computer support

1.10. Main Reading

1. Course materials available on the e-learning platform – Merlin (https://moodle.srce.hr)
2. Hess, S., *Planiranje prometne potražnje*, Sveučilište u Rijeci, Pomorski fakultet, Rijeka, 2010.

1.11. Recommended Reading

1. Hess, S., Hess, M., Novaselić, M., Grbić, L., *Assessment of the Position of North Adriatic Terminals in Container Market Based on Different Indices*, *Logistics*, 8(4), 97, 2024
2. Krpan, Lj., Hess, S., Baričević, H., *Correlation of Mobility and Gross Domestic Product at Regional Level: Case Study of Primorje-Gorski Kotar County, Croatia*, *Technical Gazette*, 27(2):542-549, 2020
3. Salvatore, D., Reagle, D., *Schaum's Outline of Statistics and Econometrics*, 2nd ed., McGraw-Hill, 2011
4. Šošić, I., Serdar, V., *Uvod u statistiku*, Školska knjiga, Zagreb, 1997
5. Salvatore, D., *Ekonomija za menadžere*, McGraw-Hill Inc., MATE, Zagreb, 1994
6. Statistical sources with current data on transport, trade, goods flows, ports, etc., available online:

- https://www.wto.org
- https://unctad.org
- https://info.isl.org
- https://ec.europa.eu/eurostat/
- https://www.dzs.hr
- and transport company websites

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Course materials on e-learning platform – Merlin	web	20
Hess, S., *Planiranje prometne potražnje*, Sveučilište u Rijeci, Pomorski fakultet, Rijeka, 2010.	5	20

1.13. Quality Assurance

Study quality is continuously monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. Exam performance is analyzed annually, and a student survey is conducted once per semester.

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3.2. Course description

Generic information			
Head of Course	Neven Grubišić, PhD		
Course	Route planning		
Study Programme	Technology and Organization of Transport		
Type of Course	Obligatory		
Year of Study	2.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		30+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The purpose of the course is to acquire knowledge about transport networks, visualization and metrics of transport networks, movement optimization, trip planning, and vehicle routing on the transport network.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

Upon completing the course, the student will be able to:

1. Represent a transport network based on given elements and characteristics using graph theory, incidence matrices, adjacency matrices, and topological matrices.
2. Compare the accessibility, development, and connectivity of two or more transport networks represented by corresponding graphs.
3. Solve at least one standard network transport-logistics problem (shortest path, minimum spanning tree, optimal path for homogeneous goods) using an appropriate algorithm.
4. Explain the flow conservation law in networks and determine the maximum flow in a network using the minimum cut rule.
5. Solve the traveling salesman problem (Hamiltonian cycle) or the Chinese postman problem (Eulerian tour) using the appropriate method on a given transport network.
6. Solve the trip routing problem by determining the route and travel sequence for a transport fleet using the Clarke-Wright savings algorithm on a single-depot transport network, with the help of software.
7. Plan the optimal number of vehicles in public transport and the sequence of trips according to a timetable or sailing schedule.

1.4. Course Outline

Conceptual definition of transport networks and the problem domain. Graph theory: application in modeling transport networks. Capacities and flows in transport networks: flow conservation law, flows in a network with a single source and sink, network cuts, maximum network flow, algorithms for determining maximum flow. Methods and algorithms for calculating minimum spanning trees and shortest paths in a network. Shortest path in a stochastic network. Trip planning for transport vehicles within a network. Hamiltonian cycle and Eulerian tour. Traveling Salesman Problem (TSP): solving TSP using branch and bound methods and integer programming. Time-space planning of transport vehicles on the network. Vehicle Routing Problem (VRP): routing from one or more depots. Planning the optimal number of vehicles in public transport and scheduling timetables. Welsh-Powell algorithm. Crew scheduling.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other
1.6. Comments	Lectures and assignments are performed in a specialized classroom	

1.7. Student Obligations

Students are required to regularly attend classes and actively participate in solving example exercises during computer-based practice sessions. A minimum number of course credits, in accordance with the Study Regulations, is a prerequisite for taking the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation	0,5	Seminar paper		Experiment	
Written exam	1	Oral exam	0,5	Essay		Research	
Project		Continuous Assessment	2	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The evaluation of achieved learning outcomes is conducted in accordance with the Regulations on Study Programs of the University of Rijeka and the Study Regulations of the Faculty of Maritime Studies in Rijeka as follows:

Classroom activities
Thematic control tests for verifying understanding of the material; regular completion is graded.
Learning outcomes 1–7: 10 points

Continuous Knowledge Assessment
Assignment 1: Graph metrics and their application to transport networks
Learning outcomes: 1–2: 10 points
Assignment 2: Vehicle trip planning on a network (TSP)
Learning outcomes: 3–5: 10 points
Assignment 3: Vehicle Routing Problem (VRP) on a network
Learning outcome: 6: 20 points
Assignment 4: Timetable and optimal number of vehicles in public transport
Learning outcome: 7: 20 points

A total of 70 points (70% of the final grade) can be earned through course activities (lectures and exercises).
The final exam carries a maximum of 30 points (30% of the final grade).
Assignments must be completed with at least 70% success (prerequisite for taking the final exam).
A minimum of 50% of the available points from class activities must be earned.
The final exam evaluates 30% of the learning outcomes, and students must achieve at least 50% success to pass.

Examples of evaluation by individual learning outcome:

1) For a given graph, determine the adjacency matrix, incidence matrix, and the degree of each node in the graph. (LO1)
2) For the illustrated transport network, determine: network diameter, average node degree, average shortest path length, most accessible node, and least accessible node. (LO2)
3) Determine the shortest path from origin to destination in the presented transport network using Dijkstra's algorithm. (LO3)
4) Explain the relationship between maximum flow and network capacity. (LO4)
5) For the transport network represented by a graph, determine a route starting at node A such that all edges are traversed and the vehicle returns to the starting point with minimal total time, using the branch and bound method. (LO5)
6) Create a trip and vehicle rotation plan starting from terminal B, determining the optimal travel plan and number of vehicles needed to transport goods. Given are distances between nodes, demand at each node, and vehicle capacities. Present the plan graphically and solve the task using the savings algorithm and a VRP solver. (LO6)
7) A public transport timetable is provided in a table for five stops, covering the time period from 08:00 to 18:00. Travel time between adjacent stops is 1 hour. Graphically present the timetable and determine the minimum number of buses required to maintain the line service, as well as the trip sequence for each vehicle according to destinations. (LO7)

1.10. Main Reading

1. Mehanović, M.: Mreže u saobraćaju i komunikacijama, Univerzitet u Sarajevu, Fakultet za saobraćaj i komunikacije, Sarajevo, 2015.
2. Teodorović, D., Janić, M.: Transportation Engineering: Theory, Practice and Modeling, 2nd edition, Butterworth-Heinemann, 2022.
3. Grubišić, N.: Prometne mreže – nastavni materijali, Sveučilište u Rijeci, Pomorski fakultet.

1.11. Recommended Reading

1. Pašagić, H.: *Matematičke metode u prometu*, Sveučilište u Zagrebu, Fakultet prometnih znanosti, Zagreb, 2003.
2. Bauk, S.I.: Kvantitativne metode optimizacije u funkciji naučnog menadžmenta, Ekonomska laboratorija za istraživanje tranzicije Podgorica, Podgorica, 2011.
3. Mulero, C.M.: Solving Problems with LINGO – Optimization Modeling Software for Linear, Nonlinear and Integer Programming, 2019.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Mehanović, M.: Mreže u saobraćaju i komunikacijama, Univerzitet u Sarajevu, Fakultet za saobraćaj i komunikacije, Sarajevo, 2015.	5	30
Teodorović, D., Janić, M.: Transportation Engineering: Theory, Practice and Modeling, 2nd edition, BH, 2022.	5	30
Grubišić, N.: Prometne mreže - nastavni materijali, Sveučilište u Rijeci, Pomorski fakultet.	accessible online	30

1.13. Quality Assurance

The quality is monitored in accordance with ISO 9001 standard carried out at the Faculty of Maritime Studies. The results of passed exams are analyzed once a year and proper measures taken.

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3.2. Course description

Generic information		
Head of Course	Siniša Vilke, PhD	
Course	Traffic safety	
Study Programme	Technology and Organization of Transport	
Type of Course	Mandatory	
Year of Study	2	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	5
	Number of Hours (L+E+S)	45 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to gain the basic knowledge of the system of safety and health at work in maritime, road, rail and air transport.

1.2. Prerequisites for Course Registration

1.3. Expected Learning Outcomes

After completing the course and passing the exam, the student will be able to:
1. Interpret and explain the regulations in the international and national system of traffic safety and occupational safety.
2. Interpret occupational safety obligations and describe protective equipment in the port and on-board ship.
3. Interpret the principles and measures of safe work in the port and interpret the principles of fire protection in the port.
4. Classify dangerous goods in traffic and analyze procedures for transporting dangerous goods.
5. Distinguish and compare the application of different forms of ITS in-land transport safety.
6. Interpret time intervals and phases of signaling traffic devices and identify traffic flow collisions at a given example of an intersection.
7. Interpret and compare safety elements in the construction design of roads and intersections.
8. Identify, distinguish and interpret safety elements at railway and road crossings (RCR).

1.4. Course Outline

International Traffic and Occupational Safety System. Legal system, principles and implementation of occupational health and safety. Protection of workers on board and in port. Safety precautions in port and on board. Dangerous cargo. Fire protection. Safety factors in road transport. Safety in rail transport. Application of ITS security in inland transport. Main features of the air transport system from the point of view of safety. Possibilities for improving safety, training and prevention in all modes of transport.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☒ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

The student must attend at least 70% of the total lecture and exercise hours, prepare and present a seminar paper, and pass the exams (continuous assessment) in order to take the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project	1	Continuous Assessment	1	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of acquired learning outcomes is carried out by the Study Regulations of the University of Rijeka and the Study Regulations at the Faculty Maritime Studies in Rijeka as follows:
- 70% of the acquired learning outcomes are evaluated through continuous assessment during classes, within the 1st exam (25%), 2nd exam (25%), and through the development of a program assignment – project (20%); in this case, the student must achieve a minimum of 50% of points for each exam, and the presentation of the research assignment is evaluated based on defined assessment criteria;
- 30% of the acquired learning outcomes are evaluated in the final part of the exam, whereby the student must achieve a minimum of 50% of points to pass the final exam.

Examples of assessment of learning outcomes with set learning outcomes are:

1. Explain the basic legal provisions in the traffic safety system.
2. Describe the obligations of occupational safety and protective equipment in the port and on board.
3. Explain the measures for working safely in the port and describe the principles and application of fire protection in the port.
4. Analyze dangerous goods in traffic and explain the procedures for their transport.
5. Explain the various forms of application of ITS in road and rail traffic safety.
6. Determine the time intervals and phases of traffic signal devices and traffic flow collisions at a given intersection.
7. Describe the construction and traffic elements in a road design from a safety perspective.
8. Explain the signaling and safety elements in a given example of a railway-road crossing.

1.10. Main Reading

1. Capar, R., Pravne osnove zaštite na radu, Fakultet za pomorstvo i saobraćaj, Rijeka, 1989.
2. Zec, D., Siguran rad u luci, Fakultet za pomorstvo i saobraćaj, Rijeka, 1991.
3. Baričević, H.; Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2016.
4. Cerovac, V., Tehnika i sigurnost prometa, Fakultet prometnih znanosti, Zagreb, 2001.
5. Matković, M., Protupožarna zaštita na brodovima, Fakultet za pomorstvo i saobraćaj, Rijeka, 2000.
6. Baričević, H., Tehnologija kopnenog prometa, Pomorski fakultet, Glosa, Rijeka, 2001.
7. Božičević, J., Topolnik, D., Infrastruktura cestovnog prometa, Fakultet prometnih znanosti, Zagreb, 1996.
8. Teaching materials for the e-course available in the LM system - Merlin *(https://moodle.srce.hr)*

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.11. Recommended Reading

1. Vilke, S.; Tadić, F.; Ćelić, J.; Debelić, B.: Decision support system in urban traffic management, ODS 2022 – International Conference on Optimization and Decision Sciences, 2022.
2. Vilke, S.; Knežević, J.; Dundović, K.: The Impact of Human Factors on Safety at Railway- Road Crossings in the Western Part of Croatia, Pomorski zbornik, 64 (2024), 1; 47-62.
3. International Convention on the Safety of Human Life at Sea, 1974
4. International Code on the Carriage of Dangerous Goods by Sea (IMDG).
5. International Code for the Construction and Equipment of Ships Carrying Liquefied Gases (IGC),
6. International Code for the Construction and Equipment of Ships for the Carriage of Hazardous Chemicals in Spilled State (IBC),
7. Zakon o prijevozu opasnih tvari Republike Hrvatske, Narodne novine«, br. 97/93., 34/95, 151/03
8. Božičević, J. Ceste I. i II., Zagreb, 1993.
9. Fundamental principles of occupational safety and health, ILO, 2001.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Capar, R., Pravne osnove zaštite na radu, Fakultet za pomorstvo i saobraćaj, Rijeka, 1989.	4	30
Zec, D., Siguran rad u luci, Fakultet za pomorstvo i saobraćaj, Rijeka, 1991.	7	30
Baričević, H.; Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2016.	10	30
Cerovac, V., Tehnika i sigurnost prometa, fakultet prometnih znanosti, Zagreb, 1997.	4	30
Matković, M., Protupožarna zaštita na brodovima, Fakultet za pomorstvo i saobraćaj, Rijeka, 2000.	5	30
Baričević, H., Tehnologija kopnenog prometa, Pomorski fakultet, Glosa, Rijeka, 2001.	10	30
Božičević, J., Topolnik, D., Infrastruktura cestovnog prometa, Zagreb, 1996.	6	30
Teaching materials for the e-course available in the LM system - Merlin *(https://moodle.srce.hr)*	-	30

1.13. Quality Assurance

The quality of examinations is constantly monitored by the system ISO 9001, which was introduced at Faculty Maritime Studies in Rijeka. An analysis of examinations is made annually and a student survey is conducted once a semester.

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3.2. Course description

Generic information		
Head of Course	**Livia Maglić, PhD**	
Course	**Material handling equipment**	
Study Programme	**Technology and Organization of Transport**	
Type of Course	Mandatory	
Year of Study	2	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	5
	Number of Hours (L+E+S)	30+30+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The primary objective of this course is to familiarise students with material handling equipment and their operational characteristics, depending on the type of cargo and handling methods.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

Upon successful completion of the course, students will be able to:

1. Define fundamental concepts such as transport, transfer, transhipment, and material handling equipment.
2. Categorise material handling equipment according to cargo type and technological transhipment process.
3. Explain and identify factors that determine the operational characteristics of material handling equipment.
4. Compare and provide examples of the application of different types of material handling equipment depending on the technological transhipment process.
5. Explain the methods for evaluating, selecting, and determining the required number of material handling equipment.
6. Recognise and interpret the importance of safety aspects when working with material handling equipment.
7. Calculate productivity, determine power class, stability, and load of port material handling equipment, and interpret the results.

1.4. Course Outline

Concepts of transport, transfer, and transhipment. Types and basic characteristics of material handling equipment. Productivity of material handling equipment. Determining power class, rated capacity, and working speeds of cranes. Load handling devices. Documentation, inspection, and testing of cranes. Safety measures when working with cranes.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☒ Field work	☐ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1. Passing two colloquiums
2. Final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	2,0	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1,5	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Assessment of learning outcomes is conducted according to the University of Rijeka and the Faculty of Maritime Studies regulations are as follows:

- Continuous assessment: 70% of learning outcomes are evaluated through two colloquiums (1st: outcomes 1-4, 35%; 2nd: outcomes 5-7, 35%)
- Final exam: 30% of learning outcomes (1-7) are evaluated, with a minimum of 50% required to pass.

Examples of assessment tasks:

1. Explain the concept of material handling equipment.
2. What are the basic quantities in material flow technology? Explain their significance for cargo transfer in continuous transport.
3. List the main criteria for classifying material handling equipment and provide examples for each category.
4. Based on a given numerical example, calculate the utilisation coefficients of the rated capacity of material handling equipment and explain their significance for operation.
5. Explain the path relation as an indicator for evaluating the operation of material handling equipment.
6. List and describe safety measures when working with cranes.
7. Calculate the theoretical and operational productivity of material handling equipment based on a given numerical example and interpret the results.

1.10. Main Reading

- Lecture notes by the lecturer available on the e-learning platform Merlin
- Dundović, Č., Prekrcajna sredstva prekidnog transporta, sveučilišni udžbenik, Pomorski fakultet u Rijeci, Rijeka, 2005.
- Mavrin, I., Transporteri, Fakultet prometnih znanosti, Zagreb, 1999.

1.11. Recommended Reading

- Maglić, L. Optimizacija raspodjele kontejnera na slagalištu lučkoga kontejnerskog terminala, doktorska disertacija, 2015.
- Burič, A.M., Zbirka riješenih zadataka iz pretovarne mehanizacije, Univerzitet Crne Gore, Podgorica, 2010.
- Vladić, J., Transportna i pretovarna sredstva i uređaji: neprekidni i automatizovani transport, Fakultet tehničkih nauka, Novi Sad, 2005.
- Vladić, J., Mehanizacija i tehnologija pretovara: neprekidni transport i specifične mašine i uređaji, Fakultet tehničkih nauka, Novi Sad, 2005.
- Bukumirović, M., Zbirka riješenih zadataka iz elemenata transportnih sredstava i uređaja 2, Univerzitet u Beogradu, Saobraćajni fakultet, Beograd, 2003.
- Matić, A., Prekrcajna sredstva u pomorskom transportu 1, Veleučilište u Dubrovniku, Dubrovnik, 2000.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Lecture notes available on the e-learning platform Merlin	Unlimited	/
Dundović, Č., Prekrcajna sredstva prekidnog transporta, sveučilišni udžbenik,Pomorski fakultet u Rijeci, Rijeka, 2005.	6	20
Mavrin, I., Transporteri, Fakultet prometnih znanosti, Zagreb, 1999.	6	20

1.13. Quality Assurance

The quality of the study is continuously monitored following the ISO 9001 system and in line with European standards and guidelines for quality assurance, as implemented at the Faculty of Maritime Studies, University of Rijeka. Annual exam analysis is conducted, and student surveys are carried out each semester.

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3.2. Course description

Generic information			
Head of Course	Alen Jugović, PhD		
Course	Port economics		
Study Programme	Technology and Organization of Transport		
Type of Course	Core		
Year of Study	2nd		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The course aims to enable students to understand and apply knowledge in the field of seaport organization and management. Special attention is paid to familiarizing students with port management models in the world, the specifics of port management of national and county importance in the Republic of Croatia, and determining the gravitational zones and functions of ports. Students will develop skills in designing organizational structures, analyzing economic indicators, and assessing key factors that influence port operations.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

After passing the exam, students will be able to do the following:
1. Explain the basic concepts of ports and port system
2. Explain port features as creators of multiplier effects
3. List the types of seaports
4. Analyze port development trends
5. Understand the importance and impact of particular phenomena (globalization, informatization etc.) on the development and competitiveness of ports
6. Analyze and apply basic economic settings to individual cases from port practice (calculation of travel costs, fares, etc.).

1.4. Course Outline

THE ROLE AND IMPORTANCE OF PORTS. Port definition, division of ports and port terminology.
HISTORICAL DEVELOPMENT OF PORTS. The development of ports from ancient times to the present.
INTERNATIONAL MARITIME TRAFFIC AND PORTS. Development of international maritime freight transport. Port development as a consequence of the incensement in maritime freight traffic.
FACTORS RELEVANT FOR THE DEVELOPMENT OF PORTS. Natural benefits of the ports. Technical benefits of the ports. Labor organization in the ports. Customs regime. Tariffs and tariff policy. Economic strength of the port hinterland. The role of the state in port development and port policy measures. Political relations.
GRAVITATION ZONES IN PORTS. The concept and significance of the gravitation's zones in ports. Factors relevant for determining the size of the gravitational region. Methods for determining the size of the gravitational region.
PORT FUNCTIONS. Port traffic, trade and industrial function.
PARTICIPANTS IN THE PORT BUSINESS. Administration bodies and business entities.
ORGANIZATION OF PORT SYSTEM COMPONENTS. Zoning and specialization.
PORT AND PORT BUSINESS POLICY. Forms of management in ports.
PORT SYSTEM DEVELOPMENT PLANNING. Port development planning methodology. Port traffic forecast. Financial and economic evaluation of the plan. Types of development plans. Long-mid and short-term plans.
BASIC ORGANIZATION OF PORT BUSINESS. The concept and types of freight in ports. Traffic and technological process in the ports. Documents in the port business. Daily operational planning. Improvement of the traffic-technological process and business system in the ports. Port jamming.
ECONOMIC INDICATORS OF BUSINESS PERFORMANCE. Determining the value of the port service. Port fees and tariffs, port revenues. Costs in the port business. Labor productivity. Business efficiency. Business profitability.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☒ Field work	☒ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1. Attending classes
2. Attending exercises
3. Class activity
4. Taking quizzes and tests
5. Taking exams

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	
Project		Continuous Assessment	2,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Grading and evaluation of student work includes continuous assessment of knowledge through two midterm exams and two tests with calculation tasks during classes, and a final exam. Grading is carried out in accordance with the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka, which means that a student can achieve 70% of the grade during classes, and the remaining 30% at the final exam.

Knowledge assessment in class is carried out continuously, and students can achieve a percentage of the grade as follows:

- *1st preliminary exam - 25% Learning outcomes: 1., 2., 3., 4.*
- *2nd preliminary exam - 25% Learning outcomes: 2., 3., 4., 5.*
- *Test 2 - 10% Learning outcomes: 1, 5.*
- *Test 1 - 10% Learning outcomes: 5.*
- *Final exam - 30% Learning outcomes: 1., 2., 3., 4., 5.*

The final exam can be taken by students who have earned 35 points during class, or 50% of the total number of points that could be achieved during class evaluation. It is also a condition that students achieve at least 50% of the points in each preliminary exam. The final exam is in written form and includes 30% of the total grade. Students must pass 50% of the final exam in order to receive a passing grade for the course.

Some examples of learning outcome checks are:
1. What is a port system and what are the basic functions of a seaport within that system?
2. Explain how a seaport can generate multiplier effects in the local and national economy.
3. Explain how ports in the Republic of Croatia are divided according to size and importance.
4. What are the most important trends in the development of seaports in the last ten years, and how do they affect their infrastructure and superstructure?
5. How do phenomena such as liberalization and sustainable development affect the competitiveness of ports? Connect your answer with an example of the implementation of green technology in a port.
6. Based on the data obtained, calculate the fixed and variable parts of the concession and the total value of the concession fee for a given maritime domain.

1.10. Main Reading

1. Teaching materials on the e-learning system – Merlin (https://moodle.srce.hr)
2. Jugović, A.: Upravljanje morskom lukom, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2013. (knjiga dostupna u e-izdanju na sustavu za e - učenje – Merlin).
3. Jugović, A., Mudronja, G., Schiozzi, D.: Ekonomika luka – riješeni zadaci, Sveučilište u Rijeci, Pomorski fakultet, Rijeka, 2020.
4. Kesić, B.: Ekonomika luka, Pomorski fakultet, Rijeka 2003. (izabrana poglavlja - dostupna u e-izdanju na sustavu za e - učenje – Merlin).

1.11. Recommended Reading

1. Kesić,B., Jugović, A.: Menadžment pomorskoputničkih luka, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2006.
2. Wayne, K. Talley: Port Economics, Routledge – Taylor and Francis Group, London and New York, 2009.
3. Notteboom, T., Pallis, A., Rodrigue, J.: Port Economics, Management and Policy, New York: Routledge, 2020
4. Jugović A, Jardas Antonić J., Aksentijević D.: An Overview of Criteria and Scenarios Relevant for Development of Seaports of County and Local Importance in the Republic of Croatia, Transactions on Maritime Science, 2023.
5. Jugović, A., Sirotić, M., Žgaljić, D, Oblak, R.: Assessing the Possibilities of Integrating Ports into the Circular Economy, Tehnički vjesnik, 2022
6. Jugović, A., Sirotić, M., Peronja, I.: Sustainable Development of Port Cities from the Perspective of Transition Management, Transactions on Maritime Science, 10(02), str. 466-476., 2021

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Jugović; A.: Upravljanje morskom lukom, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2013.	30	40
Kesić, B.: Ekonomika luka, Pomorski fakultet, Rijeka 2003. (dio)	20	40
Wayne, K.Talley: Port economics, Routledge – Taylor and Francis Group, London and New York, 2009.	3	40

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance implemented at the Faculty of Maritime Studies in Rijeka.

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Generic information		
Head of Course	Mirjana Borucinsky, PhD	
Course	English Language 4	
Study Programme	Technology and Organization of Transport	
Type of Course	core	
Year of Study	2	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	15+30+0

1.GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to develop the students' ability for written and oral communication in English language using the basic terminology related to freight forwarding, basic characteristics of shipping documents and international regulations for interpreting commercial terms (INCOTERMS).

1.2. Prerequisites for Course Registration

Successful completion of *English Language 3.*

1.3. Expected Learning Outcomes

After passing the exam, the students will be able to:

1. Demonstrate the four basic language skills in English: reading, writing, listening and speaking on B2 level (independent user) according to the Common European Framework of Reference for Languages (CEF).
2. Demonstrate language knowledge and skills for performing professional work in maritime business and transport in English.
3. Fill in forms and documents (bill of lading, charter party, notice of readiness, etc.) correctly in English.
4. Interpret and translate international regulations for interpreting commercial terms (INCOTERMS).
5. Ask questions and use complex lexical and syntactic forms correctly in written and oral expression in vocational language.
6. Translate simple sentences dealing with vocational topics from English into Croatian, using a dictionary.

1.4. Course Outline

Professional terminology and relevant elements of grammar (syntax of simple sentences, complex independent and subordinate sentences, word formation) in selected professional written and spoken texts about the following extra-linguistic topics: international freight forwarding, shipping documents (bill of lading, charter party, notice of readiness, etc.), regulations for interpreting commercial terms (INCOTERMS).

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1st midterm exam, 2nd midterm exam, final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of learning outcomes is performed according to the University of Rijeka Regulations on the Studies and the Regulations on the Studies of the Faculty of Maritime Studies in the following way:

60 % of outcomes are assessed through continuous assessment in class. The 1st midterm exam assesses the outcomes 1 and 2 (30 %), while the 2nd midterm exam assesses the outcomes 3, 5 and 6 (30 %). The student is obliged to score a min. of 50% of test points on each of the exams.

Through attendance and participation in course a maximum of 10 % of outcomes can be achieved.

The final exam assesses 30 % of learning outcomes (1-5), whereby the student is obliged to score a min. of 50% of test points:

Examples of outcome assessment in relation to the set outcomes are:

1. After reading the given text, describe and explain the procedure of notice, arrival and acceptance of a foreign ship in port. (O1)
2. Explain the meaning of the term 'charterer' and name the Croatian equivalents. (O2)
3. Fill in the appropriate terms in the forms and documents (bill of lading, charter party, notice of readiness, etc.) in English. (O3)
4. Match the international commercial term with its definition (i.e. FOB – *free on board*). (O4)
5. Transform statements into questions. (O5)
6. Translate a professional text from Croatian into English, using a dictionary. (O5)

1.10. Main Reading

1. Allison, J., Towend, J. 2017. *In Company*. 3.0. Logistics. MacMillan Publishers Limited.
2. Evans, V., Dooley, J., Buchannan, D. 2013. *Logistics*. Express Publishing.
3. Grussendorf, M. 2009. *English for Logistcs*. Oxford: OUP.
4. Powell, D. et al. 2007. *Grammar practice for upper intermediate students*. Harlow: Pearson/Longman.
5. Pritchard, B. 2001. *English in shipping*. Pomorski fakultet, Rijeka.
6. Teaching material available on the e-learning platform Merlin.

1.11. Recommended Reading

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Allison, J., Towend, J. 2017. *In Company*. 3.0. Logistics. MacMillan Publishers Limited.	5	20
Evans, V., Dooley, J., Buchannan, D. 2013. *Logistics*. Express Publish	5	20
Grussendorf, M. 2009. *English for Logistcs*. Oxford: OUP	5	20
Powell, D. et al. 2007. *Grammar practice for upper intermediate students*. Harlow: Pearson/Longman.	5	20

Pritchard, B. 2001. *English in shipping*. Pomorski fakultet, Rijeka	5	20
Teaching material available on the e-learning platform Merlin.	-	20

1.13. Quality Assurance

The quality of the course is monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the course are analyzed and a survey is conducted among the students once per semester.

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3.2. Course description

Generic information			
Head of Course	Neven Grubišić, PhD		
Course	Transport modeling fundamentals		
Study Programme	Technology and Organization of Transport		
Type of Course	Obligatory		
Year of Study	3.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		30+15+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The purpose of the course is to acquire fundamental knowledge of traffic models and to apply simulation tools for traffic modeling in order to analyze population mobility and manage traffic and mobility.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

Upon completing the course, the student will be able to:

1. Differentiate between traffic models, their elements and attributes, based on scope, purpose, structure, and characteristics in relation to the real-world environment.
2. Select the main types of volume-delay (V-D) functions, their characteristics, parameters, and relationships in describing traffic conditions.
3. Identify the type and characteristics of matrices in a traffic model with respect to the key variables they represent.
4. Explain the procedure and hierarchy of the four-step traffic modeling process.
5. Apply models to calculate public transport line capacity, frequency, and departure intervals.
6. Analyze the results of trip assignment simulations for a given model in relation to the obtained traffic load values and impedance values on network elements.

1.4. Course Outline

Meaning and Purpose of Traffic Models. Application of traffic models. Structure of a traffic model. Traffic supply model: elements of the supply model, designing the transport network, creating a digital computer model. Traffic zones. Matrices in a traffic model. Four-step traffic model: trip generation and attraction, trip distribution, mode choice, and trip assignment. Impedance functions. Types of volume-delay (V-D) functions and their characteristics. Trip assignment to the network. Public transport modeling: generalized travel cost in public transport. Model calibration and validation.
Practical work on the computer model: defining the area, network design, creating objects, elements, and attributes. Model configuration, settings, and graphical displays of selected variables. Creating procedures to run the model. Analysis of model results.
Examples of traffic models: the Croatian national transport model and models of functional regions.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other
1.6. Comments	Lectures and exercises are conducted in a specialized classroom equipped with computer tools for traffic modeling and simulation.	

1.7. Student Obligations

Students are required to regularly attend classes and actively participate in solving example exercises during computer-based practice sessions. A minimum number of course credits, in accordance with the Study Regulations, is a prerequisite for taking the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam	0,5	Oral exam	0,5	Essay		Research	
Project	1	Continuous Assessment	0,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The evaluation of achieved learning outcomes is conducted in accordance with the Regulations on Study Programs of the University of Rijeka and the Study Regulations of the Faculty of Maritime Studies in Rijeka as follows:

Continuous Knowledge Assessment
Control tests to check understanding of the material; regular completion is graded.
Learning outcomes 1–6: 10 points

Project / Programming Assignments
Programming Assignment 1: Basic traffic network model — 30 points, learning outcomes: 1–3
Programming Assignment 2: Public transport model — 30 points, learning outcomes: 5–6

A total of 70 points (or 70% of the final grade) can be earned through course activities (lectures and exercises). The final exam accounts for a maximum of 30 points (30% of the final grade).

Programming assignments must be completed with at least 70% success (a prerequisite for taking the final exam). Students must earn at least 50% of available points from course activities.
The final exam evaluates 30% of the learning outcomes, and a minimum of 50% success is required to pass.

Examples of evaluation by individual learning outcome:
1) Using the available objects in the software, draw a simple traffic network based on the provided sketch and assign the given attributes. (LO1)
2) Adjust the parameter values of the volume-delay (V-D) function in the software according to the types and characteristics of the network elements (links and nodes). (LO2)
3) Compare the results of skim matrices between selected zones for chosen variables. (LO3)
4) Explain each phase of the four-step traffic model and the procedures performed in each phase. (LO4)
5) In the existing software model, construct public transport stops, lines, and schedules based on the provided sketch and specified values. (LO5)
6) In the software model, select the appropriate procedure for trip assignment and calculate impedance for the designated part of the network. (LO6)

1.10. Main Reading

1. Oruzar, D. de J., Willumsen, L. G.: Modelling Transport, John Wiley & Sons, Ltd, Chichester, 2002.
2. PTV Visum Fundamentals, PTV Planung Transport Verkehr AG, Karlsruhe, 2012.
3. Grubišić, N.: Osnove prometnog modeliranja – nastavni materijali, Sveučilište u Rijeci, Pomorski fakultet.

1.11. Recommended Reading

Teodorović, D., Janić, M.: Transportation Engineering: Theory, Practice and Modeling, 2nd edition, BH, 2022.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Oruzar, D. de J., Willumsen, L. G.: Modelling Transport, John Wiley & Sons, Ltd, Chichester, 2002.	4	30
PTV Visum Fundamentals, PTV Planung Transport Verkehr AG, Karlsruhe, 2012.	accessible online	30
Grubišić, N.: Osnove prometnog modeliranja – nastavni materijali, Sveučilište u Rijeci, Pomorski fakultet.	accessible online	30

1.13. Quality Assurance

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The quality is monitored in accordance with ISO 9001 standard carried out at the Faculty of Maritime Studies. The results of passed exams are analyzed once a year and proper measures taken.

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Course description

Generic information			
Head of Course	Tanja Poletan Jugović, PhD		
Course	Freight Forwarding		
Study Programme	Technology and Organization of Transport		
Type of Course	Mandatory		
Year of Study	3		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30+0+15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Explain the role and significance of freight forwarding logistics in the global transport system and international trade. Identify and analyze the relationship of the freight forwarder with other stakeholders in the logistics chain and the contribution of forwarding to the optimization of international trade flows. Analyze the legal definition of the international freight forwarding system. Distinguish and describe the business processes, activities, and tasks of an international freight forwarder, including the management of physical cargo flows, organization of transport, and proper use of documentation for import, export, and transit processes. Simulate real scenarios of organizing, planning, and implementing import, export, or transit operations. Identify and apply Incoterms terms in various international trade scenarios. Analyze contemporary trends and challenges in the operations of international freight forwarders as logistics operators.

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

After attending and passing the course, the student will be able to:

1. Explain the basic concepts and key characteristics of freight forwarding in the modern transport environment.
2. Investigate the role of freight forwarding logistics in global trade and interpret the impact of freight forwarding on the efficiency of the transport system.
3. Analyze legal sources, contracts, documents, and certificates that regulate the liability of freight forwarders and other stakeholders in international trade, including international conventions and national regulations.
4. Describe the basic tasks and activities of an international freight forwarder in planning, organizing, and executing import, export, or transit operations.
5. Describe the specific tasks and activities of a freight forwarder that depend on the specifics of the cargo, user requirements, and market conditions, including comprehensive logistical solutions and services.

6. Distinguish between transport and other documents and certificates used in import, export, and transit, and apply the appropriate documents in different scenarios depending on the type of transport, type of cargo, etc.
7. Use Incoterms terms with interpretation of the responsibilities of individual foreign trade entities and other stakeholders in the logistics chain.
8. Analyze current trends and challenges in the international freight forwarding industry and explore strategies to improve the role of freight forwarders in the global logistics system.
9. Apply the acquired knowledge through the investigation of a specific case from forwarding business practice.

1.4. Course Outline

The concept and relevant characteristics of freight forwarders and freight forwarding. Affirmation and development of freight forwarding in the modern transport environment. The significance of freight forwarding logistics in the transport system. The role of the freight forwarder in the supply chain and the international trade system. Characteristics of the freight forwarding system. Organization of professional systems in freight forwarding – national and international organizations. Legal regulation of freight forwarding activities – relevant laws and regulations, as well as the rights, obligations, and responsibilities of the international freight forwarder. Basic and specialized tasks, activities, and duties of the international freight forwarder. Incoterms terms in international trade. Contemporary trends and challenges in the operations of international freight forwarders as logistics operators (digitalization, automation, globalization and consolidation of logistics operators, environmental challenges, and sustainability).

1.5. Modes of Instruction	☒ Lectures ☒ Seminars and workshops ☐ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

- 1st colloquium (with a minimum achievement of 50% of the points)
- 2nd colloquium (with a minimum achievement of 50% of the points)
- Seminar – independent research and presentation (evaluation according to detailed criteria with a minimum achievement of 50% of the points)
- Final exam (with a minimum achievement of 50% of the points)

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	0,5	Oral exam		Essay		Research	0,5
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure for assessing acquired learning outcomes is conducted in accordance with the Regulations on Studies at the University of Rijeka and the Regulations on Studying at the Faculty of Maritime Studies in Rijeka as follows:

- Continuous knowledge assessment during classes – evaluates 70% of the acquired learning outcomes (LO): 1st colloquium – 25% (LO 1-4), 2nd colloquium – 25% (LO 5-8), preparation and presentation of a seminar within the research work – 20% (LO 9), which is evaluated based on detailed criteria; for each activity, the student must achieve at least 50% of the points.
- Final exam – evaluates 30% of the acquired learning outcomes (LO 1-8), whereby the student must achieve at least 50% of the points to pass the final exam.

Examples of assessing learning outcomes in relation to the established learning outcomes are:

1. Define and explain key terms (e.g., freight forwarder, logistics operator, 3PL, 4PL, etc.) and explain the differences between these terms.
2. Explain the role and significance of freight forwarding logistics in international trade using a concrete example.
3. List the key legal sources regulating freight forwarding activities and analyse the rights, obligations, and responsibilities of the freight forwarder arising from these sources.
4. List and explain the basic tasks of a freight forwarder (e.g., routing, cargo receipt, concluding transport contracts, concluding transport insurance contracts, etc.) and interpret the legal status and role of the freight forwarder within these tasks.
5. Analyse an example of a specific freight forwarding task conditioned by specific cargo (e.g., dangerous goods, live animals), explaining the role of the freight forwarder, specific activities, and documentation.
6. Interpret the purpose, function, and data contained within documents used in freight forwarding operations (e.g., bills of lading, waybills, single customs declarations, etc.).
7. Explain the role of Incoterms and interpret the obligations of the seller and buyer using a concrete Incoterm example (e.g., EXW, CIF, FOB, etc.).
8. Explain and analyse the impact of contemporary trends in the logistics services market (e.g., globalization, sustainability, digitalization, etc.) on the development and affirmation of logistics operators.
9. Apply and present acquired knowledge through research of a practical case from freight forwarding business practice.

1.10. Main Reading

1) teaching material for the e-course “Freight Forwarding” – accessible on the e-learning platform - Merlin (https://moodle.srce.hr) during the current academic year
2) Babić, D., Stanković, R., Bajor, I., Špediterski poslovi u logističkoj djelatnosti, Faculty of Transport and Traffic Sciences, University of Zagreb, Zagreb , 2020.
3) Zelenika, R., Temelji logističke špedicije, Faculty of Economics, University of Rijeka, Rijeka, 2005.

1.11. Recommended Reading

1) Incoterms 2020, Pravila tumačenja trgovinskih termina Međunarodne trgovinske komore, HGK, 2020.
2) Zelenika, R., Logistički sustavi, Faculty of Economics, University of Rijeka, Rijeka, 2005.
3) Zelenika, R. Incoterms 2000 u teoriji i praksi – 100 savjeta i 100 primjera , Faculty of Economics, University of Rijeka, Rijeka, 2002.
4) Andrijanić, I., Aržek, Z., Prebežac, D., Zelenika, R., Transportno i špeditersko poslovanje, Faculty of Economics and Business, University of Zagreb, Zagreb, 2001.
5) Zelenika, R., Međunarodna špedicija, Faculty of Economics, University of Rijeka, Rijeka, 2000.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
teaching material for the e-course "Freight Forwarding" – accessible on the e-learning platform - Merlin (https://moodle.srce.hr) during the current academic year	unlimited	30
Babić, D., Stanković, R., Bajor, I., Špediterski poslovi u logističkoj djelatnosti, Faculty of Transport and Traffic Sciences, University of Zagreb, Zagreb , 2020.	3	30
Zelenika, R., Temelji logističke špedicije, Faculty of Economics, University of Rijeka, Rijeka, 2005.	5	30

1.13. Quality Assurance

The quality of studying is continuously monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. An analysis of exam results is prepared annually, and a student survey is conducted once per semester.

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3.2. Course description

Generic information		
Head of Course	**Livia Maglić, PhD**	
Course	**Container Stacking Strategies**	
Study Programme	**Technology and Organization of Transport**	
Type of Course	**Mandatory**	
Year of Study	3	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	30+15+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The course aims to familiarize students with the set of factors, processes, and plans according to which the stowage of containers on the ship and at the terminal is carried out.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

Upon successful completion of the course, students will be able to:

1. Classify containers in the stacking area according to type and destination
2. Identify and explain the methods of marking the stacking area at a given terminal
3. Interpret the loading/unloading plan of cargo on a ship using a given example
4. Explain and describe cargo handling and stacking technologies
5. Assess the occupancy and utilization of the stacking area capacity using a given example
6. Interpret operational logistics problems in the stacking area
7. Highlight and describe methods of packaging and stacking, as well as procedures for loading into containers through the application of software tools

1.4. Course Outline

Technology of operations at the container terminal stacking area. Basic parameters for dimensioning the stacking area. Methods of marking the stacking area. Principles and strategies of container stacking. Fundamental container stowage plans on the ship and in the stacking area. Types of markings on containers and handling equipment. Methods of packaging and stowing cargo in containers. Logistical operational problems in the stacking area. Methods for determining container relocation in the stacking area. Evaluation of the effectiveness of relocation and the operational plan.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☒ Field work	☐ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

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1.7. Student Obligations

1. Taking two colloquiums
2. Final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1,0	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Evaluation procedure:

The procedure for evaluating the acquired learning outcomes is carried out according to the Regulations on Studies of the University of Rijeka and the Rulebook on Studies at the Faculty of Maritime Studies in Rijeka as follows:

- 70% of the acquired learning outcomes are evaluated through continuous knowledge assessment during the teaching process: through the 1st colloquium - learning outcomes 1-3 (35%), 2nd colloquium - 4-7 (35%);
- 30% of the acquired learning outcomes (1-7) are evaluated at the final part of the exam, with a minimum of 50% of available points necessary for passing the final exam.

Examples of evaluation:

1. Explain the principle of stacking containers according to the IMDG Code.
2. List the advantages of using automated stacker (AS) cranes in the container stacking area.
3. Interpret a container stowage plan using a given example.
4. Calculate the capacity of a container block in the stacking area.
5. Analyze and compare a container relocation problem and a pre-marshalling problem.
6. Define the specific characteristics of logistics problems in the context of tactical planning.
7. Describe and explain the process of loading cargo into a container, using a specific example.

1.10. Main Reading

- Thoresen, A.C. Port designer's handbook, Thomas Telford Publishing, London, 2003.
- Presentations of the course professor are available on the e-learning system Merlin

1.11. Recommended Reading

- Maglić, L. Optimizacija raspodjele kontejnera na slagalištu lučkoga kontejnerskog terminala, doktorski rad, 2015.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Thoresen, A.C. Port designer's handbook, Thomas Telford	1	10

1.13. Quality Assurance

The quality of the study is continuously monitored following the ISO 9001 system and in line with European standards and guidelines for quality assurance, as implemented at the Faculty of Maritime Studies, University of Rijeka. Annual exam analysis is conducted, and student surveys are carried out each semester.

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3.2. Course description

Generic information			
Head of Course	Siniša Vilke, PhD		
Course	Land transport technology		
Study Programme	Technology and Organization of Transport		
Type of Course	Mandatory		
Year of Study	3		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		45 + 30 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The objective of the course is to gain basic knowledge of transportation planning of land transportation infrastructure facilities, utilisation characteristics of road and rail vehicles, and the range of road and rail transportation infrastructures in order to develop a transportation synthesis of land transportation technologies.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After completing the course and passing the exam, students will be able to:

1. Interpret the methodology of traffic planning of land transport infrastructure facilities
2. Calculate the operational characteristics of road vehicles and assess their technical and transport characteristics based on given parameters
3. Interpret the transverse and longitudinal stability of road transport vehicles according to the given criteria
4. Interpret the operational characteristics of railway transport vehicles and compare their indicators based on given performances
5. Apply numerical methods in the analysis of the throughput of road and railway transport infrastructure
6. Interpret and compare combined land transport technologies
7. Interpret legal provisions in the organization of domestic and international land transport
8. Develop and write a research program task for the analysis of a passenger or freight transport line

1.4. Course Outline

Land transport infrastructure and transport demand planning. Modal distribution of passenger and freight transport. Road transport infrastructure. Road vehicles: operational characteristics of road vehicles, lateral and longitudinal stability. Technological features of road transport. Legislation in the organization of national and international transport.
Railway transport infrastructure. Towing and rolling stock. Performance characteristics of railway vehicles. Graphical representation of train traffic (timetables). Technological features of railway transport. Range of road and rail transport infrastructure. Land transport technologies. Technologies for combined transport.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

The student must attend at least 70% of the total lecture and exercise hours, prepare and present a seminar paper, and pass the exams (continuous assessment) in order to take the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project	0,5	Continuous Assessment	1	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of acquired learning outcomes is carried out by the Study Regulations of the University of Rijeka and the Study Regulations at the Faculty Maritime Studies in Rijeka as follows:

- 70% of the acquired learning outcomes are evaluated through continuous assessment during classes, within the 1st exam (25%), 2nd exam (25%), through the development of a program assignment – project (10%) and the presentation of a research assignment – seminar (10%); in this case, the student must achieve a minimum of 50% of points for each exam, and the presentation of the research assignment is evaluated based on defined assessment criteria;
- 30% of the acquired learning outcomes are evaluated in the final part of the exam, whereby the student must achieve a minimum of 50% of points to pass the final exam

Examples of assessment of learning outcomes to establish learning outcomes are:

1. Explain the methodology of traffic planning of land infrastructure facilities.
2. Explain the operational characteristics of road and rail transport vehicles.
3. Calculate the transverse and longitudinal stability of road transport vehicles according to the given criteria.
4. Analyze road and rail transport infrastructure.
5. Explain numerical methods in the analysis of land transport systems.
6. Explain the application of combined transport technologies.
7. Explain the basic legal provisions for the organization of land transport infrastructure.

1.10. Main Reading

1. Baričević, H.; Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2016.
2. Baričević, H.: Tehnologija kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2001.
3. Teaching material for the e-course available in the MS system - Merlin *(https://moodle.srce.hr)*

1.11. Recommended Reading

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1. 1. Vilke, S.; Petrović, I.; Tadić, F.: Evaluation and Selection of the Railroad Route between Rijeka and Zagre Applied Sciences, 12, (2022), 3, 1306.
2. Vilke, S.; Mance, D.; Debelić, B.; Maslarić, M: Correlation between freight transport industry and economi growth – panel analysis of CEE countries, Promet–Traffic & Transportation, 33 (2021), 4, 517 – 526.
3. Badanjak, D., Bogović, B., Jenić, V.: Organizacija željezničkog prometa, FPZ, Zagreb, 2006
4. Županović, I.: Tehnologija cestovnog prometa, FPZ, 2003, Zagreb
5. Padjen, J.: Osnove prometnog planiranja, Informator, Zagreb, 1986.
6. Cerovac, V.: Tehnika i sigurnost prometa, FPZ, Zagreb, 2001.

Zelenika, R.: Multimodalni prometni sustavi, Ekonomski fakultet, Rijeka, 2006.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Baričević, H.; Vilke, S.: Logistika i sigurnost kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2016.	10	30
Baričević, H.: Tehnologija kopnenog prometa, Pomorski fakultet u Rijeci, Rijeka, 2001.	10	30
Teaching material for the e-course available in the MS system - Merlin *(https://moodle.srce.hr)*	-	30

1.13. Quality Assurance

The quality of studies is constantly monitored by the system ISO 9001, which was introduced at the Faculty Maritime Studies in Rijeka. An analysis of examinations is made annually and a student survey is conducted once a semester.

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Course description

Generic information			
Head of Course	**Radoslav Radonja, PhD**		
Course	**Ecology in Transport**		
Study Programme	**Technology and Organization of Transport**		
Type of Course	**Elective**		
Year of Study	**3**		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		**3**
	Number of Hours (L+E+S)		**30 + 0 + 0**

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main goal of the course is to acquire knowledge about the principles and laws of environmental protection, and understanding of theoretical, technical and legislative considerations of the relationship between organisms, biotopes and sources of pollution in traffic, and especially the part related to marine environment.

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

After passing the exam, students will be able to:
1. Interpret the basic concepts of ecology
2. Explain and interpret the harmful impact of pollutants in traffic on the biocenosis and the environment in a particular biotope
3. List and explain the protocols and annexes of the MARPOL 73/78 Convention
4. Explain the categories of pollutants according to the annexes and their harmful impact
5. State and explain the legislative requirements and documentation on board related to pollution prevention
6. Argue the requirements of the Ballast Water Convention and assess their impact on the environment
7. State and explain the harmful effects of underwater anti-fouling paints
8. Analyze and compare sources of sound pollution in traffic
9. List the requirements of the Convention on the Recycling of the Ships and explain prudent disposal procedures
10. Discuss possible scenarios related to sustainable development and climate change

1.4. Course Outline

Basic concepts of ecology. Traffic pollutants and their harmful effects. Marine ecosystem factors and protection of the marine environment. Ship as a source of pollution. Marpol 73/78 (protocols and annexes). Ballast Water Convention. Convention against anti-fouling paints. Ship Recycling Convention. Sound and light pollution. Assumed possible scenarios related to sustainable development and climate change.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☐ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		
1.7. Student Obligations		
Active class attendance, 1st colloquium, 2nd colloquium and final oral exam.		
1.8. Assessment[1] of Learning Outcomes		

Course attendance	1,0	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1,0	Essay		Research	
Project		Continuous Assessment	1,0	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure for evaluating the acquired learning outcomes takes place in accordance with University's and Faculty's normative acts as follows:

- through continuous testing of knowledge during classes, 70% of the acquired learning outcomes are evaluated through the 1st colloquium - learning outcomes 1-2 (20%), 2nd colloquium - learning outcomes 3-6 (50%), while the student must realize a minimum of each colloquium 50% points;
- at the final part of the exam, 30% of the acquired learning outcomes are evaluated (1-10), whereby the student must realize a minimum of 50% of points in order to pass the final exam.

Examples of evaluating learning outcomes in relation to set learning outcomes are:

1. Explain what studies ecology as a science? What is the difference between abiotic and biotic factors? Why is water said to be the most important abiotic factor? ...
2. What is meant by the term "oil on board" and what does the spread and movement of the oil spill on the water depend on? List and explain the basic processes of oil decomposition? What are the harmful effects of pollutants from the exhaust gases of vehicles on the environment, and which on human health and why? ...
3. What does the Marpol 73/78 Convention consist of and what does Annex 1 (or 2 or 3 or… 6) deal with? To which ships does it apply / does it not apply? What are the exceptions? What are special and what are particularly sensitive marine areas? ...
4. According to Annex 2 of Marpol 73/78 of the Convention, where are unhealthy substances listed in bulk and how are they classified? According to Annex 3 of the Marpol 73/78 Convention, where are dangerous substances listed and how are they classified? ...
5. According to Annex 5 of the Marpol Convention, what documentation must a ship have? According to Annex 3 of Marpol 73/78 of the Convention, what are the conditions of packing and marking of cargo, requirements for accompanying documentation, packing and labeling, and how to handle empty packing? ...
6. What is the potential environmental hazard of ballast water coming from a tanker unloading / loading cargo at a tanker terminal and why? What is the difference between clean and separate ballast on an oil tanker? ...
7. What impact on the ship comes from the accumulation of fouling on the hull? What environmental hazards come from TBT underwater anti-fouling paints? ...
8. How does noise pollution from traffic affect the environment and people? What are the possible sources of noise and what is the difference between land and sea noise pollution? ...
9. Explain the term so-called. "Green passports" on board? Explain the difference in costs and the impact on people and the environment between ship recycling by stranding and recycling in a recycling shipyard? ...
10. What are the causes that can lead to the opening of the so-called. northern sailing routes and what are the possible consequences? How can a further increase in atmospheric temperature affect 'permafrost' and what are the possible consequences? Why is a ship considered the most environmentally friendly means of transport despite being heavily polluted? ...

1.10. Main Reading

1. Klepac, R.: Osnove ekologije, JUMENA, Zagreb 1990.
2. IMO, MARPOL 73/78., Consolidated Edition, London 2013.
3. Teacher lectures - available in electronic form

1.11. Recommended Reading

1. https://www.pfri.hr/web/dokumenti/uploads_nastava/20180227_184357_zec_ZMMO_v.1.5_web.pdf
2. Golubić, J. Promet i okoliš, Fakultet prometnih znanosti u Zagrebu, Zagreb, 1999.
3. Dorčić, I.: Osnove čišćenja uljnih zagađenja, SKTH, Zagreb
4. Botkin, D., Keller, E., Environmental science, J. Wiley & sons, Inc., New York, 1995

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Teacher lectures - available in electronic form	-	30
IMO, MARPOL 73/78., Consolidated Edition, London 2013.	1	30
Klepac, R.: Osnove ekologije, JUMENA, Zagreb 1990.	1	30

1.13. Quality Assurance

Course quality review carried in accordance with ISO 9001 system and European standards and guidance for quality assurance carried through on Maritime faculty. Student Success is evaluated, and corrective measure implemented yearly.

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3.2. Course description

Generic information			
Head of Course	Renato Ivče, PhD		
Course	Maritime transport technology		
Study Programme	Technology and Organization of Transport		
Type of Course	Optional		
Year of Study	3.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	3	
	Number of Hours (L+E+S)	(30 + 15 + 0) (2+1+0)	

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

To introduce students to international regulations, rules, recommendations and standards relating to the safe handling, stowage and transport of cargo. To introduce students to the characteristics of cargo in maritime transport, the principles of handling all types of cargo, planning cargo loading on ships of various technologies, and safety measures in the transport of cargo by sea.

1.2. Prerequisites for Course Registration

No prerequisites for course registration

1.3. Expected Learning Outcomes

1. - Apply international and national rules and codes relating to the handling and transport of cargo
2. - Define the types of cargo significant in maritime transport
3. - Analyse the general requirements for sea transport
4. - Apply requirements when transporting various types of dry cargo by sea.
5. - Apply requirements when transporting various types of liquid cargo by sea
6. - Apply requirements when transporting cargo with specific features
5. - Compare the transport and transhipment effectiveness of ships of various technologies

1.4. Course Outline

International regulations, regulations, recommendations and standards related to cargo handling. Cargo carrying capacity of the ship. Deadweight of the ship. Principles of cargo planning for ships of different technologies. General cargo maritime transportation technology. Container maritime transportation technology. Ro - Ro maritime transportation technology Bulk cargo maritime transportation technology. Technology of maritime transportation of oil and products. Technology of maritime transportation liquefied gases. Maritime transportation of wood. Technology of maritime transportation of refrigerated cargo.

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1.5. Modes of Instruction	X ☐ Lectures ☐ Seminars and workshops X ☐ Exercises ☐ E-learning ☐ Field work	X ☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

Active attendance of classes and at least 70% of completed classes for admission to the exam.
Successful passing colloquiums and the final oral exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam		Oral exam	0,5	Essay		Research	
Project		Continuous Assessment	0,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam is carried out in accordance with the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka as follows:
through continuous assessment of knowledge during the classes, 70% of the acquired learning outcomes are evaluated through the 1st colloquium - learning outcomes 1-3 (25%), 2nd colloquium - learning outcomes 4-7 (25%), preparation expert problem-assignment - learning outcome 3 (20%); At the same time, the student must achieve a minimum of 52% of points in colloquium, 30% of the acquired learning outcomes (1-5) are evaluated at the final oral exam, and the student must achieve a minimum of 50% of points for passing the final exam.
Examples of evaluating learning outcomes in relation to set learning outcomes are:
1. Define and explain the application of the BLU code,
2. Define and explain the principle of basic division of dry cargo.
3. Formulate and apply requirements for the carriage of general cargo by sea,
4. Formulate and apply requirements for the transport of liquefied gases by sea,
5. Compare the transportation performance of container vessels and ro-ro vessels

1.10. Main Reading

1. Vranić D., Ivče R., Tereti u pomorskom prometu
2 D.J.House, Cargo Work, Butterworth-Heinemann
3. Vranić, D., Kos, S., Morska kontejnerska transportna tehnologija
4. Komadina, P. , Brodovi multimodalnog transportnog sustava
5. Komadina P. Tankeri

1.11. Recommended Reading

1. Biblioteka pomorskog časnika, sv. 1,
2. Biblioteka pomorskog časnika sv. 2,
3. Biblioteka pomorskog časnika sv. 3,
4. Biblioteka pomorskog časnika sv. 4.
5. Međunarodni pravilnici i kodeksi koji se odnose na rukovanje i prijevoz tereta morem

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Tereti u pomorskom prometu	30	40
Cargo work	Unlimited	40
Morska kontejnerska transportna tehnologija	7	40
Brodovi multimodalnog transporta	10	40
Tankeri	6	40

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with the European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, exam passing results are analysed and appropriate measures are adopted

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3.2. Course description

Generic information			
Head of Course	Biserka Rukavina, PhD		
Course	Maritime agencies		
Study Programme	Technology and Organization of Transport		
Type of Course	Elective		
Year of Study	3.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30+ 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Acquiring knowledge of the basic characteristics of maritime agents. Understanding of the historical development of maritime agencies and the purpose of their establishment. Knowledge of the structure and the functions of maritime agents and identification the role and significance of maritime agents in the transport process. Affiliation this content with related courses in order to achieve and implement a multidisciplinary approach.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After passing the exam, students will be able:

1. to define and interpret the basic concepts of maritime agency business.
2. to distinguish and compare the international and national legal sources governing the organization and activities of maritime agencies and explain the role of international and national professional associations.
3. to classify and interpret certain types of the maritime agent (port agent, shipbroker, special operations).
4. to describe and explain ship arrival and departure procedures.
5. to describe and analyze the contents of the disbursement account.
6. to explain and identify the essential elements of the maritime agency contract and analyze and compare individual types of contracts.
7. to analyze, compare and demonstrate the specifics of the operations of maritime agents on the example

1.4. Course Outline

The term and types of maritime agents. International and national legal sources governing the organization and activities of maritime agencies. Organization of maritime agencies. Port agent activities. Shipbroker activities. Disbursement account. Maritime Agency Contract – parties, subject matter of the contract, duration and termination of the contract. Analysis of individual type contracts (Agency Appointment Agreement, General Agency Agreement). The rights, obligations and liability of the maritime agent.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Presentation
1.6. Comments		

1.7. Student Obligations

The student must attend at least 70 % of the total hours of lectures and exercises, and must have passed colloquia (continuous knowledge testing) and a positively evaluated presentation (ppt presentation) to take the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	1	Oral exam		Essay		Research	
Project		Continuous Assessment	2	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The process of evaluation of the acquired learning outcomes takes place during continuous assessments through 2 midterm examinations (60 %), student presentation (10 %) and at the final part of the exam (30 %).

Examples of Assessment of Learning Outcomes:

1. Define a maritime agent in accordance with national legal sources.
2. Describe the procedure for establishing a maritime agency in the Republic of Croatia in accordance with national regulations.
3. Provide two examples of shipbroker functions.
4. Describe one document to be provided by the ship/master/agent in international navigation in the document Notice of Arrival and explain the purpose of obtaining it.
5. Specify the charges the ship may have when entering the port and explain what the charges depends on.
6. Explain the possible consequences of the agent's conduct contrary to the principal's order.
7. Describe the structure of the modern maritime agency.

1.10. Main Reading

1. Authorized lectures on the e-learning platform MERLIN (online materials).
2. Mandić, Nikola, Lovrić, Ivana, Pomorske agencije i otpremništvo, Split, 2019.

1.11. Recommended Reading

1. Pomorski zakonik (pročišćeni tekst) - Ugovor o pomorskoj agenciji čl. 674. – 683.
2. Opći uvjeti poslovanja pomorskih agenata, 2009.; Udruga pomorskih agenata Hrvatske.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Mandić, Nikola, Lovrić, Ivana, Pomorske agencije i otpremništvo, Split, 2019.	3	40

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with the European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, exam passing results are analyzed and appropriate measures are adopted.

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3.2. Course description

Generic information			
Head of Course	**Biserka Rukavina, PhD**		
Course	**Commercial Law**		
Study Programme	**Technology and Organization of Transport**		
Type of Course	Elective		
Year of Study	3.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		30+15+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main objectives of the course are to acquire knowledge about the theory of state and law, the fundamental characteristics of real rights, and to familiarize students with the essential elements of contract law. Furthermore, the aim of the course is to familiarize students with the structure of certain types of commercial enterprises, the importance of the court register, and the effects of contractual and non-contractual liability of commercial law stakeholders.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After passing the exam, students will be able:

1. to list and describe the fundamental elements of the theory of state and law.
2. to distinguish between individual categories of real rights.
3. to describe and interpret the process of concluding a contract and its legal consequences.
4. to compare types of companies.
5. to explain the general and specific characteristics of each type of contract.
6. to analyze and interpret contractual and non-contractual liability.

1.4. Course Outline

Basic terms of law and the state. Legal and business capacity. Structure and significance of the court register. Company. Organization of commercial enterprises – general provisions. Analysis of the organization and operation of a capital company (corporation). Analysis of the organization and operation of a general and limited partnership. Bodies of a commercial enterprises. Law of obligations – general provisions. Principles of the law of obligations. Analysis of individual types of contracts (purchase and sale contract, contract of lease, lien and mortgage, employment contract, contract of carriage, commission, contract warehousing, forward contract, insurance contract).

1.5. Modes of Instruction

☒ Lectures	☐ Practical work
☐ Seminars and workshops	☐ Multimedia and Network
☒ Exercises	☐ Laboratory
☐ E-learning	☐ Mentorship
☐ Field work	☐ Other _____

1.6. Comments	

1.7. Student Obligations

The student must attend at least 70 % of the total hours of lectures and exercises, and must have passed colloquia (continuous knowledge testing) and a positively evaluated presentation (ppt presentation) to take the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	0,5	Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	
Project		Continuous Assessment	1	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The process of evaluation of the acquired learning outcomes takes place during continuous assessments through 2 midterm examinations (60 %), student presentation (10 %) and at the final part of the exam (30%).

Examples of Assessment of Learning Outcomes:

1. Explain the difference between legal and business capacity.
2. Explain the right of ownership.
3. State the legal consequences of the principle of conscientiousness.
4. State the obligations of the management of a joint-stock company.
5. Explain the obligations of the carrier.
6. Define liability for damage.

1.10. Main Reading

1. Authorized lectures on the e-learning platform MERLIN (online materials).
2. Gorenc, Vilim, Pravo trgovačkih društva, Baltazar Adam Krčelić, Zaprešić, 2011.
3. Slakoper, Zvonimir, Kačer, Hrvoje, Luttenberger, Axel, Osnove prava trgovačkih ugovora i vrijednosnih papira, Mikrorad, Zagreb, 2009.

1.11. Recommended Reading

1. Companies Act, Consolidated text.
2. Civil Obligations Act, Consolidated text.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Gorenc, Vilim, Pravo trgovačkih društva, Baltazar Adam Krčelić, Zaprešić, 2011.	3	30
2. Slakoper, Zvonimir, Kačer, Hrvoje, Luttenberger, Axel, Osnove prava trgovačkih ugovora i vrijednosnih papira, Mikrorad, Zagreb, 2009.	3	30

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with the European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, exam passing results are analyzed and appropriate measures are adopted.

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Course description

Generic information			
Head of Course	Dražen Žgaljić, PhD		
Course	Port Logistics		
Study Programme	Technology and Organization of Transport		
Type of Course	Mandatory		
Year of Study	3rd		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The primary goal of the course is to familiarize students with cargo terminals in logistics systems, cargo flows, freight transport centers, the evolution of ports within the supply chain, and logistics systems and procedures in ports.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

After attending and passing the course, the student will be able to:

- Explain the fundamental characteristics of cargo terminals in logistics systems
- Explain the concept of a smart port
- Classify the stages of port evolution within the supply chain
- Analyze the role of ports and terminals as intermodal centers and identify their key functions
- Organize port services as a freight transport center
- Present the procedures for receiving and dispatching cargo in ports

1.4. Course Outline

Cargo terminals in logistics systems. Cargo flows. Ports. Evolution of ports within the supply chain. Ports and terminals as intermodal and freight transport centers. Measuring efficiency in ports. Choosing the transport route—Northern or Southern Europe. Selection of container ports by liner shipping companies. The concept of the smart port. Examples of procedures for cargo reception at the terminal.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

Student obligations include: regular class attendance, a seminar, midterm exams, and a final exam.

- 1st midterm exam – 25%
- 2nd midterm exam – 25%
- Seminar (individual assignment) – 20%
- Final exam – 30%

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	1,5	Oral exam		Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The evaluation of acquired learning outcomes is carried out in accordance with the Regulations on Study Programs of the University of Rijeka and the Study Regulations of the Faculty of Maritime Studies in Rijeka, as follows:

- Continuous assessment during classes accounts for 50% of the learning outcomes: 25% through the 1st midterm exam and 25% through the 2nd midterm exam. The student must achieve at least 50% of the available points on each midterm exam in order to pass.
- The seminar paper accounts for 20% of the learning outcomes.
- The final exam accounts for 30% of the learning outcomes, and to pass the final exam, the student must achieve at least 50% of the available points.

Examples of learning outcome assessments in relation to the defined learning outcomes include:

1. Describe the functional role of a cargo terminal as a part of the logistics system.
2. List and describe the types of technologies that make a port a smart port.
3. Describe the evolution of the supply chain in relation to ports.
4. Explain value-added logistics and the development of VAL services in ports.
5. Explain the concept of transport route competitiveness using the example of the Port of Rijeka.
6. Explain and describe the key parameters for a liner shipping company's decision to call at a particular port.

1.10. Main Reading

1. Hlača, B.: Poslovna logistika, Merlin, Sustav za e-učenje, Pomorski fakultet u Rijeci, 2017
2. Hlača, B.: Lučka logistika, Sveučilište u Rijeci, Pomorski fakultet u Rijeci, Rijeka 2016.
3. Study materials available at e-learning platform (https://moodle.srce.hr)

1.11. Recommended Reading

1. Branch, A.E.: Global Supply Chain Management and International Logistics, Taylor & Francis e-Library, New York, 2008. Chung - Yee Lee, Qiang Meng, Handbook of Ocean Container Transport Logistics, The Hong Kong University of Science and Technology, National University of Singapore, Hong Kong, Singapore, 2015.
2. Bichou, K.: Port Operation, Planning and Logistics, Lloyds Practical Shipping Guides, Oxon, UK 2013.
3. Burns, M.G., Port Management and Operation, Boca Raton, U.S. 2015.
4. COELLI, T., PRASADA Rao D.S., BATTESE, G.E.: An introduction to Efficiency and Productivity Analysis, Kluwer Accademic Publishers, Boston, Dordercht and London, 1998.
5. Jugović, A., Sirotić, M., Žgaljić, D., Oblak, R.: Assessing the Possibilities of Integrating Ports into the Circular Economy // Tehnički vjesnik = Technical gazette, 29 (2022), 2; 721-730. doi: 10.17559/TV-20200327221233
6. Kavran, N.., Perko, N., Žgaljić, D.: Croatian maritime port capacity, services and development plans // Maritime Transport '16., Barcelona: University Politecnica de Catalunya, 2016. str. 398-406
7. LANGEN, P.W., Port competition and selection in contestable hinterlands, Rotterdam 2005.
8. NOTTEBOOM, T.E., Container Port Competition in Europe, Antwerpen, 2014.
9. WANG, S., Efficient Global Containers Transport Network Design, Singapoore, 2014.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Hlača, B.: Poslovna logistika, Merlin, Sustav za e-učenje,	5	

Pomorski fakultet u Rijeci, 2017		
Hlača, B.: Lučka logistika, Sveučilište u Rijeci, Pomorski fakultet u Rijeci, Rijeka 2016.	5	
Study materials available at e-learning platform (https://moodle.srce.hr)	unlimited	

1.13. Quality Assurance

The quality of studies is monitored in accordance with the ISO 9001 system and European standards and guidelines for quality assurance (ESG), which are implemented at the Faculty of Maritime Studies in Rijeka. Once a year, pass rates are analyzed, and appropriate measures are taken.

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3.2. Course description

Generic information		
Head of Course	Dario Ogrizović, PhD Ozren Rafajac, PhD	
Course	Electronic business	
Study Programme	Technology and Organization of Transport	
Type of Course	Elective	
Year of Study	3rd	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Electronic business refers to the application of information technology and computer networks, mainly the Internet, in the process of buying and selling goods, services and information, but also refers to smart and social commerce, e-learning, e-services, e-government, social collaboration, collaborative and sharing economy, innovation, mobility, communication and information discovery using artificial intelligence, analytics and big data.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

1. Explain the theoretical foundations of electronic business relating to types of systems, models, methods, mechanisms, management programs and benefits.
2. List and differentiate electronic and mobile commerce, their content and implementations.
3. Describe social networks and applications for social commerce, advertising, CRM and entertainment, and social entrepreneurship systems.
4. Describe connected smart commerce, the Internet of Things and smart applications.
5. Describe consumer behaviour on the Internet, marketing and advertising in the web environment.
6. List security issues and their solutions in e-commerce.
7. Distinguish and systematize types of e-payments, mobile payments, digital currencies and their mining and trading.
8. Critically assess the ethical, legal, social and business environments in which electronic business operates.

1.4. Course Outline

Theoretical foundations of electronic business. Methods and models of selling goods, services and information via computer networks. Content and implementation of electronic and mobile commerce. Network and computer infrastructure. Business models of e-business. Types and structure of portals. Social networks and applications for social commerce, advertising, CRM and entertainment, and social entrepreneurship systems. Connected smart commerce, Internet of Things and smart applications. Consumer behaviour on the Internet, marketing and advertising in the web environment. Security issues and their solutions in electronic commerce. Types of e-payments, mobile payments and digital currencies in electronic commerce. Cryptocurrencies, mining and trading. Ethical, legal, social and business environments.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☒ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☒ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1. Attendance and activity in class
2. Attendance and activity in laboratory exercises
3. Project
4. Written exam (midterms and exam)

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	0,5	Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	
Project	0,5	Continuous Assessment	0,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The process of evaluation of the acquired learning outcomes takes place during continuous assessments (through class activities (10%), preparation and presentation of a project (20%), 2 midterm exams - total 40%) and at the final part of the exam (30%). A minimum of 50% of points must be achieved in individual knowledge assessments.

Examples of evaluating learning outcomes in relation to the learning outcomes that are set are:

1. Explain the theoretical foundations of e-commerce relating to types of systems, models, methods, mechanisms, management programs and benefits.
2. List and differentiate electronic and mobile commerce, their content and implementations.
3. Describe social networks and applications for social commerce, advertising, CRM and entertainment, and social entrepreneurship systems.
4. Describe connected smart commerce, the Internet of Things and smart applications.
5. Describe consumer behaviour on the Internet, marketing and advertising in the web environment.
6. List security issues and their solutions in e-commerce.
7. Distinguish and systematize types of e-payments, mobile payments, digital currencies and their mining and trading.
8. Critically assess the ethical, legal, social and business environments in which e-commerce operates.

1.10. Main Reading

1. Turban, E., et al. 2018. Electronic commerce: A managerial and social networks perspective, Springer.
2. Schneider, G., P. 2017. Electronic Commerce, Gengage Learning.
3. Study materials available at e-learning platform (https://moodle.srce.hr)

1.11. Recommended Reading

1. Jelassi, T., et al. 2014. Strategies for E-business: Creating Value Through Electronic and Mobile Commerce: Concepts and Cases, 3rd ed., Harlow, England: FT Prentice Hall.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Turban, E., et al. 2018. Electronic commerce: A managerial and social networks perspective, Springer.	10	40
Schneider, G., P. 2017. Electronic Commerce, Gengage Learning.	10	40

1.13. Quality Assurance

The quality of study is constantly monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. An analysis of the exams is made annually and a student survey is conducted once a semester. All data, including exam, written work and assessment, are at all times public data for all students who have enrolled in the course (on the e-learning platform).

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3.2. Course description

Generic information			
Head of Course	Dario Ogrizović, PhD		
Course	Cloud computing		
Study Programme	Technology and Organization of Transport		
Type of Course	Elective		
Year of Study	3rd		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Cloud computing brings a simpler and more flexible environment for the end user, the theoretical foundations of cloud computing are explained, which relate to the emergence, etymology and characteristics of cloud computing, as well as virtualization as the basis for the emergence of cloud computing. The basic division of service models that are available using standard network technologies and protocols is stated, and the basic implementations and the most important cloud computing service providers are presented.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

1. Explain the theoretical foundations of cloud computing, which relate to the emergence, etymology and characteristics of cloud computing
2. Present virtualization as the basis for the emergence of cloud computing and types of virtualizations
3. Compare cloud computing architectures
4. List and distinguish between service models and cloud computing performance models
5. Describe and compare the most important cloud computing service providers through a historical overview, global network of data centers and CDN nodes
6. Distinguish and systematize the types and purposes of available public and private cloud computing services
7. Implement computer and network services and storage services
8. Analyse security issues and costs of doing business in cloud computing

1.4. Course Outline

Theoretical foundations of cloud computing. Origin, etymology and characteristics of cloud computing. Virtualization. Cloud computing architectures. Cloud computing service models. Cloud computing performance models. The most important cloud computing service providers. Global network of data centers and CDN nodes. Type and purpose of available cloud computing services. Multicloud. Security issues and their solutions. Costs of doing business in cloud computing.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☒ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☒ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1. Attendance and activity in class
2. Attendance and activity in laboratory exercises
3. Project
4. Written exam (midterms and exam)

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	0,5	Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	
Project	0,5	Continuous Assessment	0,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The process of evaluation of the acquired learning outcomes takes place during continuous assessments (through class activities (10%), preparation and presentation of a project (20%), 2 midterm exams - total 40%) and at the final part of the exam (30%). A minimum of 50% of points must be achieved in individual knowledge assessments.

Examples of evaluating learning outcomes in relation to the learning outcomes that are set are:

1. Explain the theoretical foundations of cloud computing, which relate to the emergence, etymology and characteristics of cloud computing
2. Present virtualization as the basis for the emergence of cloud computing and types of virtualizations
3. Compare cloud computing architectures
4. List and distinguish between service models and cloud computing performance models
5. Describe and compare the most important cloud computing service providers through a historical overview, global network of data centers and CDN nodes
6. Distinguish and systematize the types and purposes of available public and private cloud computing services
7. Implement computer and network services and storage services
8. Analyse security issues and costs of doing business in cloud computing

1.10. Main Reading

1. Erl, T.: Cloud Computing: Concepts, Technology & Architecture, The Prentice Hall Service Technology Series, 2013.
2. Chopra, R.: Cloud Computing: An Introduction, Mercury Learning & Information, 2017.
3. Study materials available at e-learning platform (https://moodle.srce.hr)

1.11. Recommended Reading

1. Kavis, M.J.: Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS), Wiley, 2014.
2. Rafaels, R.: Cloud Computing: From Beginning to End, CreateSpace Independent Publishing Platform, 2015.

Selected papers from:

1. Journal of Cloud Computing, ISSN: 2192-113X
2. Future Generation Computer Systems, ISSN: 0167-739X

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Erl, T.: Cloud Computing: Concepts, Technology & Architecture, The Prentice Hall Service Technology Series, 2013.	5	40
Chopra, R.: Cloud Computing: An Introduction, Mercury Learning & Information, 2017.	5	40

1.13. Quality Assurance

The quality of study is constantly monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. An analysis of the exams is made annually and a student survey is conducted once a semester. All data, including exam, written work and assessment, are at all times public data for all students who have enrolled in the course (on the e-learning platform).

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Course description

Generic information			
Head of Course	Mirjana Borucinsky, PhD		
Course	German Language 1		
Study Programme	Technology and Organization of Transport		
Type of Course	elective		
Year of Study	III	Semester	V
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		3
	Number of Hours (L+E+S)		15 + 30 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main objective of the course is to expand students' proficiency and improve their written and spoken communication skills using the specific terminology of logistics, management, technology and transport in maritime affairs and industry.

1.2. Prerequisites for Course Registration

Proficiency level B1.

1.3. Expected Learning Outcomes

It is expected that the student will be able to:
1. Discuss general language topics in German.
2. Discuss technical topics in German.
3. Differentiate between meanings of a term encountered in general language and language for specific purposes.
4. Translate technical texts from German into Croatian (or another target language, e.g. English) and vice versa.
5. Use language skills to communicate effectively in the business surrounding.

1.4. Course Outline

Fachterminologie aus dem Bereich: Grundzüge der Beförderung. Verkehrszweige (Schiffsverkehr, Straßenverkehr, Schienenverkehr, Luftverkehr). Verkehrsinfrastruktur. Terminals.
Geschäftskorrespondenz (Anfrage, Angebot, Bestellung)
Zeitformen der Verben, Verben mit Präpositionen, Satzbau

1.5. Modes of Instruction		
	☒ Lectures	☐ Practical work
	☐ Seminars and workshops	☐ Multimedia and Network
	☐ Exercises	☐ Laboratory
	☒ E-learning	☐ Mentorship
	☐ Field work	☐ Other _____

1.6. Comments

1.7. Student Obligations

Students enrolled at the Faculty of Maritime Studies are expected to observe *the code of conduct* required by

the academic institution, and regularly attend lectures and practical work sessions.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	0,25	Seminar paper		Experiment	
Written exam		Oral exam	0,25	Essay		Research	
Project		Continuous Assessment	1	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Through continuous assessment the student can achieve up to 70% (Learning Outcomes 1 to 5) of the total score, through summative assessment in the form of an oral exam (Learning Outcomes 1,2,3 and 5) up to 30% of total score.

Examples of learning outcomes evaluation through continuous and summative assessment:

1. Beschreiben Sie verschiedene Begrüßungsrituale.
2. Identifizieren und erörtern Sie die Vor- und Nachteile der verschiedenen Arten von Transport.
3. Wie unterscheiden sich die folgenden Fachausdrücke *'Verkehr, Transport, Beförderung'*
4. Übersetzen Sie den Text aus dem Deutschen ins Kroatische (bzw. Englische). Benutzen Sie dabei Fachterminologie.
5. Schreiben Sie einen Geschäftsbrief in dem Sie sich für ein Produkt interessieren.

1.10. Main Reading

1. Fox, R. *Verkehrswesen*, Školska knjiga, Zagreb, 1996.
2. Hering, A., Matussek, M., *Geschäftskommunikation*, Max Hueber Verlag, D-85737 Ismaning, 2004.
3. Perlmann-Balme, M., Tomaszewski, A.: *Themen aktuell 3, Zertifikatsband*, Kursbuch, Max Hueber Verlag, 2004.
4. Perlmann-Balme, M., Tomaszewski, A.:: *Themen aktuell 3, Zertifikatsband*, Arbeitsbuch, Max Hueber Verlag, 2004.

1.11. Recommended Reading

1. Gutremuth, J., Konerding, B., Perseke, J., Seegert, N., *Güterverkehr – Spedition – Logistik*, Bildungsverlag EINS GmbH, Troisdorf, 2002.
2. Hurm, A., *Njemačko-hrvatski rječnik*, Školska knjiga, Zagreb, 1998.
3. Hurm., A., Jakić, B., *Hrvatsko-njemački rječnik*, Školska knjiga, Zagreb, 1999.
4. Kunkel-Razum, Kathrin: *Duden: Briefe gut und richtig schreiben*. Dudenverlag, 2003.
5. Marčetić, T., *Pregled gramatike njemačkog jezika*, Školska knjiga, Zagreb, 1999.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Fox, R. *Verkehrswesen*, Školska knjiga, Zagreb, 1996.	5	5
2. Hering, A., Matussek, M., *Geschäftskommunikation*, Max Hueber Verlag, D-85737 Ismaning, 2004	5	5

1.13. Quality Assurance

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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Internal:

- Student feedback (SET - Student evaluation of teaching) at the end of academic year.
- Course review by the head of course at the end of academic year.

External:

Programme quality review carried by the QA Agency.

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Generic information		
Head of Course	Mirjana Borucinsky, PhD	
Course	English Language 5	
Study Programme	Technology and Organization of Transport	
Type of Course	elective	
Year of Study	3	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	15+30+0

1.GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to develop the students' ability for written and oral communication in English using the basic terminology related to maritime agencies, legal procedures and business processes in the maritime industry.

1.2. Prerequisites for Course Registration

None.

1.3 Expected Learning Outcomes

After passing the exam, the students will be able to:

1. Demonstrate the four basic language skills in English: reading, writing, listening and speaking on B2 level (independent user) according to the Common European Framework of Reference for Languages (CEF).
2. Demonstrate language knowledge and skills for performing professional work in maritime business and transport in English.
3. Explain and discuss specialized topics in English.
4. Translate texts from English into Croatian and vice versa using specialized terminology.

1.4. Course Outline

Specialized vocabulary (terminology, compounds, collocations, MWEs) and relevant elements of grammar (complex sentences, lexical and discourse features) in selected professional written and spoken texts about the following extra-linguistic topics: maritime insurance, P&I clubs, marine accidents, business communication in the maritime industry.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1st midterm exam, 2nd midterm exam, final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio		Presentation					

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of learning outcomes is performed according to the University of Rijeka Regulations on the Studies and the Regulations on the Studies of the Faculty of Maritime Studies in the following way:

60 % of outcomes are assessed through continuous assessment in class. The 1st midterm exam assesses the outcomes 1 and 2 (30 %), while the 2nd midterm exam assesses the outcomes 3 and 4 (30 %). The student is obliged to score a min. of 50% of test points on each of the exams.
Through attendance and participation in course a maximum of 10 % of outcomes can be achieved.
The final exam assesses 30 % of learning outcomes (1-5), whereby the student is obliged to score a min. of 50% of test points:

An example of learning outcomes evaluation through continuous and summative assessment:

1. Identify collocations and other MWE in the specialized text.
2. Write a formal e-mail based on the information provided.
3. Explain and describe which type of risk is covered by the P&I club.
4. Translate a specialized text from English into Croatian using specialized terminology.

1.10. Main Reading

1. Ashley, A. 2003. Oxford Handbook of Commercial Correspondence. Oxford Univeristy Press.
2. B.J.Naterop, E.Weis, E.Haberfellner: Business Letters for All, OUP,1987
3. Pritchard, B. 2001. English in Shipping. https://www.pfri.uniri.hr/bopri/Shipping.html.
4. Teaching materials available at Merlin.

1.11. Recommended Reading

S.S.Weeney: English for Business Communication, CUP, second edition

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Ashley, A. 2003. Oxford Handbook of Commercial Correspondence. Oxford Univeristy Press	5	10
B.J.Naterop, E.Weis, E.Haberfellner: Business Letters for All, OUP,	5	10
Grussendorf, M. 2009. *English for Logistcs*. Oxford: OUP	5	10
Pritchard, B. 2001. English in Shipping. https://www.pfri.uniri.hr/bopri/Shipping.html	available online	10
Teaching materials available at Merlin.	available online	10

1.13. Quality Assurance

The quality of the course is monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the course are analyzed and a survey is conducted among the students once per semester.

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3.2. Course description

Generic information		
Head of Course	**Livia Maglić, PhD** **Marko Gulić, PhD**	
Course	**Application of Algorithms in Transport Planning**	
Study Programme	**Technology and Organization of Transport**	
Type of Course	Mandatory	
Year of Study	3rd	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	30+15+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The core objective of the course is to gain knowledge of the algorithms used to solve optimization problems; an overview (identification) of transport planning problems that need to be optimally solved, and identifying the appropriate algorithm to optimally solve a specific transport problem.

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

After attending and passing the course, students will be able to:

1. Define basic terms about the algorithm and its creation
2. Identify and explain methods for solving transport problems
3. Design a flowchart for resolving a specific transport problem
4. Explain the principle of operation of a particular algorithm for solving optimization problems
5. Identify and analyse part of the process in a specific transport problem that needs to be solved using optimization algorithms
6. Propose an appropriate optimization algorithm that will be used to solve a specific transport problem
7. Adjust the parameters of the optimization algorithm to resolve a specific transport problem

1.4. Course Outline

Classification of problems in transport planning. Methods for solving problems in transport planning. Optimization problems in transport planning. Optimization problems at the container stacking area. The conceptual definition of the algorithm. Symbols in flowchart design. Pseudocode. Adaptation of data to the application of a particular algorithm. Algorithms for solving optimization problems. Nature-inspired optimization algorithms.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☒ Multimedia and Network ☒ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments	-	

1.7. Student Obligations

1. Taking two colloquiums
2. Project assignment
3. Final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project	0,5	Continuous Assessment	1	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure for evaluating the acquired learning outcomes is carried out according to the Regulations on Studies of the University of Rijeka and the Rulebook on Studies at the Faculty of Maritime Studies in Rijeka as follows:

- 70% of the acquired learning outcomes are evaluated through continuous knowledge assessment during the teaching process: through the 1st colloquium - learning outcomes 1-3 (25%), 2nd colloquium - 4-7 (25%), project work - learning outcomes 1-7 (20%);
- • 30% of the acquired learning outcomes (1-7) are evaluated at the final part of the exam, with a minimum of 50% of available points necessary for passing the final exam.

Examples of evaluating learning outcomes concerning set learning outcomes are:

1. Define what an algorithm is and explain the basic steps in its development.
2. Explain the difference between heuristic and deterministic methods for solving problems in transport planning and provide an example.
3. Present and explain a flowchart for solving the container stacking problem at a container terminal.
4. Explain the working principle of the Ant Colony Optimization algorithm.
5. Analyse the container stacking problem at a port terminal and identify a process that could be optimized.
6. Propose a suitable optimization algorithm to solve a specific problem in transport planning.
7. Suggest appropriate algorithm parameters to successfully solve a specific problem in transport planning.

1.10. Main Reading

• Manger, R., Marušić, M., Strukture podataka i algoritmi, Zagreb, 2003.
• Manger, R., Strukture podataka i algoritmi, Zagreb, 2014.
• Course materials are available on the e-learning platform Merlin (https://moodle.srce.hr)

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.11. Recommended Reading

• Knuth, D. E: "The Art of Computer Programming, Vol. 1, 3 Addison-Wesley, 1997.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Manger, R., Marušić, M., Strukture podataka i algoritmi, Zagreb, 2003	unlimited	
Manger, R., Strukture podataka i algoritmi, Zagreb, 2014.	unlimited	
E-course teaching materials are available on the Merlin e-learning system	unlimited	

1.13. Quality Assurance

The quality of studies is continuously monitored following the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. At the end of each semester, an anonymous evaluation of the quality of instruction is conducted by the students. Additionally, an annual analysis of student success in the course is performed (the percentage of students who passed the course and their average grades).

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3.2. Course description

Generic information		
Head of Course	Nikola Lopac, PhD	
Course	Automation in Transport	
Study Programme	Technology and Organization of Transport	
Type of Course	Mandatory	
Year of Study	3rd	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	30+15+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main objectives of the course are to develop an understanding of the basic principles of control and their application in the automation of transport systems, to introduce students to the concept of a system transfer function and its application in the analysis of simple mathematical models, to explain the structure and parameterization of PID controllers and enable students to apply basic controller tuning methods, to develop the ability to identify elements of automation systems and explain their role in transport systems, to explain the structure and function of process computers and present their application in transport systems, as well as to introduce students to the basic applications of advanced automation systems in transport.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. Explain the basic principles of control and demonstrate their application in examples of transport system automation.
2. Explain the concept of a system transfer function and use it to analyze simple mathematical system models.
3. Explain the structure and implementations of PID controllers and demonstrate the process of determining controller parameters using fundamental methods.
4. Distinguish and describe the elements of automation systems and explain their role in examples of transport system automation.
5. Describe the structure and function of process computers and present their basic applications in the automation of transport systems.
6. Describe the basic applications of advanced automation systems in transport.

1.4. Course Outline

Automation. Automation of transport systems. Automatic control. Control loop. System transfer function. Step and impulse response of the system. System representation using block diagrams. Controllers. PID controller – implementations and structure. Controller parameterization. Quality indicators of the system response. Ziegler-Nichols method for controller parameter determination. Types and structures of control. Elements of automation systems. Sensors (measuring elements). Actuators (executive components). Sensors and actuators in transport systems. Programmable Logic Controller (PLC). Process computers. Process computers in transport system automation. Advanced automation systems in transport.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1st midterm exam, 2nd midterm exam, seminar paper, final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1.5	Class participation		Seminar paper	0.7	Experiment	
Written exam		Oral exam	0.5	Essay		Research	
Project		Continuous Assessment	1.3	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The assessment and evaluation of achieved learning outcomes are conducted in accordance with the *Regulations on Study and Studying at the University of Rijeka* and the *Regulations on Studying at the University of Rijeka, Faculty of Maritime Studies*.

Achieved learning outcomes are assessed and evaluated during classes (continuous monitoring and evaluation) and in the final exam.

The evaluation of achieved learning outcomes in the course is expressed in percentage grade points on a 0–100% scale, where the minimum passing grade is at least 50% of the grade points.
Through continuous evaluation of achieved learning outcomes (during classes), the student can earn 70% of the grade points, while the remaining 30% of the grade points can be earned in the final exam.

Continuous evaluation of achieved learning outcomes (during classes) is carried out through two midterm exams and the preparation and presentation of a seminar paper, through which the corresponding achieved learning outcomes are verified and a certain percentage of grade points can be earned, as follows:

- 1st midterm exam: learning outcomes 1–3 – 25% of the grade points,
- 2nd midterm exam: learning outcomes 4–6 – 25% of the grade points,
- seminar paper: learning outcomes 1–6 – 20% of the grade points.

Midterm exams consist of a written assessment of the respective achieved learning outcomes. A passing threshold of 50% is defined for each midterm exam, i.e. the student must achieve at least 50% of the grade points allocated to each midterm exam. A student who does not achieve a sufficient number of grade points in a particular midterm exam will be allowed to retake that midterm exam during classes (1st and 2nd make-up midterm exam). The right to take the 1st make-up midterm exam is granted to a student who achieved less than 50% of the grade points in the 1st midterm exam, and the right to take the 2nd make-up midterm exam is granted to a student who achieved less than 50% of the grade points in the 2nd midterm exam. A student has the right to attempt each retake once.

Students work on a selected topic from the course field, write a seminar paper and present it. The evaluation of the seminar paper is based on the quality of the paper, its presentation, and the knowledge of the subject.

A student who through continuous monitoring achieves:

- from 0% to 34% of the grade points and/or does not meet the passing thresholds in one or both midterm exams (has not achieved at least 50% of the grade points allocated to each midterm exam) is not eligible to take the final exam and must re-enroll in the course,

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

– 35% or more of the grade points and meets the passing thresholds in both midterm exams (has achieved at least 50% of the grade points in each midterm exam) is eligible to take the final exam.

The final exam consists of an oral assessment of achieved learning outcomes (learning outcomes 1–6).

In the final exam, the student must achieve at least 15% of the grade points (50% of the grade points available in the final exam) to pass the course.

A student has the right to take the final exam for the course up to three times during the academic year.

For students who have met the conditions for passing the course, the final grade in the course is the sum of the grade points obtained through continuous monitoring and evaluation and the grade points obtained in the final exam.

The grade awarded for the achieved learning outcomes in the course is determined in accordance with the percentage ranges of grade points defined in the Regulations on Studying at the University of Rijeka, Faculty of Maritime Studies.

Examples of evaluation of learning outcomes in relation to the set learning outcomes are:

1. Draw the basic structure of a control loop and explain each part.
2. Write the transfer function of a first-order system, explain its parameters, and sketch its step response.
3. Explain the procedure for determining the parameters of a PID controller using the Ziegler–Nichols method.
4. Explain the basic operating principle of LIDAR and its role as a measuring device in vehicles.
5. List and explain the basic hardware components of a Programmable Logic Controller (PLC).
6. Describe a computer vision-based automatic parking system.

1.10. Main Reading

1. Course materials available on the Merlin e-learning platform (https://moodle.srce.hr)
2. Z. Vukić, Lj. Kuljača: Automatsko upravljanje – analiza linearnih sustava, Kigen, Zagreb, 2005

1.11. Recommended Reading

1. N. S. Nise: Control Systems Engineering, Wiley, 2019
2. U. Kiencke, L. Nielsen: Automotive Control Systems: For Engine, Driveline, and Vehicle, Springer, 2005
3. N. Lopac, I. Jurdana, A. Brnelić, T. Krljan: Application of laser systems for detection and ranging in the modern road transportation and maritime sector, Sensors, 2022, 22, 16, 5946
4. A. Perallos, U. Hernandez-Jayo, E. Onieva, I. J. G. Zuazola (eds.): Intelligent transport systems: technologies and applications, Wiley, 2015

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Course materials available on the Merlin e-learning platform (https://moodle.srce.hr)	-	10
Z. Vukić, Lj. Kuljača: Automatsko upravljanje – analiza linearnih sustava, Kigen, Zagreb, 2005	5	10

1.13. Quality Assurance

The quality of teaching is continuously monitored in accordance with the ISO 9001 system implemented at the University of Rijeka, Faculty of Maritime Studies. An annual analysis of exam results is conducted, and student surveys are carried out each semester

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3.2. Course description

Generic information			
Head of Course	Dražen Žgaljić, PhD		
Course	Engineering Logistics		
Study Programme	Technology and Organization of Transport		
Type of Course	Elective		
Year of Study	3		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of this course is to enable students to understand the analytical approach to the analysis of logistics systems, with a particular emphasis on the key components and processes within the logistics system and supply chain. The course highlights the importance and practical application of analytical tools used to optimize operations and support decision-making at all stages of the supply chain. Additionally, students will be trained to apply techniques for measuring and managing uncertainty in order to enhance the resilience and efficiency of logistics systems. Throughout the course, creativity and innovation are encouraged in developing multiple solutions to real-world logistics challenges, integrating theoretical knowledge with practical skills

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

After learning, the student will be able to:

1. Explain the fundamental principles of Porter's model of competitive advantage and describe its application in modern production and logistics systems.
2. Describe contemporary trends in logistics, such as sustainable logistics, digitalization, and the circular economy, and analyze their impact on logistics processes.
3. Assess the influence of globalization and technologies such as e-commerce on logistics strategies, including changes in inventory management and distribution.
4. Explain the basic principles of inventory management and their role within the logistics system, including their impact on cost optimization and efficiency.
5. Perform calculations to determine the optimal inventory levels using methods such as Economic Order Quantity (EOQ) and ABC analysis.

1.4. Course Outline

Logistics, Logistics Planning, Logistics Strategies, Management, Quality and Efficiency in Logistics, Distribution Systems of Goods and Services, Distribution Channels, Analysis of Individual Transport Modes, Overview of Transport, Transport in Production, Transportation Costs, Maritime Transport Logistics, Modeling of Logistics Networks, Modeling and Simulation in Logistics, Analysis of Transport Systems, Document Flow Models, Goods Flow Models, Logistics Costs: Warehousing Costs, Transportation Costs of Goods, Inventory Costs, Perishable Goods Costs, Inventory Management Models, Distribution Models, Transport Pricing – Direct Transportation Costs of Goods, Warehousing Costs.

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1. Class attendance
2. Study, research, and problem-solving
3. Taking midterm exams and tests
4. Final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	0,5
Project		Continuous Assessment	1	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The evaluation of achieved learning outcomes is carried out in accordance with the Regulations on Study Programs of the University of Rijeka and the Regulations on Studying at the Faculty of Maritime Studies in Rijeka, as follows:

Through continuous assessment during the classes, 70% of the learning outcomes are evaluated:
1. 1st midterm exam: 30%
2. 2nd midterm exam: 25%
3. Presentation of a research assignment: 15%

Students may take the final exam if they have obtained 35 grade points in continuous knowledge assessments, i.e., 50% of the total number of points that could be achieved during classroom evaluation. Also, a condition is that students achieve at least 50% of points on each colloquium. The final exam is in written form and comprises 30% of the total grade. Students must satisfy 50% of the final exam in order to achieve a positive grade in the course.

Examples of learning outcome evaluation:

1. What are the fundamental principles of Porter's model of competitive advantage, and how can they be applied to optimize logistics systems in modern manufacturing companies?
2. What are the key contemporary trends in logistics?
3. What is the role of information flows in coordinating physical and financial flows within a logistics system?
4. Using Microsoft Excel, calculate the Economic Order Quantity (EOQ) and reorder point.
5. Calculate the optimal location for a new warehouse based on client location data and their respective demand.

1.10. Main Reading

1. Teaching material available on the e-learning system – Merlin (https://moodle.srce.hr)
2. G. Don Taylor: Introduction to Logistics Engineering, Taylor & Francis Group, 2009.
3. Čišić, D.: Zbirka zadataka iz logistike, PFRI, Rijeka, 2008.

1.11. Recommended Reading

1. Ogrizović, Dario ; Perić Hadžić, Ana ; Jardas, Mladen, Fully Immersive Virtual Reality in Logistics Modelling and Simulation Education, Promet, 33 (2021), 6; 799-806. doi: 10.7307/ptt.v33i6.3941
2. Jardas, Mladen ; Dundović, Čedomir ; Gulić, Marko ; Ivanić, Katarina, The Role of Internet of Things on the, Development of Ports as a Holder in the Supply Chain, Pomorski zbornik, 54 (2018), 1; 61-73. doi: 10.18048/2018.54.05
3. Jardas, Mladen ; Dundović, Čedomir ; Tomić-Badurina, Paola, Supply chain - a key factor of the sustainable development of city centres, Pomorstvo : scientific journal of maritime research, 30 (2016), 1; 45-50. doi: 10.31217/p.30.1.6
4. G. Miscevic, E. Tijan, D. Žgaljić and M. Jardas, "Emerging trends in e-logistics," 2018 41st International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO), Opatija, Croatia, 2018, pp. 1353-1358, doi: 10.23919/MIPRO.2018.8400244.
5. Hugos. M.: Essentials of Supply Chain Management. J.Willey and sons 2003
6. Chorafas D.: Integrating ERP, CRM, Supply chain management and smart materials – CRC Press LLC 2001

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Teaching material available on the e-learning system – Merlin (https://moodle.srce.hr)	Unlimited	50
G. Don Taylor: Introduction to Logistics Engineering, Taylor & Francis Group, 2009.	5	50
Čišić, D.: Zbirka zadataka iz logistike, PFRI, Rijeka, 2008.	10	50

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the failure to pass are analysed and appropriate measures are adopted.

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3.2. Course description

Generic information			
Head of Course	Borna Debelić, PhD		
Course	Transport economics		
Study Programme	Technology and Organization of Transport		
Type of Course	Elective		
Year of Study	3.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Acquiring knowledge in the special field of transport economics, necessary for persons responsible for the successful operation of the main economic activities in the transport sector. The aim of the course is to systematically address economic, operational and technical problems of transport and its modalities.

1.2. Prerequisites for Course Registration

/

1.3. Expected Learning Outcomes

After completing and passing the course, students will be able to:
1. Interpret the elements of the transport system and the relationships between transport and economic development;
2. Highlight and explain the economic aspects of the functioning of the transport system;
3. List and interpret the elements of the transport system horizontally and vertically;
4. Explain externalities in transport;
5. List the basic objects of transport infrastructure and interpret the related cost concepts and construction valuation;
6. Identify and interpret the principles and content of the basics of economics by transport branch;
7. Explain the basic concepts and interpret approaches in transport policy.

1.4. Course Outline

Transport system and economic development aspects
Importance of transport and traffic in the economic system
Elements of the transport system horizontally and vertically
Factors and processes of economic functioning of the transport system
Economic evaluation of transport infrastructure construction
Privatization, liberalization, globalization and deregulation in transport
Transport infrastructure facilities and cost concepts
Externalities in transport
Cooperation between transport modalities
Transport system and transport policy
Economics of road transport and the transport system
Basics of railway transport economics and the transport system
Basics of postal and telecommunications transport economics and the transport system
Basics of air transport economics and the transport system
Basics of maritime and inland waterways transport economics and the transport system

1.5. Modes of Instruction	☒ Lectures ☒ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☒ Multimedia and Network ☐ Laboratory ☒ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1. Class attendance
2. Activity in the lessons
3. Study, research and problem solving
4. Passing the colloquia
5. Exam passing

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	1	Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Learning outcomes evaluation procedure:
- Record of class performance: 5%
- Scoring of class activities: 5%
- Knowledge assessment through two preliminary exams: 50%
- Presentation and knowledge assessment through case studies: 10%
- Knowledge assessment in the final exam: 30%.

Examples of learning outcomes evaluation:
1. List and discuss the elements of the transport system and the relationships between transport and economic development.
2. List and explain the economic aspects of the functioning of the transport system.
3. Describe the elements of the transport system horizontally and vertically.
4. Describe and explain externalities in transport.
5. List the basic objects of transport infrastructure and explain the related cost concepts and construction evaluation.
6. Explain and describe the principles and content of the basics of economics by transport modality.
7. List the basic concepts and explain the approaches in transport policy.

1.10. Main Reading

1. Teaching materials on the e-learning system – Merlin (https://moodle.srce.hr)
2. Perić, T., Radačić, Ž.., Šimulčik, D. (2000). Ekonomika prometnog sustava. Zagreb: Sveučilište u Zagrebu, Fakultet prometnih znanosti.
3. Bukljaš Skočibušić, M., Radačić, Ž., Jurčević, M. (2011). Ekonomika prometa. Zagreb: Sveučilište u Zagrebu, Fakultet prometnih znanosti.
4. The umbrella laws of the transport system of the Republic of Croatia (Maritime Code, Maritime Domain and Seaports Act, Road Transport Act, Railway Safety and Interoperability Act, Railway Services Market Regulation Act and Protection of Passenger Rights in Railway Transport, Air Transport Act, Airports Act, Inland Waterways Navigation and Ports Act)

1.11. Recommended Reading

1. Stopford, M. (2009). Maritime Economics. London & New York: Routledge.
2. Kesić, B; Jugović, A.; Debelić, B. (2013). Ekonomika brodarstva: riješeni zadaci. Rijeka: Pomorski fakultet Sveučilišta u Rijeci.
3. Button, K. (2022). Transport Economics, 4th Edition. Edward Elgar Publishing.
4. Jelinović, Z. (1983). Ekonomika prometa i pomorstva. Zagreb: Informator.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Perić, T., Radačić, Ž.., Šimulčik, D. (2000). Ekonomika prometnog sustava. Zagreb: Sveučilište u Zagrebu, Fakultet prometnih znanosti	6	70

1.13. Quality Assurance

The quality of studying is continuously monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance implemented at the Faculty of Maritime Studies, University of Rijeka. An analysis of exam taking is prepared annually, and a survey among students is conducted every semester.

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3.2. Course description

Generic information			
Head of Course	Alen Jugović, PhD		
Course	Shipping Economics		
Study Programme	Technology and Organization of Transport		
Type of Course	Electortal		
Year of Study	3rd		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30 + 15 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Introduction to the theoretical foundations and understanding of practical aspects of shipping business, with an emphasis on economic principles and key business processes. By analyzing concrete examples from practice, students will develop skills in applying basic economic principles in the business of shipping companies and other participants in the maritime transport system, which will enable them to better understand the significance of maritime transport within the overall transport system.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

1. Explain the basic concepts and basic principles of maritime shipping.
2. Distinguish the characteristics of individual types of maritime shipping and transport technologies.
3. Comment on the specifics of the maritime market and the economic significance of the merchant navy.
4. Analyze market factors, the dynamics of freight rates and tariffs in shipping.
5. Calculate the key operating costs of shipping companies and assess their impact on business.
6. Assess the financial viability of different types of transport and business strategies in maritime shipping.

1.4. Course Outline

General information on the economics of maritime shipping - an introduction to the concept and significance of the economics of maritime shipping
Merchant shipping: global and national, special types of maritime shipping activities
Special types of maritime shipping activities: charter, liner and tanker - passenger shipping: national and global
Maritime transport: passenger and cargo
Maritime market in shipping: general, division and market structure - economic specificities of charter, liner and tanker shipping
Free shipping space market, liner shipping space market, tanker shipping space market
Indicator of maritime market dynamics, freight rate indices and market typology
Ship acquisition through loan financing - repayment of loan for ship acquisition
Freight rates in maritime shipping: general information on freight rates, principles, types and determination and formation of freight rates
Freight rates in charter shipping, liner shipping rates
Tariffs: general, division, calculation
Freight rates in tanker shipping, freight rates in passenger shipping
Maritime transport costs: general information about costs in maritime shipping and costs in general - fixed and variable costs in maritime shipping

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☒ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1. Attending classes
2. Being active in class
3. Studying, researching and solving problems
4. Taking quizzes and tests
5. Taking exams

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	0,5	Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	
Project		Continuous Assessment	2	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Grading and evaluation of student work includes continuous assessment of knowledge through two midterm exams and two tests with calculation tasks during classes, and a final exam. Grading is carried out in accordance with the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka, which implies that a student can achieve 70% of the grade during classes, and the remaining 30% at the final exam.

Knowledge assessment in class is carried out continuously, and students can achieve a percentage of the grade as follows:

- *1st preliminary exam - 25% Learning outcomes: 1., 2., 3., 4., 5.*
- *2nd preliminary exam - 25% Learning outcomes: 1., 2., 3., 4., 5.*
- *Test 1 - 10% Learning outcomes: 1, 5.*
- *Test 2 - 10% Learning outcomes: 5.*
- *Final exam - 30% Learning outcomes: 1., 2., 3., 4.*

The final exam can be taken by students who have earned 35 grade points in continuous knowledge assessments, or 50% of the total number of points that could be achieved during the assessment in class. It is also a condition that students achieve at least 50% of the points in each preliminary exam. The final exam is in written form and accounts for 30% of the total grade. Students must pass 50% of the final exam in order to receive a passing grade for the course.

Examples of learning outcome evaluation:
1. Define the term ocean shipping?
2. What are the key differences between liner and free shipping?
3. Explain the role of the maritime market in global trade.
4. List three main factors that influence the change in freight rates and explain how each of these changes affects supply and demand in shipping.
5. Calculate the costs, revenues and financial result of a container ship on the described voyage.
6. Compare the financial profitability of tramp shipping compared to liner shipping with regard to fluctuations in the freight rate market.

1.10. Main Reading

1. Teaching materials on the e-learning system – Merlin (https://moodle.srce.hr)
2. Jugović, A., Zanne, M., Bukša, J.: Ekonomika brodarstva, Sveučilište u Rijeci, Pomorski fakultet, Rijeka, 2024.
3. Stopford, M.: Maritime Economics, Routledge, London & New York, 2000. or new.
4. Kesić, B; Jugović, A.; Debelić, B.: Ekonomika brodarstva riješeni zadaci, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2013.

1.11. Recommended Reading

1. Jugović, A., Aksentijević, D., Zaninović, P.A.: The impact of economic policy on shipper businesses in coastal line maritime passenger transport in Croatia. Pomorstvo, 35 (1), 87-92., https://doi.org/10.31217/p.35.1.9, 2021.
2. Jugović, A., Komadina, N., Perić Hadžić, A.: Factors influencing the formation of freight rates on maritime shipping markets. Pomorstvo, 29 (1), 23-29., 2015.
3. Radonja, R. i Jugović, A.: Shipowners' business policy in the context of development in the environmental legislation. Pomorstvo, 25 (2), 319-341., 2011.
4. Kesić, B., Jugović, A.: Menadžment pomorskoputničkih luka, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2006.
5. Cullinane, K.: Shipping Economics – Research in transportation Economics, Elsevier, 2005.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Jugović, A., Zanne, M., Bukša, J.: Ekonomika brodarstva, Sveučilište u Rijeci, Pomorski fakultet, Rijeka, 2024.	20	20
Stopford, M.: Maritime Economics, Routledge, London & New York, 2000. or new.	5	20
Kesić, B; Jugović, A.; Debelić, B.: Ekonomika brodarstva riješeni zadaci, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2013.	30	20

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance implemented at the Faculty of Maritime Studies in Rijeka.

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Generic information		
Head of Course	Biserka Rukavina, PhD	
Course	The Law of Maritime Transport	
Study Programme	Technology and Organization of Transport	
Type of Course	Elective	
Year of Study	3.	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	45+ 0 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Provide students with basic knowledge of the legal principles and standards relating to the essential institutes of maritime private law, and to inform students of the manner and legality of the functioning of the essential stakeholders in shipping business, in particular in the field of maritime transport. The aim is to enable students to understand the basic legal concepts of maritime business to the extent necessary to carry out the tasks for which students are educated.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After the exam is passed, students will be able to do the following:

1. State and interpret the basic legal principles and rules of maritime private law.
2. Explain the basic concepts of proprietary rights on a ship and distinguish and describe the specifics of right of ship owner and other proprietary rights on a ship (mortgage and maritime lien).
3. Define and explain the rights, obligations and responsibilities of the essential stakeholders in shipping operations in accordance with international and national maritime property law.
4. Distinguish and interpret the contracts for the employment of seagoing ships (contract for the carriage of goods, contract for carriage of passengers and luggage by sea, tow contract, multimodal transport).
5. Analyze and explain the documents used in the sea trade.
6. Explain the role and importance of insurance in maritime affairs, interpret the specifics of the hull and machinery insurance, the insurance of goods and describe the organization, activities and function of P&I clubs.

1.4. Course Outline

Legal sources and division of maritime private law. Ship's proprietary rights (rights of ownership, mortgages, maritime liens). Stakeholders in maritime trading operations (charterer, shipper, consignee, maritime agent, freight forwarder, stevedores, operator and shipowner; insurer). Bareboat charter. Contracts for the employment of ships - term and systematic. Contracts for the carriage of goods by sea (types, main characteristics, basic obligations). Transport documents. Liability of the carrier; general limitation of liability in the maritime business. Maritime insurance (term, legal sources, maritime insurance contract, insurance of goods, insurance of ships, characteristics of P&I clubs).

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1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☐ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Presentation
1.6. Comments		

1.7. Student Obligations

The student must attend at least 70 % of the total hours of lectures and exercises, and must have passed colloquia (continuous knowledge testing) and a positively evaluated presentation (ppt presentation) to take the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	0,5	Oral exam		Essay		Research	
Project		Continuous Assessment	1,5	Presentation		Practical work	
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The process of evaluation of the acquired learning outcomes takes place during continuous assessments through 3 midterm examinations (60 %), student presentation (10 %) and at the final part of the exam (30 %).

Examples of Assessment of Learning Outcomes:
1. Specify and compare the international and national legal sources governing charter parties.
2. Explain the difference between the terms of the shipowner and the disponent owner.
3. Describe the essential elements of the voyage charter party using a specific standard charter party form.
4. Describe what cargo information should be entered in the bill of lading.
5. Indicate period of time within the consignee may submit the complaint for the damage of goods.
6. Explain the role of insurance in maritime transport.

1.10. Main Reading

1. Authorized lectures on the e-learning platform MERLIN (online materials).
2. Pavić, Drago, Pomorsko imovinsko pravo, Književni krug, Split, 2006.

1.11. Recommended Reading

1. Pomorski zakonik, Consolidated text.
2. Pavić, Drago, Pomorsko osiguranje, Pravo i praksa, Split, 2012.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Pavić, Drago, Pomorsko imovinsko pravo, Književni krug, Split, 2006.	5	40

1.13. Quality Assurance

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The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies University of Rijeka. Once a year, the results of the transience are analyzed and appropriate measures are adopted.

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3.2. Course Description

Generic information		
Head of Course	Igor Vio, PhD	
Course	Transport Insurance	
Study Programme	Technology and Organization of Transport	
Level	Undergraduate degree programme	
Type of Course	Elective	
Year of Study	3	
Estimated Student Workload and Methods of Instruction	ECTS Coefficient of Student Workload	4
	Number of Hours (L+E+S)	45 + 0 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Students should become familiar with international and national legal framework regulating transport insurance and gain knowledge on insurance contract features, essential elements and claim types. During this course, the emphasis is on understanding of terms and conditions concerning particular transport insurance types including modalities of insurance in maritime, air, road and railway transport. Course objectives are also to expose international trade insurance scope and modalities, and to display the functioning, significance and types of reinsurance and co-insurance contracts.

1.2. Prerequisites for Course Registration

none

1.3. Expected Learning Outcomes

After passing the exam, students will be able:

1. To indicate and interpret the basic concepts of transport insurance
2. To specify and compare international and national legal sources of transport insurance, taking into account the specific circumstances of maritime, air and land transport
3. To explain and compare the characteristics and elements of individual types of transport insurance contracts, and list and differentiate various types of insurance policy and other documents
4. To interpret the significance, characteristics and impact of the Institute Cargo Clauses for the insurance of goods in domestic and international transport
5. To enumerate and analyse the features of the Institute Hulls Clauses, and compare the conditions for insurance of boats and yachts
6. To describe and interpret the structure, activities and functions of insurance companies and P&I clubs
7. To specify and describe the conditions for insurance in land (road and railway) and air transport
8. To compare and describe procedures for obtaining evidence, drafting documents and reporting damage claims to the insurer
9. To explain the concepts of co-insurance and reinsurance and describe their application

1.4. Course Outline

Transport insurance basic features, insurance contract features, insurance contract documents, transport insurance contract elements, claim types, insurance management, insurance of goods in the

national and international transport, marine hull and machinery insurance, P&I insurance, small craft and yacht insurance, foreign trade insurance, credit insurance, coinsurance and reinsurance.

1.5. Modes of Instruction	☒ Lectures	☐ Practical work
	☐ Seminars and workshops	☐ Multimedia and Network
	☐ Exercises	☐ Laboratory
	☐ E-learning	☐ Mentorship
	☐ Field work	☐ Other _____
1.6. Comments		

1.7. Student Obligations

a) Students' main obligations are active course attendance with the preparation and presentation of seminar paper and they are required to pass three tests as continuous assessment during the term.

b) As a prerequisite for the final exam, students must score at least 35 out of a possible 70 points (50%) during the classes.

c) Students must score at least 15 out of a possible 30 points on final exams (50%).

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam	1,0	Oral exam		Essay		Research	
Project		Continuous Assessment	1,0	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The evaluation procedure consists of continuous examination of knowledge in the form of three tests and a final exam. Examples of evaluating learning outcomes during classes and on the final exam:

1. Indicate and define the basic concepts and principles of transport insurance
2. List the international and national legal sources of transport insurance and explain their specific solutions for maritime, air and land transport
3. List the basic types of transport insurance contracts and compare their characteristics and elements, and specify and describe types of insurance policy and other relevant documents
4. Explain and discuss the importance of the Institute Cargo Clauses, and in particular elaborate on the application of specific cargo clauses in domestic and international maritime, land and air transport
5. Specify and describe the most important features of the Institute Hulls Clauses, then compare the terms and conditions according to the risks covered, and elaborate the specific insurance terms for boats and yachts coverage
6. Describe the organization of P&I clubs, explain their importance for liability insurance of shipping companies, and list the most important club functions
7. List the specific terms and conditions for land and air transport insurance and explain their application
8. Interpret the features of the procedures for obtaining evidence, analyse the specifics of drafting and collecting documents and demonstrate modalities of reporting damage claims to the insurer

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

9. Explain the concepts and types of co-insurance and reinsurance, describe their characteristics and elaborate their application.

1.10. Main Reading

Drago Pavić: Pomorsko osiguranje – pravo i praksa, s osnovama kopnenoga i zračnog transportnog osiguranja, Književni krug, Split, 2012.
Ivan Frančišković: Sustav transportnih osiguranja, Croatia osiguranje d.d., Zagreb, 1994.
Ivan Frančišković: Međunarodna osiguranja, predavanja na mrežnim stranicama Fakulteta.

1.11. Recommended Reading

Ivan Frančišković: Ekonomika međunarodnih osiguranja, Ekonomski fakultet Rijeka, 2005.
Drago Pavić, Pomorsko imovinsko pravo, Književni krug, Split, 2006.
Drago Pavić: Pomorsko pravo, knjiga III – Pomorske nezgode i pomorsko osiguranje, Visoka pomorska škola, Split, 2000.
Pomorski zakonik, Narodne novine br. 181/04. (s kasnijim izmjenama i dopunama)
Zakon o pomorskom dobru i morskim lukama, N.N. 158/03. (s kasnijim izmjenama i dopunama)

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Pomorsko osiguranje – pravo i praksa, s osnovama kopnenoga i zračnog transportnog osiguranja	Sufficient (in library and book shop)	2
Sustav transportnih osiguranja	Sufficient (in library and book shop)	2
Međunarodna osiguranja	Available on the website (pfri.uniri.hr)	2

1.13. Quality Assurance

Quality assurance of the course performance is continuously monitored according to ISO 9001 system applied at the University of Rijeka Faculty of Maritime Studies. An analysis of results of the final exams and a student survey are conducted and appropriate measures are adopted for each academic year.

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Course description

Generic information			
Head of Course	Mirjana Borucinsky, PhD		
Course	German Language 2		
Study Programme	Technology and Organization of Transport		
Type of Course	elective		
Year of Study	III	Semester	VI
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		3
	Number of Hours (L+E+S)		15 + 30 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main objective of the course is to expand students' proficiency and improve their written and spoken communication skills using the specific terminology of logistics, management, technology and transport in maritime affairs and industry.

1.2. Prerequisites for Course Registration

Successfully completed course German language I.

1.3. Expected Learning Outcomes

It is expected that the student will be able to:
1. Discuss general language topics in German.
2. Discuss technical topics in German.
3. Differentiate between meanings of a term encountered in general language and language for specific purposes.
4. Translate technical texts from German into Croatian (or another target language, e.g. English) and vice versa.
5. Use language skills to communicate effectively in the business surrounding.

1.4. Course Outline

Fachterminologie aus dem Bereich: Seefracht. Güterumschlag. Verladeeinrichtungen. Häfen.
Geschäftskorrespondenz (Bestellung, Widerruf, Versandanzeige)
Passiv, Nebensätze, Wortbildung.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☐ Exercises ☒ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

Students enrolled at the Faculty of Maritime Studies are expected to observe *the code of conduct* required by the academic institution, and regularly attend lectures and practical work sessions.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	0,25	Seminar paper		Experiment	
Written exam		Oral exam	0,25	Essay		Research	
Project		Continuous Assessment	1	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Through continuous assessment the student can achieve up to 70% (Learning Outcomes 1 to 5) of the total score, through summative assessment in the form of an oral exam (Learning Outcomes 1,2,3 and 5) up to 30% of total score.

Examples of learning outcomes evaluation through continuous and summative assessment:

1. Erörtern Sie die Vor- und Nachteile verschiedener Energiequellen.
2. Nennen Sie verschiedene Arten von Verladeeinrichtungen..
3. Wie unterscheiden sich die folgenden Fachausdrücke: *'umschlagen' 'umladen'?*
4. Übersetzen Sie den Text aus dem Deutschen ins Kroatische (Englische). Benutzen Sie dabei Fachterminologie.
5. Schreiben Sie einen Geschäftsbrief in dem Sie bestätigen dass die Bestellung durchgeführt wurde.

1.10. Main Reading

2. Fox, R. *Verkehrswesen*, Školska knjiga, Zagreb, 1996.
3. Hering, A., Matussek, M., *Geschäftskommunikation*, Max Hueber Verlag, D-85737 Ismaning, 2004.
4. Perlmann-Balme, M., Tomaszewski, A.: *Themen aktuell 3, Zertifikatsband*, Kursbuch, Max Hueber Verlag, 2004.
5. Perlmann-Balme, M., Tomaszewski, A.:: *Themen aktuell 3, Zertifikatsband*, Arbeitsbuch, Max Hueber Verlag, 2004.

1.11. Recommended Reading

1. Gutremuth, J., Konerding, B., Perseke, J., Seegert, N., *Güterverkehr – Spedition – Logistik*, Bildungsverlag EINS GmbH, Troisdorf, 2002.
2. Hurm, A., *Njemačko-hrvatski rječnik*, Školska knjiga, Zagreb, 1998.
3. Hurm., A., Jakić, B., *Hrvatsko-njemački rječnik*, Školska knjiga, Zagreb, 1999.
4. Kunkel-Razum, Kathrin: *Duden: Briefe gut und richtig schreiben*. Dudenverlag, 2003.
5. Marčetić, T., *Pregled gramatike njemačkog jezika*, Školska knjiga, Zagreb, 1999.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Fox, R. *Verkehrswesen*, Školska knjiga, Zagreb, 1996.	5	10
2. Hering, A., Matussek, M., *Geschäftskommunikation*, Max Hueber Verlag, D-85737 Ismaning, 2004	5	10

1.13. Quality Assurance

Internal:

- Student feedback (SET - Student evaluation of teaching) at the end of academic year.
- Course review by the head of course at the end of academic year.

External:

Programme quality review carried by the QA Agency.

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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Generic information		
Head of Course	Mirjana Borucinsky, PhD	
Course	English Language 6	
Study Programme	Technology and Organization of Transport	
Type of Course	elective	
Year of Study	3	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	15+30+0

1.GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to develop the students' ability for written and oral communication in English using the basic terminology related to maritime agencies, legal procedures and business processes in the maritime industry.

1.2. Prerequisites for Course Registration

None.

1.3 Expected Learning Outcomes

After passing the exam, the students will be able to:

1. Demonstrate the four basic language skills in English: reading, writing, listening and speaking on B2 level (independent user) according to the Common European Framework of Reference for Languages (CEF).
2. Demonstrate language knowledge and skills for performing professional work in maritime business and transport in English.
3. Explain and discuss specialized topics in English.
4. Translate texts from English into Croatian and vice versa using specialized terminology.
5. Present content on a topic related to the maritime industry, transport and logistics processes in Engish.
6. Use language skills in written and oral communication in English in the maritime business surrounding.

1.4. Course Outline

Specialized vocabulary (terminology, compounds, collocations, MWEs) and relevant elements of grammar (complex sentences, lexical and discourse features) in selected professional written and spoken texts about the following extra-linguistic topics: cargo claims, letters of protest, notes of sea protest, ship management, methods of payment.

1.5. Modes of Instruction	☒ Lectures ☐ Seminars and workshops ☒ Exercises ☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory ☐ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

1st midterm exam, 2nd midterm exam, final exam

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project		Continuous Assessment	1	Presentation		Practical work	
Portfolio		Presentation	0,5				

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

The procedure of assessment of learning outcomes is performed according to the University of Rijeka Regulations on the Studies and the Regulations on the Studies of the Faculty of Maritime Studies in the following way:

60 % of outcomes are assessed through continuous assessment in class. The 1st midterm exam assesses the outcomes 1, 2 (20%), while the 2nd midterm exam assesses the outcome 4 (20%). The student is obliged to score a min. of 50% of test points on each of the exams. Through independent student work outcomes 5 and 6 (20%) are assessed.
Through attendance and participation in course a maximum of 10 % of outcomes can be achieved.
The final exam assesses 30 % of learning outcomes (1-5), whereby the student is obliged to score a min. of 50% of test points:

An example of learning outcomes evaluation through continuous and summative assessment:

1. After having read the text, list the type of damage that the cargo can sustain.
2. Explain the meaning of a 'Letter of protest'.
3. Explain what a cargo claim is and provide an equivalent in Croatian.
4. Translate a text on Ship Management using specialized terminology.
5. Which types of payment exist in international trade?
6. Based on the information provided, write an official e-mail requesting a bank statement.

1.10. Main Reading

1. Ashley, A. 2003. Oxford Handbook of Commercial Correspondence. Oxford Univeristy Press.
2. B.J.Naterop, E.Weis, E.Haberfellner: Business Letters for All, OUP,1987
3. Pritchard, B. 2001. English in Shipping. https://www.pfri.uniri.hr/bopri/Shipping.html.
4. Teaching materials available at Merlin.

1.11. Recommended Reading

S.S.Weeney: English for Business Communication, CUP, second edition

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Ashley, A. 2003. Oxford Handbook of Commercial Correspondence. Oxford Univeristy Press	5	10
B.J.Naterop, E.Weis, E.Haberfellner: Business Letters for All, OUP,	5	10
Grussendorf, M. 2009. *English for Logistcs*. Oxford: OUP	5	10
Pritchard, B. 2001. English in Shipping. https://www.pfri.uniri.hr/bopri/Shipping.html	available online	10
Teaching materials available at Merlin.	available online	10

1.13. Quality Assurance

The quality of the course is monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the course are analyzed and a survey is conducted among the students once per semester.

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3.2. Course description

Generic information		
Head of Course	**Livia Maglić, PhD**	
Course	**Professional Practice 1**	
Study Programme	**Technology and Organization of Transport**	
Type of Course	Elective	
Year of Study	3	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	4
	Number of Hours (L+E+S)	0+60+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The course aims to enable the student to apply the acquired theoretical knowledge in the field of engineering, technology, organization and planning in performing professional tasks in maritime and inland transport, as well as to acquire the working skills necessary for future work.

1.2. Prerequisites for Course Registration

The enrollment terms are determined by the holder of the study program by a special Decision of each academic year. Based on the Decision, a list of students who are qualified for enrollment is drawn up.

1.3. Expected Learning Outcomes

Upon successful completion of the course, students will be able to:

1. Describe the organization of work of the employer in which the student was engaged in professional practice.
2. Explain and analyze work processes and activities and job content from one or more workplaces within the company/institution where the student's practice was performed.
3. Correlate theoretical knowledge and practical skills to work on specific jobs in practice.
4. Adapt to the work environment.
5. Demonstrate and independently perform a specific professional task based on the practical knowledge gained during the professional practice.

1.4. Course Outline

The professional practice is carried out in various maritime and transport companies in the public and private sectors, where there are jobs related to the content of the curriculum of technology and organization of traffic. As part of the traineeship, the student becomes acquainted with the appropriate jobs for which he/she is trained, along with the task of checking and updating his / her professional knowledge, with a complete overview of the work process.

1.5. Modes of Instruction	☐ Lectures ☐ Seminars and workshops ☐ Exercises ☐ E-learning ☒ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☒ Mentorship ☐ Other _____
1.6. Comments		

1.7. Student Obligations

The student performs a professional practice with an employer who, as part of his or her core activity, performs professional tasks that are consistent with the professional profile of his or her studies.

- Attending a practice with an employer
- Keeping a Log of Professional Practice
- Designing a project assignment.

1.8. Assessment[1] of Learning Outcomes

Course attendance		Class participation		Seminar paper		Experiment	
Written exam		Oral exam		Essay		Research	
Project	2,0	Continuous Assessment		Presentation		Practical work	2,0
Portfolio							

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

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1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Based on the assessment of practice logs, project assignment, and success in the practice by a mentor at the institution where the student took the practical work, the head of the course concludes the student's success in achieving the defined learning outcomes and defines the final grade of the course.

1.10. Main Reading

/

1.11. Recommended Reading

/

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*

1.13. Quality Assurance

The quality of the study is continuously monitored following the ISO 9001 system and in line with European standards and guidelines for quality assurance, as implemented at the Faculty of Maritime Studies, University of Rijeka. Annual exam analysis is conducted, and student surveys are carried out each semester.

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3.2. Course description

Generic information		
Head of Course		
Course	UNDERGRADUATE FINAL THESIS	
Study Programme	Transport and mobility	
Type of Course	Mandatory	
Year of Study	3rd	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload	10
	Number of Hours (L+E+S)	

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The objective of the course is to enable students to independently apply the theoretical and practical knowledge acquired during their studies in the treatment of a selected professional or scientific topic. Students are encouraged to critically analyze domestic and foreign literature, correctly apply research methodology, and structurally compose written work in accordance with academic standards and faculty regulations. Special attention is given to developing the ability to interpret and evaluate relevant data, theoretical approaches, and practical examples. Through the process of consultations with a mentor and a final defense, students acquire competencies to present the results and conclusions of their research before a professional committee, thereby demonstrating academic maturity and the ability to solve complex problems.

1.2. Prerequisites for Course Registration

The student enrolls in the course Final Thesis by registering for the sixth (summer) semester of the undergraduate study program.

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. Analyse relevant domestic and foreign literature and identify key insights, viewpoints, and facts related to the research topic.
2. Apply research methodology in the planning, processing, and interpretation of collected data.
3. Synthesize data from various sources and compose a coherent final thesis text that includes illustrations (tables, graphs, diagrams) in accordance with research methodology.
4. Evaluate research results and formulate conclusions that reflect an understanding of the problem and the ability for critical thinking.
5. Present and defend the main results and conclusions of the final thesis before a mentor or professional committee.

1.4. Course Outline

The final thesis is an independent professional or scientific treatment of a selected topic. By completing it, the student demonstrates possession of the necessary competencies and learning outcomes, as well as the ability to apply theoretical and practical knowledge acquired during the studies. In the process of defending the final thesis, the student must demonstrate mastery of relevant scientific and professional knowledge related to the chosen topic. The thesis is written and defended in Croatian, though, exceptionally, it may also be written and defended in English. The oral defence is conducted before the mentor or a Committee for the Defence and Evaluation of the final thesis.

1.5. Modes of Instruction	☐ Lectures	☒ Practical work
	☐ Seminars and workshops	☐ Multimedia and Network

	☐ Exercises ☐ E-learning ☐ Field work	☐ Laboratory ☒ Mentorship ☒ Other (research and collaboration with industry professionals, analysis and processing of practical examples and data, and so forth)
1.6. Comments		

1.7. Student Obligations

The student, in agreement with the mentor, must choose the topic of the final thesis and write it according to the instructions found on the faculty website:
https://www.pfri.uniri.hr/web/hr/dokumenti/Upute.za.izradu.zavrsnog.rada.PFRI.26.3.2024.pdf

As assistance for the student, a template for preparing the final thesis is also available on the faculty pages:
https://www.pfri.uniri.hr/web/hr/dokumenti/Predlozak_za_zavrsni_rad_08.07.2024.docx

The paper must be grammatically, orthographically, and stylistically correct.

After the first consultative meeting between the student and mentor, the student consults the assigned literature, studies the subject matter, consults their own collected sources, and thoroughly develops the content of the thesis.

Once the mentor approves and accepts the final thesis, the student submits the final version to the student office.
The final thesis is written in accordance with the Regulations on the Final Thesis:
https://www.pfri.uniri.hr/web/hr/dokumenti/pravni_akti/Pravilnik.o.zavrsnom.radu.na.sveucilisnom.prijediplomskom.studiju.pdf

1.8. Assessment[1] of Learning Outcomes

Course attendance		Class participation		Seminar paper		Experiment	
Written exam		Oral exam		Essay		Research	3,5
Project		Continuous Assessment		Presentation		Practical work	
Portfolio		Mentorship work	1,5	Final thesis in written form	3,5	Oral defence of the final thesis	1,5

1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

Verification of the achievement of learning outcomes is conducted before the mentor or a professional Committee composed of three members, including the mentor. An external associate can be a member of the Committee if the thesis topic requires additional specific knowledge and competencies. The student must defend the thesis with an oral presentation and by answering questions. The Committee evaluates the quality and coverage of the work, clarity and precision of the presentation, the ability to answer professional questions, and the level of mastery of the chosen topic. During the defence, a report is kept in which data about the work, questions posed, and the candidate's success grade are recorded.
The originality of the final thesis is checked using an appropriate IT system, and the mentor, based on the analysis, compiles a report on the conducted check. A positive opinion from the mentor and confirmation of the originality of the work are prerequisites for accepting the work and organizing the defense.

1.10. Mandatory literature (at the time of study program proposal submission)

[1] **NOTE:** Name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course. Use empty fields for additional activities.

1. Mandatory literature from the course for which the final thesis is registered and written
2. Additional literature in agreement with the course instructor – mentor
3. Instructions for writing the final thesis, editors: Prof. Dr. I. Kolanović, Associate Prof. Dr. A. Perić Hadžić, Associate Prof. Dr. I. Jurdana, Assistant Prof. Dr. M. Jardas, University of Rijeka, Faculty of Maritime Studies, Rijeka, 2024 – available at https://www.pfri.uniri.hr/web/hr/dokumenti/Upute.za.izradu.zavrsnog.rada.PFRI.26.3.2024.pdf

1.11. Recommended Reading (at the time of study program proposal submission)

1. Mandatory literature from the course for which the final thesis is registered and written
2. Additional literature in agreement with the course instructor – mentor

1.12. Number of Main Reading Examples

Title	*Reading examples*	*Number of students*

1.13. Quality Assurance

The quality of studying is continuously monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. An annual analysis of exam pass rates is conducted, and student surveys are carried out once per semester. Additionally, pass rate results are analyzed annually, and appropriate measures are taken based on the findings.