Sveučilište u Rijeci • University of Rijeka
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Course description

Generic information			
Head of Course	Assoc. Prof. Borna Debelić, PhD		
Course	Financing in Maritime Affairs		
Study Programme	Nautical Studies And Maritime Transport Technology		
Type of Course	Elective		
Year of Study	2nd	III	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		30+15+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Acquiring knowledge in the special field of financing maritime projects and maritime organizations, necessary for persons responsible for the management and management of business and technological processes in projects and organizations in maritime affairs.

1.2. Prerequisites for Course Registration

No additional prerequisites.

1.3. Expected Learning Outcomes

1. Describe the system, market structures and elements of maritime investment and the sources, methods and models of financing.
2. Describe the principles, constituent elements and importance of financing the purchase of new and used ships, and describe the sources of possible financing.
3. Analyze the elements of credit business in the purchase and sale of ships, and describe the models of calculation and repayment and analyze the return through annuities in relation to installments.
4. Analyze the impact of liquidity and solvency on debt service management in terms of inflows of operating funds.
5. Analyze and explain financial transactions and their basic principles in the purchase and sale of ships, as well as business performance indicators as a basis for financial decisions and risk management.
6. Apply quantitative and qualitative methods of analysis of inflows of operating funds, operating costs, analysis of profit and loss account, and approaches, methods and techniques of risk management from the aspect of financing.
7. Identify and analyze the specifics of financing infrastructure investments in maritime and transport.

1.4. Course Outline

Generally about maritime investments. Sources, methods and models of financing in maritime affairs. Financing the construction of new ships from public sources and commercial banks. Financing the procurement of used ships and sources of funds. Buying used boats and specific reasons for buying and selling. Basic elements of credit business in the purchase and sale of ships. Interest and principal, calculation and repayment models. Loan repayment through annuities and through installments. Calculation of Libor and Euribor. Liquidity and solvency in the domain of debt service management expected expected inflow of funds. Analysis of financial transactions in the purchase and sale of ships and basic principles and conditions. Forecasting of operating cash inflows, operating expenses, profit and loss account analysis, and risk management from the aspect of debt financing. Receivables security instruments. Specific financing of infrastructure investments in maritime and transport. Documentation and execution of financial transactions.

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 solving tasks assigned to work at home.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	1	Seminar paper		Experiment	
Written exam	1,5	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

Discussion in class (10% of learning outcomes) in which students analyze the system of financing and sources of financing in maritime affairs and their characteristics as well as the impact on business, and principles, components and importance of different sources and dynamics of financing (I1 - I7) from the aspect of modern maritime organization and projects.

Written continuous knowledge test (2nd colloquium, 30% of learning outcomes each, which is a total of 60% of learning outcomes and a minimum of 50% of points achieved per colloquium) in which the student shows understanding of theoretical concepts and practical implications of specialist funding in maritime (I1 - I7) , mechanisms of action and effects on the operations of maritime companies and on the overall economy.

Final written test (30% of learning outcomes and a minimum of 50% of achieved points) in which the student shows understanding of the application and techniques of financial transactions of financial processes in maritime systems and projects, in the function of quality management decisions on financing development and infrastructure processes and projects in maritime I1 - I7).

1.10. Main Reading

1. Batalić, M., Mitrović, F.: Financiranje u pomorstvu, Pomorski fakultet Split, Split, 2010.

1.11. Recommended Reading

1. Harwood, S.: Shipping finance, third edition, Euromoney books, 2006.
2. Paine, F.: The Financing of Ship Acquisitions, Coulsdon, 1989.
3. Stokes, P.: Ship finance, second edition, LLP, 1997.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*

1.13. Quality Assurance

Quality assurance system of educational process is in accordance with ISO 9001:2000 system as implemented on Faculty of Maritime Studies Rijeka. Analysis of exams is carried out annually. Students' evaluation is carried out each semester (more details provided in part describing organization of the Faculty).

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Course description

Generic information			
Head of Course	Assoc Prof Ana Perić Hadžić		
Course	SCIENTIFIC RESEARCH METHODOLOGY		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Core		
Year of Study	1st	Graduate degree programme	
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 the course is to learn the basic knowledge about concepts of methodology and technology of scientific and professional research, and their training of students for the application of student works at the level of graduate studies.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

After passing the exam from this course, students will be able to:
1. define the concepts of science, scientific research work and scientific research activity
2. explain the basic and developmental characteristics of science and research
3. classify areas of science in the Republic of Croatia ž
4. be able to explain, understand and interpret basic scientific categories
5. distinguish between scientific, scientific-professional, and professional work
6. explain the concept and characteristics of scientific methods
7. interpret and apply scientific research technology 8. apply the principles of methodology and technology of scientific research work when writing student work in higher education (seminar paper, thesis).

1.4. Course Outline

Science, scientific activity and research: Theory of Science, characteristics of contemporary science, Croatia in science, Croatian classification framework, scientific and technological policy of the Republic of Croatia, classification of science. Scientific, scientific and professional works: classification of written works, concept and types of scientific works, concept and types of scientific professional works, concept and types of professional parts, works on undergraduate and graduate studies, works on postgraduate studies. The concept and features of the scientific method. Scientific research methodology. Scientific research technology: recognition of scientific problems, placement of hypotheses, selection and analysis of topics (titles), development of research plan, drafting of work bibliography, collection and study of literature and scientific information, solving of the problems, formulating the results of research, applying the results of research, controlling of the application of research results. Writing text and technical processing of scientific and professional work: Documentation Base of the manuscript, reading of literature, referencing

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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 be present for at least 70% of the total hours in lectures and tutorials and have passed continuous assessments and written an independent seminar paper to be admitted to the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	1	Experiment	
Written exam		Oral exam	0,5	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 final grade of the student's success in the course is the sum of the percentage of success achieved by the student during classes (70% of the grade) and the percentage of success achieved in the final exam (30% of the grade) according to the rules of the University of Rijeka and the Faculty of Maritime Studies in Rijeka.
Continuous assessment of knowledge:
- 1st assessment- it is necessary to achieve a minimum of 50% correct answers
- 2nd assessment - it is necessary to achieve a minimum of 50% correct answers
- seminar paper - it is necessary to show the acquired knowledge and application of technology and methodology.
Final exam:
-At the final exam it is necessary to achieve a minimum of 50% correct answers.

Examples of assessment of learning outcomes in relation to established learning outcomes are:
1. define the terms science and scientific research
2. explain the development characteristics of science
3. name the scientific fields in Croatia according to the latest qualification of science from 2009 (Regulation on Scientific and Artistic Fields, Areas and Branches, NN, 2009).
4. explain what the problem and the object of research is and give an example
5. explain what a journal is as a work and to which category the work belongs
6. define compilation methods and explain how we use them
7. name the stages of scientific research technique
8. prepare a seminar paper in which you apply the principles of methodology and technology of scientific research.

The final grade of the student's success in the course is the sum of the percentage of success achieved by the student during classes (70% of the grade) and the percentage of success achieved in the final exam (30% of the grade) according to the rules of the University of Rijeka and the Faculty of Maritime Studies in Rijeka.

1.10. Main Reading

1. Authorized lectures on the e-learning platform MERLIN (online materials)
2. Instructions for the preparation of the thesis, University of Rijeka, Faculty of Maritime Studies, 2020 (online materials)

1.11. Recommended Reading

1. Kulenović, Z.: Metodologija istraživačkog rada, Pomorski fakultet Sveučilišta u Splitu, Split 2005.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Authorized lectures on the e-learning platform MERLIN (online materials)	50	50
2. Instructions for the preparation of the thesis, University of Rijeka, Faculty of Maritime Studies, 2020 (online materials)	50	50

1.13. Quality Assurance

The quality of studies is monitored in accordance with the system ISO 9001 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, the results of passability are analyzed and appropriate measures are taken.

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Course description

Generic information			
Head of Course	Lovro Maglić, Ph.D.		
Course	MARINE TECHNOLOGIES		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Compulsory		
Year of Study	1.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		30 + 0 + 15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Objective of the course is to familiarize students with most important features, governing rules and regulations as well as principles of numerous activities for sea and seabed exploration and exploitation. The course deals only with those activities employing modern technologies or those which are caused by recent technological developments.

1.2. Prerequisites for Course Registration

There are no special requirements for enrolling in the course.

1.3. Expected Learning Outcomes

1. Define the content and concept of marine technologies.
2. Distinguish the rights and obligations in the exploitation of the sea in the area of jurisdiction of coastal states and in international waters in accordance with the UN Convention on the Law of the Sea.
3. Explain technological concepts and distinguish methods of fishing marine organisms.
4. Explain modern techniques of mariculture and compare their advantages and disadvantages.
5. Explain technological concepts and distinguish methods of exploration and exploitation of hydrocarbons and ores from the seabed.
6. Explain technological concepts and compare the conditions and efficiency of seawater exploitation methods
7. Explain technological concepts and analyze the applicability of certain methods of using sea energy.
8. Explain towing technological concepts, differentiate equipment and compare towing methods.
9. Distinguish rights and obligations in contracting and carrying out rescue of property at sea and describe specialized vessels for rescue of property.
10. Explain technological concepts and basic activities in the field of shipbuilding and nautical tourism.
11. Explain the technological concepts and underwater activities of divers and modern systems such as remotely controlled and autonomous vehicles.

1.4. Course Outline

The concept of marine technologies in general. The right to exploit the sea and the seabed. Marine fishing and mariculture. Hydrocarbon exploration and exploitation. Marine mining and dredging. Exploiting the energy of the sea. Seawater treatment. Towing and rescue at sea. Nautical tourism. Shipbuilding. Underwater activities - divers and autonomous and remotely controlled vehicles.

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 at classes
- Conducting research and presenting the project assignment
- Final oral exam

1.8. Assessment[11] of Learning Outcomes

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

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

Outcome evaluation procedure:
- Presentation of the project assignment and research outcomes (Outcomes 1-11) - 50%
- Final oral exam (outcomes 1-11) - 50%

Examples of evaluating learning outcomes:
- Describe the rights and obligations of the coastal state in the exploitation of resources in the exclusive economic zone.
- Explain the technologies of fishing pelagic species.
- Describe the principle of hydrocarbon exploration by seismic ships.
- Compare the features of different types of platforms for hydrocarbon exploration.
- State and explain the principles of using wave energy.
- Assess which principle of sea energy use is applicable in the Adriatic Sea.
- Compare and explain different dredging methods with hydraulic dredgers.
- Explain the rights and obligations of users of anchorages in nautical tourism in accordance with the regulations of the Republic of Croatia.

1.10. Main Reading

Marine Technology lecture script available on the Merlin e-learning system

1.11. Recommended Reading

Selected entries of the Maritime Encyclopedia and a selection of articles and studies available on the Merlin e-learning system.

1.12. Number of Main Reading Examples

[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

Title	*Number of examples*	*Number of students*
Marine Technology lecture script available on the Merlin e-learning system	unlimited	30
selection of articles and studies available on the Merlin e-learning system	unlimited	30
Selected entries of the Maritime Encyclopedia	1	30

1.13. Quality Assurance

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

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Course description

Generic information			
Head of Course	Sandra Tominac Coslovich, PhD, Associate professor		
Course	Multiculturalism and Communication on Board		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Elective		
Year of Study	2nd	Graduate level	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours(L+E+S)		30+15+0 (2+1+0)

1.GENERAL COURSE DESCRIPTION

1.1.Course Objectives

Developing and understanding the concepts of culture, the relationship between language and culture, and cultural dimensions according to Geert Hofstede, Fons Trompenars, and Richard Lewis applied to the most numerous nationalities present on board (e.g., power distance, collectivist vs. individualist cultures, etc.). Understanding the role and place of multiculturalism in maritime industry (on board, in shipping agencies, shipping companies, ports, maritime administrations, etc.). Evaluating the role of language and culture in maritime business: national culture and language vs. international business relations, idiosyncratic features of language and culture in maritime industry. Understanding the concepts of multilingualism, multiethnicity, and multiculturalism in maritime industry. Developing methodology in the research of multilingualism and multiculturalism. Developing critical thinking skills in evaluating the place and role of language and culture on board.

1.2.Prerequisites for Course Registration

Completed undergraduate programme(s) in nautical studies, marine engineering or logistics and management in maritime transport

1.3.Expected Learning Outcomes

After taking the course, the students will be able to:

1. critically evaluate the impact of multiculturalism on board a vessel as a multinational community,

2. critically evaluate the advantages and disadvantages of quantitative and qualitative research methods

3. apply models of multicultural and multilingual research and studies in the organization of maritime business and employment of seafarers

1.4.Course Outline

Culture, language as a part of culture, culture as a determinant of language, culture as a way of life, "the culture onion", model of "national culture" (Hofstede 2001, 2004), culture as "mental software" (Katunarić, 2004), language and culture in the process of globalization and localization, sociolinguistic aspects of multicultural communication in maritime industry (communication in stressful situations, crisis management), dimensions of culture and language: power distance, individualism and collectivism, long-term and short-term orientation, research methods in culture and sociolinguistics and their shortcomings, the danger of drawing absolute conclusions about national culture, a critique of Hofstede's postulates (Sweeney 2002), multinational crews: aspects of multilingualism and multiculturalism; problems in communication; research studies (Moreby, 1990), language and culture studies in the process of employing seafarers (Knudssen 2005, Horck 2005): culture and authority, "crewing", cultural differences in the maritime industry, developing awareness of the importance of human factor and communication in maritime industry, the importance of continuous education on communication in multicultural environments, the relationship between English language and national languages and cultures in 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

Class attendance, passing written exam and assembling and presenting a seminar paper

1.8.Assessment[1] of Learning Outcomes

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

[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

Written test, preparation and presentation of a seminar paper, participation in class activities

Learning outcome 1. Explain the impact of multicultural differences on ship's safety based on the text from the study entitled "If you are a good leader I am a good follower"

Learning outcome 2. Examine critically the advantages and limitations of different models of cultural dimensions

Learning outcome 3. Apply Hofstede's model of cultural dimensions in the analysis of one nationality on board according to your own choice and present the results and your own critical review in a seminar paper.

1.10. Main Reading

1. *Cross-Cultural Training* - course developed within the project KNOWME by Dorina Pörksen (author) and oncampus, e-learning department of Lübeck University of Applied Sciences, Germany – designed for developing intercultural competency in the maritime industry, http://knowmecct.oncampus.de
2. *Cross Cultural Competency for Maritime Professionals through Education and Training* (CCUL.COMPET) (Phase II), IAMU 2011 Research Project No 2011-3 by James R. Parsons, Elaine Potoker & Maria Progoulaki, https://iamu-edu.org/download/final-report-of-research-project-fy2011/
3. *Hofstede's Insights – Country Comparision*, https://www.hofstede-insights.com/product/compare-countries/

1.11. Recommended Reading

1. Hofstede, Geert (1997/2004) Cultures and Organizations: Software of the Mind
2. Horck, J. (2005) Can shipping people communicate? A human factor aspect on multicultural communicati ethnic stereotyping in Shipping. Journal of Maritime Studies. Vol. 2. World Maritime University
3. Jeknić, Ranka (2006) Individualističke i kolektivističke kulture u kontekstu globalizacije: Hofstedeov model njegova kritika. Revija za sociologiju, Vol XXXVII (2006), No 3-4, 205-2255.
4. Knudsen, F. (2005) Seamanship –between techniques and practical wisdom. Proceedings of NoFS6.
5. Lutsenko, O. & Stok, H. (2008) Cultural awareness in Maritime English. Proceedings of IMLA-IMEC Confere Maritime English, Rotterdam
6. Andres, T. Q. D. (2006) Understanding the Filipino Seaman: His Values, Attitudes and Behavior, Our Lady c Manaoag Publishers, Manila, Philipines
7. Barnett, M.L (2005) Searching for the Root Causes of Maritime Casualties: Individual Competence or Organisational Culture? Maritime Research Centre, Warsash, Southampton,UK, WMU Journal of Maritime Affairs, 2005, Vol. 4, No.2, 131–1452.
8. Benton, G. Multicultural crews and the culture of globalization, Department of Global and Maritime Studi California Maritime Academy. www.Multicultural crews and the culture of globalization.mht
9. Čulić-Viskota, A. & Bielić, T. (2008) Cultural and linguistic differences as factors of ineffective communicat Proceedings of IMLA-IMEC 20, Rotterdam
10. Froholdt, L.L. (2007) Seamanship -Between Techniques And Practical Wisdom Imec 2007 The Human elen Maritime Accidents and disasters –a matter of communication
11. Galešić, A.-Dž., Tominac Coslovich, S. (2019) Working with Multinational and Multicultural Crews: a Croati Seafarers' Perspective, Scientific Journal of Maritime Research 33 2019, pp. 56-62, Faculty of Maritime St Rijeka, https://doi.org/10.31217/p.33.1.6
12. Hofstede, G. Culture's consequences: international differences in work-related values, Abridged version, London: Sage, 1984/2001.
13. Hofstede Geert 1997 (1991) Cultures and organizations Software of the mind. Intercultural cooperation a importance for survival. McGraw-Hill NY, London m.fl.
14. Horck, Jan (2005) Getting the best out of multi-cultural manning. BIMCO GA 2005 in Copenhagen
15. Horck, J. (2003) Cultural Diversity in Shipping. The Internatonal Martime Human Element Bulletin, No. 18.
16. Katunarić, Vjeran (2004) Od distance prema srodnosti: model "nacionalne kulture" Geerta Hofstedea. Pedagogijska istraživanja, 1(1):25–39.9.
17. Knudsen F. (2004): "If you are a good leader I am a good follower". Working and leisure relations betweer and Filipinos on board Danish vessels. Arbejdsog Maritimmedicinsk Publikationsserie, rapport nr. 910.
18. Knudsen, F. (2007) Are we really programmed by our culture? A critical approach to culture as software o mind. Syddansk Universitet
19. Knudsen, F. (2008) Conceptions of 'culture' in inter-national communication - Limits to cultural explanatic Proceedings of IMLA-IMEC Conference on Maritime English, Rotterdam
20. McSweeney, Brendan (2002): Hofstede's model of national cultural differences and their consequences: a triumph of faith—a failure of analysis. Human Relations 55 (1), pp. 89–118.
21. Pritchard (1998) Report on Current Approved Standards of Maritime English Communication and Recommendation – Deliverable No. 6 –In: The Impact ofMulticultural and Multinational Crews on MARitir COMmunication", The MARCOM Project), European Union (1996-1998), Malmo: 1-6813.
22. Pritchard, B. (1998) 'Norma i jezične varijacije u pomorskim komunikacijama', Zbornik HDPL-a, ur. B. Pritch Badurina, D. Stolac), Zagreb, 457-470 14.
23. Pritchard, B. (2003) Maritime English syllabus for the modern seafarer: comprehensive or safety-related c WMU Journal of Maritime Affairs, 2003, Vol. 2, No. 2, Malmö: 149-16615.
24. Pritchard, B. (2000) 'Maritime VHF Communications: Standards versus Practice', In: Proceedings of Works Maritime English (WOME 2A), IMLA, Dalian Maritime University, Dalian, China, 44-5410.
25. Pritchard, B. (1998) On Some Cultural Issues in Translating Lexical Sets, British Studies Conference -Cross-Cultural Challenges, The British Council, 84-103 16.
26. Taylor. P. T. (2008) The culture of safety onboard!. Proceedings of IMLA-IMEC Conference on Maritime English, Rotterdam

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Cross-Cultural Training - course developed within the project KNOWME by Dorina Pörksen – designed for developing intercultural competency in the maritime industry	available online at http://knowmecct.oncampus.de	30
Cross Cultural Competency for Maritime Professionals through Education and Training (CCUL.COMPET) (Phase II) by James R. Parsons, Elaine Potoker & Maria Progoulaki	Available online at https://iamu-edu.org/download/final-report-of-research-project-fy2011/	30
Hofstede's Insights – Country Comparision, https://www.hofstede-insights.com/product/compare-countries/	Available online at https://www.hofstede-insights.com/	30

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 analysed and a survey is conducted among the students once per semester.

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Course description

Generic information			
Head of Course	**Renato Ivče, PhD, Full professor**		
Course	**Survey and maintenance planning of ship systems**		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Mandatory		
Year of Study	4		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30+15+0 (2+1+0)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to acquaint students with the importance of maintaining and the need for its planning as framework of modern management of human and material resources in the maritime economy. The course emphasizes the importance of implementing maintenance strategies and the introduction of software tools that contribute to the optimization of maintenance of ship systems in order to increase the efficiency of the maritime transport process and generally greater competitiveness of shipowners in the maritime market.

1.2. Prerequisites for Course Registration

No prerequisites for course registration

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. Evaluate the importance of inspection and maintenance planning of ship systems
2. Evaluate the impact of maintenance on shipping efficiency and profitability
3. Evaluate the maintenance management of ship systems
4. Identify factors optimization of ship systems maintenance
5. Trains to use software tools in the maintenance of ship systems

1.4. Course Outline

The importance of survey and maintenance planning of ship systems. International and national regulations. Ship system maintenance strategies. Reliability of ship systems and maintenance. Ship maintenance in the modern way of doing business of a shipping company. Shipbuilding and repair works, exchange of significant components of the ship's system, modifications or renovations of major equipment significance from a maintenance point of view. Management and evaluation of ship systems maintenance. Assessment of the condition of ship systems. Optimization of ship systems maintenance. Programming tools in modern maintained ship systems. Needs for inspections and determination of the ship´s hull and equipment condition. Importance statutory inspections of the ship from the aspect of maintenance. Maintenance and inspection of cargo handling systems. Inspection and maintenance anchoring and mooring system.

1.5. Modes of Instruction	x☐ Lectures x☐ 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	0,75	Experiment	
Written exam		Oral exam	1,0	Essay		Research	
Project		Continuous Assessment	1,0	Presentation		Practical work	0,75
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 during the course, 70% of the acquired learning outcomes are evaluated through 1st colloquium - learning outcomes 1-3 (1,0 ECTS (30%)), seminar paper - learning outcomes 4 (0,7 ECTS (20%)), practical work - learning outcomes 4 (0,7 ECTS (20%)), whereby the student must achieve a minimum of 52% of points in each exam, at the final part of the exam it is evaluated (1.0 ECTS (30%))) acquired learning outcomes (1-5) whereby a student must pass a minimum of 52% of points for passing the final exam.* *Examples of evaluation of a particular learning outcome during class and at the final exam* 1. ***Assess the significance of the inspection of the ship by the classification society*** 2. ***The role of ship systems reliability in achieving commercial ship efficiency.*** 3. ***Evaluate the management of human and material resources in the maintenance of ship systems for containers ships in liner shipping*** 4. ***Determine the factors of maintenance optimization for bulk carriers*** 5. ***Demonstrate the skill of working on the AMOS software tool***
1.10. Main Reading
1 Ahuja, P. S.: Total Productive Maintenance, Chapter 17. u Handbook of Maintenance Management and Engineering, Springer-Verlag, London, 2009 *2. Lovrić: Osnove brodske terotehmologije, Pomorski fakultet, Dubrovnik, 1989;* *3. Siddiqui, A. W., Ben-Daya, M.: Reliability Centered Maintenance, Chapter 16. u Handbook of Maintenance Management and Engineering, Springer-Verlag, London, 2009.* *4. Wintle J. B.; Kenzie, B. W.; Amphlett, G. J.; Smalley, S.: Best practice for risk based inspection as a part of plant integrity management, Contract research report 363/2001, HSE Books, Sudbury/Suffolk, 2001.*
1.11. Recommended Reading
1 *Čekerevac, S.: Totalno productivno održavanje, Tehnička dijagnostika, Br. 2, 2004* *2. Irungu, S. C. : Total productive maintenance by cement companies in Kenya, Research project, University in Nairobi, 2015.* *3 Idhammar, C.: Realiability and Maintenance Management Beliefs, Maintworld - maintenance & asset management, 4 (2016), Onipress Oy, Helsinki* *4 Lycke L., Akersten, P. A.: Experiences of implementing TPM in Swedish industries International Journal of Reliability and Application*
1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Ahuja, P. S.: Total Productive Maintenance, Chapter 17. u Handbook of Maintenance Management and Engineering, Springer-Verlag, London, 2009	web izdanje	

Lovrić: Osnove brodske terotehmologije, Pomorski fakultet, Dubrovnik, 1989;	3	
Siddiqui, A. W., Ben-Daya, M.: Reliability Centered Maintenance, Chapter 16. u Handbook of Maintenance Management and Engineering,	web izdanje	
Wintle J. B.; Kenzie, B. W.; Amphlett, G. J.; Smalley, S.: Best practice for risk based inspection as a part of plant integrity management	web izdanje	

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	Edvard Tijan, PhD		
Course	Human Resource Management		
Study Programme	Nautical Studies and Maritime Transport Technology		
Level	graduate		
Type of Course	elective		
Year of Study	1st		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		30 + 0 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to acquaint students with the importance and characteristics of human resource management. The principles, functions and processes of human resource management in business systems are studied. Through classes, students will be introduced to the theoretical and practical foundations of teamwork and strategies for staff recruitment, development and promotion.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

After passing the exam, students will be able to:
1. Properly interpret the role and meaning of human capital
2. Analyze and describe jobs, job positions and tasks
3. Conduct tests and interviews related to the selection and employment of candidates
4. Identify sources and methods of recruitment and selection
5. Develop a work plan and program for innovating employee knowledge
6. Describe the stages of introducing workers to their jobs
7. Determine the criteria and methods of employee rewarding
8. Organize processes of human resource development
9. Compare and apply techniques for assessing employee achievements
10. Improve general individual competencies and communication skills

1.4. Course Outline

Theoretical perspectives of HRM. Interdependence of HR development and business systems. Functions and goals of HRM. Significance and role of HR in the company. Process and relationship management in teamwork. Job design and analysis. Planning, recruiting and selecting employees. Procedures for selecting managers. Legal regulations of labor. Conclusion and termination of employment contract. Employment induction policies. Employee motivation. Innovation of knowledge in the business system. Assessing work efficiency and business excellence.

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 is required to attend and actively participate in lectures and be present in at least 70% of classes. All continuous assessments affect the grade, none of which should be satisfied with less than 50%.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	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

Assessment and evaluation include a teaching activity, two colloquia and a final oral exam. Assessment is carried out in accordance with the applicable university and faculty Regulations on study. The student can achieve up to 70% of the grade during classes, and the remaining 30% can be achieved at the final exam. At each knowledge test, the student must master at least 50% of the learning outcomes, ie achieve at least 50% of possible points.

Examples of exam questions:
Learning Outcome 3: Select appropriate tests for different job positions and explain how to implement them.
Learning Outcome 6: Create a plan to introduce a new employee to the job.
Learning Outcome 7: Design a system of employee motivation and reward consisting of tangible (financial) and intangible components

1.10. Main Reading

Teaching materials on the e-learning system.
Vujić, V .: Human Capital Management - 3rd Edition, University of Rijeka, Faculty of Hospitality Management, Opatija, 2008.

1.11. Recommended Reading

1. Bahtijarević Šiber, F., Management ljudskih potencijala, Golden marketing, Zagreb, 1999.
2. Dessler, G., Human Resource Management, Prentice Hall, New Jersey, 2003.
3. Vujić, V. et al: Korporativno upravljanje – Hrvatsko udruženje menadžera i poduzetnika, Zagreb, 2008.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Vujić, V .: Human Capital Management	5	30

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	PhD Mirano Hess		
Course	Coastal zone management		
Study Programme	Nautical studies and maritime transport technology		
Type of Course	Optional course		
Year of Study	1		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		45 + 0 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

To train students to understand the elements of coastal zone management, identify tasks and problems, planning, implementation, monitoring and evaluation in international and national development domains and in accordance with modern technological solutions and the latest recommendations and rules in the field.

1.2. Prerequisites for Course Registration

/

1.3. Expected Learning Outcomes

1. Define, explain and distinguish the characteristics of the coastal zone in the Republic of Croatia (RC) and the world
2. List, explain and interpret the importance and elements of sustainable development of the coastal zone in the RH and the world
3. Describe, explain and compare the phases of coastal zone management and interpret the use of maritime domain GIS
4. List, define and distinguish key problems in the management process and recommendations in the RH and the world
5. Highlight and point out the similarities and differences of key national and European documents and describe the institutional framework in the RC

1.4. Course Outline

1. Instruments of integrated coastal zone management
2. Elements of sustainable development and characteristics of the coastal zone in the RC and the world
3. History and the need for integrated coastal zone management
4. Coastal area in international and national frameworks
5. Key European documents, development documents in the RC and the institutional framework in the RC
6. Analysis of planning solutions and processes
7. Key issues and recommendations and guidelines for improving spatial planning
8. Maritime domain within the legal framework of the RC and GIS of maritime domain
9. Planned development of coastal and coastal regions and the procedure for the introduction of maritime spatial planning
10. Examples and analysis of planned development and coastal zone management: Adriatic, Mediterranean and world

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

Active class attendance. Preparation of a seminar / work assignment. Passed a midterm exam and final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1.5	Class participation		Seminar paper		Experiment	
Written exam	1.1	Oral exam		Essay		Research	
Project		Continuous Assessment	1.7	Presentation/work assignment /sem.	0.7	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

70% in classes and 30% in the final exam (according to the Ordinance on studies at the University of Rijeka and the Ordinance on studying at the Faculty of Maritime Studies in Rijeka). Continuous assessment of knowledge: colloquium from the material, it is necessary to achieve a minimum of 50% correct answers (I1, I2, I3). Students, in groups, make a seminar / work assignment / presentation of materials from the selected topic / materials, for which they can achieve a maximum of 20% of points in the course. Final exam: written exam from the material. It is necessary to achieve a minimum of 50% correct answers (I4, I5).

Examples of evaluating learning outcomes:

1. State and explain the EU principles for CZM. (I1)
2. List and explain the 3 concepts on which the philosophy of sustainable development of the coastal zone is based. (I2)
3. Explain for what reason and how the GIS of the maritime domain is used. (I3)
4. Highlight the most significant and explain the consequences of the problem of spatial planning of the coastal area. (I4)
5. In addition to the administrative bodies in the counties, which are still institutions of importance for CZM in the RC, and explain their functions. (I5)

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1.10. Main Reading

Hess, M.: Coastal Zone Management, 2021, script on web pages of Faculty of Maritime Studies Univerity of Rijeka

1.11. Recommended Reading

1. John R. Clark, Coastal Zone Management Handbook, CRC Press, 2019
2. Frank Ahlhorn, Integrated Coastal Zone Management: Status, Challenges and Prospects, Springer Vieweg, 2018
3. Kovačić, M., Komadina, P.: Upravljanje obalnim područjem i održivi razvoj, Pomorski fakultet u Rijeci, 2011
4. David R. Green, Coastal Zone Management, Thomas Telford Publishing, 2009
5. Protokol o integriranom upravljanju obalnim područjima sredozemlja, UNEP/MAP, 2008

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Hess, M.: Coastal Zone Management, 2021, script on web pages of Faculty of Maritime Studies Univerity of Rijeka	unlimited	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 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	Prof. dr. sc. Alen Jugović Doc. dr. sc. Dražen Žgaljić	
Course	Port economics	
Study Programme	Nautics and Technology of Maritime Transport	
Type of Course	Elective	
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

Acquiring the necessary knowledge in the field of organization and management of seaports, paying particular attention to introducing students to:

- regulations determining situation on the market,
- port functions,
- designing the organization,
- economic indicators and other factors that depend on the performance of each port.

1.2. Prerequisites for Course Registration

Not applicable.

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. Compare the types of seaports and criteria for determining their importance
4. Analyze port development trends.
5. Discuss the importance and impact of particular phenomena (liberalization, informatization, sustainability) on the development and competitiveness of ports and port companies.
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 gravitations 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-term, mid-term 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	n/a	

1.7. Student Obligations

Attending classes
Attending exercises
Exams (continuous assessment) and tests
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	
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

Assessment and evaluation of student work includes continuous knowledge evaluation through two continuous assessment exams and two tests with computational tasks during classes, and the final exam. The assessment is carried out in accordance with the Ordinance on Studies of the University of Rijeka and the Ordinance on Studying at the Faculty of Maritime Studies in Rijeka, meaning that a student can achieve 70% of the grade during classes and the remaining 30% at the final exam.
Assessment of learning outcomes is carried out continuously during classes, and the students can achieve a percentage of grade in the following way:
1) 1st continuous assessment exam 25%
2) 2nd continuous assessment exam 25%
3) 1st Test 10%
4) 2nd Test 10%
The final exam is open to students who gained 35 points during classes, i.e., 50% of the total number of points that could be achieved during the evaluation. Also, another condition to be met is that students achieve at least 50% of points in each continuous assessment exam. The final exam is in written form and covers 30% of the total grade. Students must pass 50% of the final exam in order to achieve a passing grade for this course.
Assessment is carried out in terms of the follwoing learning outcomes:
1) Define basic terms related to seaport activities.
2) List the regional participants that the port business can have influence on.
3) Describe ports according to types and criteria for determining their importance.
4) Explain how changes in technology affect seaport business.
5) Explain how liberalization affects port competitiveness.
6) Calculate economic and financial indicators on the example of specific ports.

1.10. Main Reading

1) Nastavni materijal na sustavu za e-učenje – 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.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Jugović, A.: Upravljanje morskom lukom, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2013.*	30	
2. Jugović, A., Mudronja, G., Schiozzi, D.: Ekonomika luka – riješeni zadaci, Sveučilište u Rijeci, Pomorski fakultet, Rijeka, 2020.*	15	
3. Kesić, B.: Ekonomika luka, Pomorski fakultet, Rijeka, 2003.	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.

**Additional copies of the listed mandatory literature are available to order in the Faculty's scriptorium.*

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Course description

Generic information			
Head of Course	Serdjo Kos , PhD , Full professor (tenured)		
Course	Integral and multimodal transport		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Mandatory course		
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

Explain to students the theoretical foundations and relevant features of integral and multimodal transport. The objectives of the course are for students to adopt a tactical / strategical approach to specific technologies of integrated and multimodal transport and to be able to calculate relevant parameters in the selection of different technologies of integrated and multimodal transport systems in road, rail, sea and air transport. By preparing and presenting a seminar paper, students are trained to solve previously set technical and technological problems of transport engineering.

1.2. Prerequisites for Course Registration

There are no prerequisites

1.3. Expected Learning Outcomes

It is expected that students after passing the exam can:
1.Define and analyze the relationships of basic concepts of transport engineering.
2. Explain and evaluate the elements of the transport process, transport chain and freight transport centers.
3. Explain, analyze and synthesize the characteristics of the universal classification of technologies of different types of traffic.
4. Explain, synthesize and value evaluate the characteristics of organization and management and planning in integrated and multimodal transport.
5. Analyze, synthesize and evaluate the essential assumptions for the introduction of integrated and multimodal transport (critical point, under capacity, overcapacity, unit cost digression, …).
6. Analyze and evaluate planning in integral and multimodal transport.
7. Analyze and evaluate the technical and technological characteristics of integrated and multimodal transport systems in road, rail, sea, postal and air transport.
8. Mathematically model the transport process of marine container transport technology.
9. Mathematically model the optimal structure of transport of a full container ship on a certain maritime traffic route
9. Analyze and evaluate the relevant parameters of work in road, rail and maritime transport.
10. Analyze and evaluate the productivity, economy and profitability of work in integral and multimodal transport.
11. Analyze and, synthesize and evaluate the relationship between ITS (intelligent transport systems) and integral / multimodal transport.

1.4. Course Outline
Transport engineering – basics. Semantic relationship of basic concepts. Elements of transport service production. Defining terms in the field of unified freight transport. Globalization of transport. Basic elements of integral and multimodal transport systems. Subjects and objects in the transport process. Transport process - Transport chain. Historical aspect of the development of unified cargo technologies at sea. Universal classification of technologies of various types of traffic. Organization of integral and multimodal transport. Freight transport systems integrated by a dedicated means of transport in maritime transport. Freight transport systems integrated by means of transport in maritime transport. Integral and multimodal transport terminals. Integral cargo and air freight transport systems. Basic preconditions for the introduction of integral and multimodal transport. Planning in integral and multimodal transport. International multimodal transport as a system. Basic settings of the control system in multimodal transport. Technical-technological characteristics of integral and multimodal systems in road traffic. Technical-technological characteristics of integral and multimodal systems in railway transport. Technical-technological characteristics of integral and multimodal systems in sea and river shipping. Specifics of postal traffic. Technical-technological characteristics of integral and multimodal systems in air transport. Technical-technological characteristics of the development of integral and transport systems in postal traffic. Freight transport centers. Modeling of the transport process of marine container transport technology. Model of optimal transport structure of a full container ship on a defined maritime traffic route. Relevant operating parameters in freight / passenger transport in road vehicles. Relevant quantitative and qualitative indicators in freight transport by rail. Transport of liquid cargo by pipelines. Relevant operating parameters in freight transport on seas and rivers. Productivity and energy efficiency of a full container ship. Labor productivity in integral / multimodal transport. Economy and profitability of work in integral / multimodal transport. Relationship between ITS and integral / multimodal transport.

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

A. Prerequisite for taking the exam:
- Attendance at exercises, seminars and lectures is mandatory and control of the present students is carried out
- The student may miss a maximum of 30% of all exercises, seminars and lectures
- Seminar paper must be prepared in accordance with the instructions of the associate (assistant) and it is necessary to respect the deadlines for submission of papers
- Details of the implementation of the seminar paper will be prepared by the assistant and published on his website.

B. Prerequisite for passing the exam:
- Successfully passed the colloquium, prepared and publicly presented seminar paper, and successfully passed the oral final exam with the Head of Course (overall min. 50%). Exam questions at the final oral exam were published publicly on the personal website of the Head of Course (126 questions). The student answers 3 randomly selected questions. Exam questions include understanding of theoretical settings logically related to methodological thematic units from the expected learning outcomes for the subject Integral and multimodal transport in the field of transport engineering.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation		Seminar paper	1	Experiment	
Written exam		Oral exam	1,5	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.

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

- Attendance at classes: 5 points
- Preparation and presentation of seminar papers: 30 points (min. 15 points)
- Colloquium: 25 points (min. 15 points)
- Total teaching: 60 points - learning outcomes (1-7) and (10-11) - colloquium + seminar paper
- Final oral exam: 40 points (min. 20 points) - learning outcomes (1 - 11) - 126 publicly announced exam questions.

TOTAL: 100 points OR 100%

1.10. Main Reading

1.) *Teaching material for the course available at e - learning- Merlin (https://moodle.srce.hr), and at the personal web page of the Head of Course*
2.) Kirinčić J. : Luke i terminali , Školska knjiga , Zagreb , 1991.
3.) Kos, Serđo; Vukić, Luka; Brčić, David. Comparison of External Costs in Multimodal Container Transport Chain. // *Promet - Traffic & Transportation*. **29** (2017) , 2; 243-252 (članak, znanstveni),
4.) Kos, Serdjo; Vilke, Siniša; Brčić, David. Redirection of the World Traffic Flow Far East – Europe via the Adriatic Sea. // *Athens Journal of Technology & Engineering*. **4** (2017) , 3; 229-245
5.) Vilke, Siniša; Brčić, David; Kos, Serđo. Northern and Southern European traffic flow land segment analysis as part of the redirection justification. // *The International Journal on Marine Navigation and Safety of Sea Transportation*. **11** (2017) , 4; 673-679
6.) Kos S. : Productivity of Full Container Ship and Energy-Economy of its Propulsion Plant , Promet , Vol. 15 , No.2, str. 101-104 , Zagreb , 2003.
7.) Kos S. , Zenzerović Z. : Modelling the Transport process in Marine Container Technology , Promet , Vol.15 , No.1, str. 13-17 , Zagreb , 2003.
8.) Kos S., Zenzerović Z. : Model of Optimal Cargo Transport structure by Full Container Ship on Predefined Sailing Route , Promet , Vol. 16 , No.1 , str. 15-20 , Zagreb , 2004.
9.) Vranić D. , Kos S . : Prijevoz kontejnera brodom I , Pomorski fakultet , Rijeka, 1992.
10.) Vranić D. , Kos S. : Prijevoz kontejnera brodom II , Pomorski fakultet , Rijeka, 1993.
11.) Kos, Serdjo; Šamija, Suzana; Brčić, David : MULTIMODAL TRANSPORT IN THE FUNCTION OF THE PORT SYSTEM CONTAINERIZATION DEVELOPMENT // *ICTS 2012 ; Maritime, Transport and Logistic Science: Conference Proceedings* / Zanne, Marina ; Bajec, Patricija (ur.). Portorož : Fakulteta za pomorstvo in promet Portorož, 2012. 1-14 .

1.11. Recommended Reading

1.) Zavada J. : Prijevozna sredstva, Fakultet prometnih znanosti , Zagreb , 2000.
2.) V. Ferišak, I. Medvešček ,F. Renko, D. Sremac, B. Šnajder : Poslovna logistika , Zagreb ,Informator , 1983.
3.) Zelenika R. : Prometni sustavi , Ekonomski fakultet , Rijeka, 2001.
4.) Morlok K. E. : Introduction to Transportation Engineering and Planning , McGraw-Hill. , Inc., New York , 1978.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Complete teaching materials for the course are available to all students on the personal website of the Head of Course and on the Merlin e-learning system		
Kos, Serdjo; Šamija, Suzana; Brčić, David : MULTIMODAL TRANSPORT IN THE FUNCTION OF THE PORT SYSTEM CONTAINERIZATION DEVELOPMENT // *ICTS 2012 ; Maritime, Transport and Logistic Science: Conference Proceedings* / Zanne, Marina ; Bajec, Patricija (ur.). Portorož : Fakulteta za pomorstvo in promet Portorož, 2012. 1-14 .	10	29

1.13. Quality Assurance

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

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Course description

Generic information			
Head of Course	Vlado Frančić, Associate Professor, Ph.D.		
Course	Marine Accident Investigation		
Study Programme	**Nautical Studies and Maritime Transport Technology**		
Type of Course	Elective		
Year of Study	1	Semester **3**	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		**30 + 0 + 15 (2 + 0 + 1)**

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The course objectives are to provide students the basic skills and knowledge required to organize and conduct marine accident investigation in accordance with generally accepted practice in shipping and international as well national legislation. In addition, the course will explain student's basic methodology of marine safety investigation and define the difference between safety and administrative investigation. Also, student will acquire skills to prepare and organize accident investigation and prepare investigation report according to generally accepted methodologies required for marine safety investigation basically developed and accepted by the IMO.

1.2. Prerequisites for Course Registration

It is expected that students possess at least basic knowledge about work and role of International Maritime Organization (IMO) and associate requirements related to safety of navigation as well as to understand basic technical and technological characteristics of ships.

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. **Unite and explain international and national regulations regarding marine accident investigation;**
2. **Elaborate and assess importance of safety investigation procedure;**
3. **Envisage the methodologies of a marine accident safety investigation;**
4. **Compare and envisage different investigation methods and different types of marine investigation (safety and administrative);**
5. **Elaborate and envisage procedures and tasks during performing marine safety investigation;**
6. **Explain the overall marine accident investigation process;**
7. **Explain process of collecting evidence and making an interview;**
8. **Prepare a marine safety investigation report.**

1.4. Course Outline

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Basic regulations on marine accident investigations. Definition of an accident and casualty. Review of international obligations regarding the investigation of marine accidents and incidents by national maritime administrations. Investigation methodology for different types of marine accidents. Investigators and tools needed to investigate maritime accidents. Legal status of investigators. Investigator's safety during the investigation. Basic interviewing techniques. Preliminary activities in the investigation. Collection of evidence (collection procedure). Witness interviewing. Evaluation of evidence. Sharing evidence with others involved in the investigation. Scope of the investigation. Content and method of writing a marine safety investigation report. Findings and recommendations of the investigation.

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	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	2	Essay		Research	
Project	2	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 preparation of tasks (projects) and the final exam are evaluated. Continuous assessment includes:
- Preparation of Marine Safety Investigation Report.
- Active participation in classes - performing tasks in groups.

Through oral examination student will achieve learning outcomes.
On the final exam (oral exam) student need to present theoretical knowledge in the field of the international maritime safety system, where it is necessary to achieve a minimum of 50% of the required theoretical knowledge.
Examples of Assessment of Learning Outcomes:

1. Describe methodology use in the process of marine accident investigation (Learning Outcomes 3,5,6)
2. Define and explain interview technique (Learning outcome 6)
3. Prepare marine safety investigation report (Learning Outcomes 5 and 8)

1.10. Main Reading

1. Code of International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code), IMO, 2008.
2. Guidelines to assist investigators in the implementation of the Casualty investigation code (IMO Resolution A.1075(28))
3. "Establishing the fundamental principles governing the investigation of accidents in the maritime **transport sector" Directive 2009/18/EC.**
4. **Lecturer's notes published on official webpage**

1.11. Recommended Reading

1. **Marine Accident Investigators International Manual, MAAIF**
2. **IMO Resolution related to accident investigations.**
3. **Marine accident reports, various sources.**

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1-4	**Web**	**30**

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.

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Course description

Generic information			
Head of Course	Dr.sc. Jakov Karmelić		
Course	International Shipping Business		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Mandatory		
Year of Study	1.	University graduate study program	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30+15+0 (2+1+0)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to provide students with a comprehensive insight and understanding of the international shipping markets (freight, shipbuilding, second hand and demolition) for different types of shipping (liner, tramp, passenger, off-shore).

Through this course, students will get acquainted with the goals and structure of the work of international maritime and trade organizations, the business of shipping companies and other entities in maritime trade, the structure of world overseas trade and the world fleet.

The course provides a scientific basis for further specialist study of this multidisciplinary course.

During exercises, by studying specific cases, students will acquire basic knowledge of doing business in the international shipping market.

1.2. Prerequisites for Course Registration

No

1.3. Expected Learning Outcomes

1. Explain the basic characteristics of each segment of the shipping market.
2. Distinguish the basic principles, goals and manner of work of the international maritime and trade organizations.
3. Analyze and interpret the structure of world overseas trade by types of cargo and types of ships.
4. Explain the importance and role of maritime transport entities in all types of shipping, especially: shipowners, operators, brokers and agents.
5. Analyze and interpret freight indices in all types of shipping, interpret shipping market cycles and analyze and interpret broker`s reports.
6. Define and explain the basic procedures for designing liner shipping services.
7. Explain the reasons for the business cooperation and the different types of cooperative agreements among the shipowners and operators.
8. Analyze and demonstrate the connection between overseas goods flows/trades of certain types of goods, specific technology and segmentation of ships for the transport of these types of goods and the ways of contracting sea transport.

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1.4. Course Outline

Analysis of world overseas trade by types of cargo and regions, structure of world trade fleet by types of ships, age structure of ships as well as structure of world fleet by ownership (countries) and operators.
An overview of the world's international maritime and trade organizations. Shipowners and operators in all types of shipping. Specifics of the work of brokers and shipping agents.
Shipping market segmentation. Categorization of ships in bulk, liquid, gaseous, containerized cargo transport and offshore industry. Freight indices in all types of shipping. Shipping market cycles. Supply and demand in the maritime shipping market.
Maritime competition regulations. Organizational structure of shipping companies. Ways of outsourcing in shipping: ship management, D / A Desk, C / P Desk, Service Sharing Centres, Planning Centres, etc.
Basics of liner service design. Criteria for selecting the optimal maritime shipping service and operator from the user's point of view.

1.5. Modes of Instruction	X☐ Lectures X☐ Seminars and workshops X☐ Exercises X☐ E-learning ☐ Field work	☐ Practical work ☐ Multimedia and Network ☐ Laboratory X☐ Mentorship ☐ Other _____
1.6. Comments	Email communication with the Head of course: jakov.karmelic@uniri.hr	

1.7. Student Obligations

The student must be present at lectures and exercises at least 70% of the total hours, prepare and present a written seminar paper on a given topic that should be positively assessed before taking the final oral exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation		Seminar paper	1,5	Experiment	
Written exam		Oral exam	1,5	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 procedure for evaluating the acquired learning outcomes is performed according to the Ordinance on Studies of the University of Rijeka and the Ordinance on Studying at the Faculty of Maritime Studies in Rijeka, as follows:
A) Requirements for taking the exam:
· Active class attendance
· Preparation and presentation of seminar paper (40 points)
A. Prerequisite for passing the exam (60 points):
· At least 50% of complete theoretical knowledge in the field of International Shipping Business
Examples of evaluating learning outcomes in relation to set learning outcomes are:
1. Explain the characteristics of each type of maritime shipping market.
2. Describe the principles, goals and mode of operation of international maritime and trade organizations.
3. Interpret the structure of world overseas trade by types of cargo and types of ships.
4. Describe the role of maritime transport entities in all types of shipping, especially: shipowners, operators, brokers and agents.
5. Interpret freight indices, shipping market cycles and broker`s reports in all types of shipping.
6. Explain the basic procedures for designing liner services.
7. Explain the reasons for the cooperation and the different types of shipping cooperation agreements among the shipowners and operators.
8. Demonstrate the connection between the overseas flows of certain types of goods, the specific technology and segmentation of ships for the transport of these types of goods and the ways of contracting sea transport.
During the preparation of the research seminar, individual topics from the field of international maritime business are investigated in more detail.

1.10. Main Reading

1. Domijan-Arneri, I.: Poslovanje u morskom brodarstvu, Redak, Split, 2014.
2. Hess, M., Kos, S.: Ugovaranje u pomorstvu, Pomorski fakultet u Rijeci, 2013.
3. Review of Maritime Transport, UNCTAD, New York and Geneva, web edition
4. Shipping and Shipbuilding Markets, Annual Review Barry Rogliano Salles, web edition
5. Shipping Statistics and Market Review, ISL (Institute of Shipping Economics and Logistics), Bremen

1.11. Recommended Reading

1. Stopford, M.: Maritime Economics, Routledge, 2009.
2. Batalić, M., Mitrović, F.: Financiranje u pomorstvu, Pomorski fakultet u Splitu, Split, 2010.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Domijan-Arneri, I.: Poslovanje u morskom brodarstvu, Redak, Split, 2014.	5	40
Hess, M., Kos, S.: Ugovaranje u pomorstvu, Pomorski fakultet u Rijeci, 2013.	5	40
Review of Maritime Transport, UNCTAD, New York and Geneva, web edition	unlimited	40
Shipping and Shipbuilding Markets, Annual Review Barry Rogliano Salles, web edition	unlimited	40
Shipping Statistics and Market Review, ISL (Institute of Shipping Economics and Logistics), Bremen	1	40

1.13. Quality Assurance

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

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3.2. Course description

Generic information		
Head of Course	Neven Grubišić, Ph.D.	
Course	Designing and Planning of Port and Terminals	
Study Programme	Nautical Studies and Maritime Transport Technology	
Type of Course	Optional	
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+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The main objectives of the course are getting knowledge about methods for strategic and tactical planning of port container and intermodal transport terminals, and about the methods for port operation and cargo handling process planning.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

1. Apply the system analysis procedures and LCM methods in planning of ports and terminals.
2. Identify functional requirements to be used for strategic planning
3. Divide port area into zones and draw the port layout with the main infrastructure objects (zoning)
4. Calculate optimal number of berthing facilities and the port area for different type of terminals
5. Recommend capacity needs and terminal configuration for different development scenarios
6. Solve typical logistic tactical problems in Container terminals
7. Draw up operating plan for handling equipment job-schedule

1.4. Course Outline

Meaning of transport planning and categories of planning. Strategic and tactical planning. Dependency between spatial and transport facilities planning. Methodology of terminal development. Application of system engineering and LCM ("Life Cycle Management") approaches to port planning. Structure of port Master plan. Functional requirements for ports and terminals development. Berth requirements, terminal area and capacity computations. Layout design problems and space optimization. Tactical logistic problems on Container terminals. Berth and quay crane allocation, crane scheduling and transport process optimization.

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 regularly and actively participate in the learning process during the course.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1	Class participation	0.5	Seminar paper		Experiment	
Written exam		Oral exam	1	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

Attending classes
Class attendance: Learning outcomes 1-7: 10 pts

Continuous Assessment
Assignment 1: Port zooning plan. Learning outcomes 1-3: 20 pts
Assignment 2: Capacity calculation. Learning outcomes 4-5: 20 pts
Assignment 3: Berth and QC allocation plan and QC scheduling plan. Learning outcomes 6-7: 20 pts

Maximum of 70 credits or 70% of total score during teaching process is available. Maximum of 30 credits or 30% of total score may be earned during final exam.

Examples of evaluation by individual learning outcome:

1. Draw and explain relations in V-diagram considering a construction or reconstruction of the port facilities
2. Identify stakeholders, and positive/negative impacts of port infrastructure construction on them
3. Construct the simple zoning of the port area showing the main port infrastructure and their attributes.
4. Construct the capacity diagram based on cargo and normative workload data provided.
5. Define different alternatives of port development based on performance data
6. Explain the correlation between dependent and independent variables/parameters for the berth allocation and crane allocation plan on the port container terminal
7. Create the operation plan for crane deployment and present the graphical solution of the quay crane scheduling problem based on input dataset.

1.10. Main Reading

1. Ligteringen, H., Velsink, H.: Ports and Terminals, Vereniging voor Studie- en Studentenbelangen Delft, 2012.
2. Dundović, Č.: Lučki terminali – Tehnologija luka i terminala II, sveučilišni udžbenik, Rijeka, 2002.
3. Grubišić, N., Dundović, Č.: Primjena sistemskog inženjeringa u planiranju lučkih terminala, Pomorstvo, vol.25, br.1, 2011.

1.11. Recommended Reading

1. Thomas, B.J.: Operations planning in ports, UNCTAD monographs on port management, UN, 1985.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Ligteringen, H., Velsink, H.: Ports and Terminals, Vereniging voor Studie- en Studentenbelangen Delft, 2012.	6	15
2. Dundović, Č.: Lučki terminali – Tehnologija luka i terminala II, sveučilišni udžbenik, Rijeka, 2002.	30	15
3. Grubišić, N., Dundović, Č.: Primjena sistemskog inženjeringa u planiranju lučkih terminala, Pomorstvo, vol.25, br.1, 2011.	Accessible online	15

[1] VAŽNO: Uz svaki od načina praćenja rada studenata unijeti odgovarajući udio u ECTS bodovima pojedinih aktivnosti tako da ukupni broj ECTS bodova odgovara bodovnoj vrijednosti predmeta. Prazna polja upotrijebiti za dodatne aktivnosti.

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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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Table 2.

3.2. Course description

Generic information			
Head of Course	Axel Luttenberger, Ph.D., Full Professor with tenure		
Course	**Maritime Labour Law**		
Study Programme	**Nautical Studies and Maritime Transport Technology**		
Level	Master		
Type of Course	Elective		
Year of Study	2	Semester	4
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		(30+0+0)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to introduce students to the characteristics of labour relations in general and the specifics of labour relations between seafarers, namely: sources of labour law, essential elements of employment contracts, protection of the life, health and dignity of workers, working hours, holidays and permits, wages and remuneration, compensation for damages, termination of employment contracts, protection of rights under employment relations, collective entities of labour relations, collective bargaining and collective agreements.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

Define and interpret fundamental concepts of labour law
1. Explain the rights of seafarers from employment relationships
2. Explain how the rights of seafarers from employment relationships are exercised,
3. Determine ways to protect the rights of seafarers from employment relationships,
4. Analyze the specifics of maritime employment relationships,
5. Analyze the rights and obligations of workers and employers with regard to occupational safety,
6. Explain the role of trade unions and employers' associations in contracting rights and obligations in employment relations

1.4. Course Outline

The concept, legal sources, entities and basic characteristics of the employment contract. Features and elements of the employment contract. Protection of life, health and dignity of workers, working hours, holidays and permits, salaries and remuneration, compensation of special reference to compensation for damages due to an accident at work or occupational disease, termination of the employment contract, protection of rights from employment relationships, collective entities of labour relations, collective bargaining and collective contracts.

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1.5. Modes of Instruction	X Lectures ☐ Seminars and workshops X Exercises X E-learning ☐ Field work	☐ Practical work X 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 of Learning Outcomes

Course attendance	1	Class participation		Seminar paper	0	Experiment	
Written exam		Oral exam	2	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 continues assessment student achieves up to 70% (Learning Outcomes from 1 to 6), while with the written Final Exam (Learning Outcomes from 1 to 6) up to 30% of total Score.
Examples of Assessment of Learning Outcomes:
1. implementation of the principle of labour law
2. determine the rights of seafarers from employment
3. analyze the out-of-court and judicial exercise of employment rights
4. analyze the specificity of employment and stay in the workplace
5. employer responsibility for occupational safety

1.1. Main Reading

Učur, Marinko: Radnopravni status pomoraca, Pravni fakultet Sveučilišta u Rijeci, 2004
Course teaching material available on e-learning system - Merlin (https://moodle.srce.hr)

1.2. Recommended Reading

Convention of the International Labour Organization, www.ilo.org

1.3. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Učur, Marinko: Radnopravni status pomoraca, Pravni fakultet Sveučilišta u Rijeci, 2004	20	40
Course teaching material available on e-learning system - Merlin	web	web

1.4. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European quality assurance implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the student pass rate and adopt appropriate measures.

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Course description

Generic information			
Head of Course	Serdjo Kos , PhD , Full professor (tenured)		
Course	Satellite navigation		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Elective course		
Year of Study		1.	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		(30 + 15 + 15)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Explain to students the theoretical foundations and relevant features of satellite navigation. The objectives of the course are for students to acquire specific knowledge necessary for understanding and proper use of GNSS systems, complex interpretation of system errors of satellite user positioning, modeling, as well as much-needed statistical processing of satellite signal, combination of satellite receiver functionalities analysis, i.e. that they are trained to properly use the GNSS systems and complex analysis of the work / performance of all related services (advantages and disadvantages).

1.2. Prerequisites for Course Registration

No prerequisites for Course Registration

1.3. Expected Learning Outcomes

1. Define, analyze and synthesize the basics of user positioning procedures using satellite navigation,
2. Explain and evaluate positioning algorithms for basic GNSS systems, taking into account the sources of relativistic effects in GNSS systems and the impact of space weather on satellite user positioning,
3. Properly analyze and evaluate the total calculation of the GNSS positioning error budget, i.e. its individual causes
4. Explain, analyze and evaluate tropospheric delay of satellite signal, ionospheric delay, satellite signal, geometric and user distribution of position accuracy and synthesize procedures to mitigate the effects of ionospheric delay of the satellite signal,
5.Analyze and evaluate user equivalent errors due to the effect of multiple paths, and correctly apply computer procedures to mitigate the impact of multiple path errors of the satellite signal,
6. Analyze and properly model the statistical processing of satellite signal, especially Kalman filter, particle filter and neural networks.
6. Analyze and evaluate different construction systems of satellite navigation receiver, and different outcomes of services provided by various global and regional satellite navigation systems,
7. Understand the basics of radio communications and block diagram of GNSS receivers, analytically process the estimation of user position by GNSS receiver and synthesize the connection of GNSS receivers with other computer devices in the function of integration, with reference to wider applications in maritime navigation,
8. Analyze and synthesize combined (multi) GNSS receivers,
9. Understand and properly evaluate GNSS forensic analysis.

1.4. Course Outline

Basics of satellite navigation. Basic procedure for determining user position by satellite navigation systems. Overview of satellite navigation systems - GNSS, SNS, RSNS, SBAS. Algorithms for determining the position of basic satellite systems. **GNSS positioning error budget.** Basics of error calculus and statistical analysis. Ionosphere dynamics. Space time. Geometric distribution of user position accuracy. User error equivalent. Ionospheric delay of the satellite signal. Ionospheric signal delay mitigation procedures. Tropospheric delay of satellite signal for positioning. Errors due to the influence of multiple paths. Computer error mitigation procedures for multiple path effects. **Statistical processing of satellite signal.** Digital signal processing. Development of models based on statistics. Stochastic models. Kalman filter. Practical design of Kalman filter. Particle filter and neural networks. **Construction of satellite navigation receiver.** Basics of radio communication. Signal processing within GNSS receivers. Signal to noise ratio. Accidental and intentional interference with satellite navigation signals. Procedure for estimating a user's position with a GNSS receiver. Connecting GNSS receivers to other computer devices. Software-defined GNSS receivers. Guidelines for future development. Fundamentals of GNSS forensic analysis.

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

1.7. Student Obligations

Prerequisite for taking the exam:

- Attendance at exercises, seminars and lectures is mandatory and control of present students is carried out
- A student may be absent with a maximum of 30% of exercises, seminars and lectures,
- The project assignment (seminar project – project task) must be prepared in accordance with the instructions of the associate of the seminar and submitted within the set deadlines for the submission of the project assignment. The project task is done on the basis of individualized exercises throughout the semester, and is individually defined for each student at the beginning of the semester,
- In addition to the project task, students prepare a presentation based on the topics offered in the introduction to the course,
- Details of the implementation of the seminar or project task are prepared by the associate and published on his website;

Prerequisite for passing the exam:

- Fulfilled all previously defined obligations of students through exercises, seminars (project assignment), written test, homework, independent presentation of the selected topic, and oral final exam (at least 50%)

1.8. Assessment[1] of Learning Outcomes

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

Student obligations and general overview of how to evaluate learning outcomes:

- Thematic presentation 10%
- Homework 2 x 5% = 10%
- Colloquia (2) 2 x 10% = 20%
- Project task = 30%
- Total teaching: 70% - learning outcomes 1 - 8
- Oral final exam 30% - learning outcomes 1 - 10
- Total: 100%

Detailed presentation of the method of evaluation (scoring) for individual student obligations:

1.Presentation:

- It is performed in a group of three students and lasts 15 minutes
- Topics for presentation are selected on the Merlin system
- A total of 10 points can be achieved through the presentation

2. Homework:

- 5 homework can be achieved with each completed homework
- Tasks are handed over until the next term of exercises

3. Colloquia:

- Colloquia consist of questions that check the connection and understanding of thematic units
- Colloquia are held in terms of exercises
- Two colloquia are held - a total of 20 points can be achieved

4. Project task:

- Topics and descriptions of project tasks are defined during exercises throughout the semester
- The deadline for submitting the project task is open, which means that it can be submitted for assessment as soon as it is completed.
- After accepting the project task, it is answered orally by the seminar provider.

5. Final oral exam:

- Answers orally to the question of the Head of Course
- Answers to three randomly drawn questions in a series of 124 questions that are publicly posted on the Head of course holder's website. Exam questions include understanding the theoretical settings logically related to methodological thematic units from the domain of satellite navigation.
- A total of 30 points can be achieved

TOTAL: 100 points (100%)

1.10. Main Reading

1. American Meteorological Society (AMS). (2011). *Satellite Navigation & Space Weather: Understanding the Vulnerability & Building Resilience*. Massachusetts, USA: AMS.
2. Teaching material for the course Satellite navigation is announced on the personal web page of Head of Course
3. Teunissen & Montenbruck – Editors .Springer Handbook of Global Satellite Navigation Systems , Springer , ISBN: 978-3-319-42926-7; e-ISBN: 978-3-319-42928-1, (2017).
4. Brčić, D. (2015). *Model nespecifičnoga dnevnog hoda ionosferskog kašnjenja signala za satelitsko određivanje položaja.* Doktorska disertacija. Rijeka, Hrvatska: Sveučilište u Rijeci, Pomorski fakultet.
5. Dow, J.M., Neilan, R. E., i Rizos, C. (2009). The International GNSS Service in a changing landscape of Global Navigation Satellite Systems. *Journal of Geodesy*, 83, pp.191–198. DOI: 10.1007/s00190-008-0300-3
James, G. et al. (2013). *An introduction to Statistical Learning*. New York, United States: Springer Science+Business Media
6. Filjar, R., Brčić, D. & Kos, S. (2014). Jamming-Spoofing-Meaconing resilient GNSS operation at the open sea. *Proceedings of the 8th Global Navigation Satellite Systems Vulnerabilities and Solutions Conference.* ISSN: 1849-7306. The Royal Institute of Navigation, London & University of Rijeka, Faculty of Maritime Studies. Baška, Hrvatska, 7-9. 5. 2014. str. 25-32.
7. Filjar, R., Kos, S. & Brčić, D. (2011). Single-frequency GPS positioning performance around the time of the Chilean 2010 earthquake. *Pomorstvo: Scientific journal of maritime research*. ISSN: 1332-0718. 25 (2). str. 287-306.
8. Filjar, R., Kos, S. & Krajnović, S. (2013). Dst Index as a Potential Indicator of Approaching GNSS Perfomance Deterioration. *Journal of Navigation*, 66(1), pp. 149-160.
9. Kaplan, E. D. i Hegarty, C.J. (ur.) (2006). *Understanding GPS: Principles and Application*. Second edition. Boston, USA: Artech House.
Sickle, J. V. (2015). *GPS for Land Surveyors*. Bosa Roca, United States: CRC Press/ Taylor & Francis Inc.
Parkinson, B. W., Spilker, Jr., J. J. (1996). *Global Positioning System: Theory and Applications (Vol. I.)*. AIAA. Washington, DC.
10. Petrovski, I, Tsujii, T. (2012). *Digital Satellite Navigation and Geophysics: A Practical Guide with GNSS Signal Simulator and Receiver Laboratory*. Cambridge, UK: Cambridge University Press.
11. Subirana, J. S., Zornoza, J. J. M. i Hernandez-Pajares, M. (2013). *GNSS Data Processing. Volume I: Fundamentals and Algorithms*. Noordwijk, The Netherlands: ESA Communications.

In addition to the cited literature, mandatory sources can be found on the pages of the Merlin interface for the course Satellite Navigation, and relate to materials from lectures and seminars in the course.

1.11. Recommended Reading

1. Brčić, D., Filjar, R. & Kos, S. (2014). On identification of local GPS ionospheric delay anomaly in the Adriatic Sea area. *Proceedings of the 34th International Conference on Transportation Systems (KOREMA)*. ISBN: 978-953-6037-68-1. Dubrovnik, Hrvatska, 5-9. 11. 2014. str. 112-115.
2. Brčić, D., Filjar, R., Kos, S. & Valčić, M. (2019). On Global Ionospheric Maps based winter-time ionospheric delay with reference to the Klobuchar model: Case study of the Northern Adriatic. *Pomorstvo – Multidisciplinary Journal of Maritime Research.* ISSN: 1332-0718. 33 (2). str. 210-221.
3. Brčić, D., Kos, S. & Filjar, R. (2013). An assessment of geomagnetic activity-related technology failure risk based on patterns of Kp index dynamics in 2012. *Proceedings of the 7th Global Navigation Satellite Systems Vulnerabilities and Solutions Conference.* ISSN: 1849-7306. The Royal Institute of Navigation, London & University of Rijeka, Faculty of Maritime Studies. Baška, Hrvatska, 18-20. 4. 2013. str. 61-82.
4. Brčić, D., Pongračić, B. & Kos, S. (2016). Vernal TEC behaviour in correlation with GPS coordinate deviations. *Proceedings of the 10th Annual Baška GNSS Conference*. The Royal Institute of Navigation, London & University of Rijeka, Faculty of Maritime Studies. Baška, Hrvatska, 8-10. 5. 2016. str. 63-78.
5. Filjar, R., Brčić, D. & Kos, S. (2013). Single-frequency Horizontal GPS Positioning Error response to a moderate Ionospheric storm over Northern Adriatic. U: Weintrit, A. (ur). *Advances in Marine Navigation.* ISBN: 978-1-138-00106-0. London, UK: Taylor & Francis Group. str. 49-56.
6. Kos, S., Barić, M. & Brčić, D. (2015). Discrepancies between predicted and final IGS ionospheric maps in the Northern Adriatic region. *Proceedings of the 9th Annual Baška GNSS Conference.* ISSN: 1849-7306. The Royal Institute of Navigation, London & University of Rijeka, Faculty of Maritime Studies. Baška
7. Kos, S., Filjar, R. & Brčić, D. (2012). GPS Performance Degradation Caused by Single Satellite Outage: a GPS PRN24 Croatia Case Study. *Pomorstvo: Scientific journal of maritime research.* ISSN: 1332-0718. 26 (1). str. 165-179.
8. Kos. S., Pongračić, B. & Brčić, D. (2019). A study on multi-constellation GNSS positioning performance in terms of maritime requirements. *Proceedings of 12th Annual Baška GNSS Conference.* ISSN: 1849-7306. The Royal Institute of Navigation, London & University of Rijeka, Faculty of Maritime Studies. Baška, Hrvatska, 7-9. 5. 2018. str. 69-84.
9. Musulin, I., Brčić, D. & Kos, S. (2014). A study of smartphone satellite positioning performance at sea using GPS and GLONASS systems. *Proceedings of the 22nd International Symposium on Electronics in Transport (ISEP)*. ISBN: 978-961-6187-54-1. Electrotechnical Association of Slovenia & ITS Slovenia, Ljubljana, Slovenija, 24-25. 3. 2014. 7 str.
10. Pongračić, B., Brčić, D. & Kos. S. (2018). Spatial assessment of GPS ionospheric delay model during St. Patrick's geomagnetic storm. *Proceedings of 11th Annual Baška GNSS Conference.* ISSN: 1849-7306. The Royal Institute of Navigation, London & University of Rijeka, Faculty of Maritime Studies. Baška, Hrvatska, 7-9. 5. 2018. str. 75-91.
11. Pongračić, B., Wu, F., Fathollahi, L. & Brčić, D. (2019). Mid-latitude Klobuchar correction model based on the k-means clustering of ionospheric daily variations. *GPS Solutions.* ISSN: 1080-5370. 23(3). 13 str.
12. Thomas, M. et al. (2011). Global Navigation Space Systems: reliance and vulnerabilities. London, UK: Royal Academy of Engineering.
13. Toman, I., Kos. S. & Brčić, D. (2019). On long-term solar activity impact on GPS single-frequency 3D positioning accuracy in the Adriatic Region. *Proceedings of 12th Annual Baška GNSS Conference.* ISSN: 1849-7306. The Royal Institute of Navigation, London & University of Rijeka, Faculty of Maritime Studies. Baška, Hrvatska, 7-9. 5. 2018. str. 27-49..
14. Kos, S., Brčić, D. & Musulin, I. (2013). Smartphone application GPS performance during various space weather conditions: A preliminary study. *Proceedings of the 21nd International Symposium on Electronics in Transport (ISEP)*. ISBN: 978-961-6187-53-4. Electrotechnical Association of Slovenia & ITS Slovenia. Ljubljana, Slovenija, 25-26. 3. 2013. 4 str.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
All required literature is available in the form of an e-edition		

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1.13. Quality Assurance

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

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3.2. Course description

Generic information			
Head of Course	**Robert Mohović, PhD, Full professor**		
Course	**SHIP STABILITY**		
Study Programme	Nautical Studies and Maritime Transport Technology		
Level	University graduate study program		
Type of Course	Elective		
Year of Study	1.		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		**6**
	Number of Hours (L+E+S)		45+0+15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to familiarize students in detail with the factors that affect the ship stability, as well as the stability requirements for ships of different technologies. The static and dynamic stability of the ship in intact and damaged condition, as well as special cases of stability, are analyzed in detail. The impact of ship stability on the safety of the ship, cargo and persons is particularly emphasized. As part of analytical exercises, the students should master the methods of stability calculation. An understanding of the limitations of individual methods is required. The course provides a scientific basis for the optimization of calculation methods, which has a direct impact on performing the maritime transport process in a safe manner.

1.2. Prerequisites for Course Registration

There are no special requirements for enrolling in the course

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. Define, analyze and interpret the factors that affect the ship stability.

2. Define, analyze and interpret the static and dynamic stability of the ship in intact and damaged condition, and special cases of stability.

3. Evaluate the influence of individual parameters and significant factors on the ship stability and determine their mutual correlation.

4. Define, analyze and interpret stability requirements for ships of different technologies.

5. Apply and interpret analytical methods of stability calculation and their limitations.

6. Define and explain the basics of optimization for individual calculation methods.

1.4. Course Outline

Introduction to the course, concept and division of the science of stability. Transverse static stability, initial stability, initial and additional stability, influence of free surfaces. Transverse static stability, stability at greater angles of inclination, static stability curve analysis. Analysis of the influence of ship geometric features and position of the ship's systematic centre of gravity on stability. Dynamic stability and motion of a ship on waves, analysis of the dynamic stability curve (construction and characteristics). Transverse ship stability, influence of displacement and loading or unloading of masses on transverse stability, desired metacentric height. Torques, methods of determining and analysis of the impact on ship stability. Longitudinal stability of the ship, concepts and analysis of factors defining longitudinal stability. Longitudinal stability of the ship, the influence of shifting and loading or unloading of masses on the longitudinal stability, bringing the ship to the desired draft or the desired trim, the influence of water density on the longitudinal stability. Ship stability in damaged condition, flooding of ship spaces, analysis of the impact on ship stability, various types of flooding, ship division. Ship stability in special conditions (grounding stability, docking stability). Ship stability in operation, ship stability documentation, analysis of the ways of calculating stability and trim in operation. Stability requirements for ships of different technologies. Comparative analysis of the stability of ships of different technologies, analysis of the impact of technology and the degree of loading on ship stability. Possibilities and limitations of using electronic computers in stability calculations, optimization of calculation methods. Historical development of the science of stability, perspectives for future development and methods of application in exploitation. Requirements of the STCW Convention. Teaching methodology.

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 and at least 70% of classes.

Completing homework, prepared and positively graded programme assignments, and passing the final exam.

1.8. Assessment[1] of Learning Outcomes

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

[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 evaluating acquired learning outcomes is performed according to the Regulation on Studies of the University of Rijeka and the Regulation on studying at the Faculty of Maritime Studies in Rijeka as follows:

1. 70% of acquired learning outcomes are evaluated through continuous knowledge testing during the semester. The students must do their homework – learning outcomes 1 - 5 (30%), and make programme assignments – learning outcomes 1 - 5 (40%).

2. at the final exam (oral exam) the integrity of theoretical knowledge in the field of ship stability is checked – learning outcomes 1 - 6 (30%), through analysis of the developed programme assignments, a block of questions in the field of course content (from ship stability theory), presentation and analysis of a case of transverse stability, and presentation and analysis of a case of longitudinal stability. At the final exam it is necessary to achieve a minimum of 50% of the required theoretical knowledge..

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

1. Interpret the impact of different shapes of ship form on the transverse stability of a ship.
2. Define and interpret the concept of dynamic stability of a ship.
3. Evaluate the influence of wind moment on the stability of the ship and establish the correlation with other turning moments.
4. Interpret the requirements regarding the stability of ships in intact condition on the example of bulk carriers during the transport of grain.
5. Interpret analytical methods for calculating the longitudinal stability of a ship when loading or unloading a mass and point out their limitations.
6. Define possible ways of optimizing the method of calculating the ship trim by loading cargo into two cargo spaces, and explain them.

Homework includes the performance of tasks using calculation methods presented in the course in the field of transverse and longitudinal stability in intact condition, special cases of stability, and stability in damaged condition.

Programme assignments include the performance of the tasks and calculation methods in such a way that students themselves should set the task for a selected specific ship (using the necessary tables and other documentation), and solve the tasks.

1.10. Main Reading

1. *R. Mohović, Ships stability - teaching texts and attachments available on the e-learning system - Merlin (https://moodle.srce.hr)*
2. *Mohović, R.: Ships stability – theoretical foundations, teaching text on the website of the Faculty of Maritime Studies in Rijeka, Faculty of Maritime Studies, University of Rijeka, 2020.*
3. *Uršić, J.: Stabilitet broda I dio, Sveučilište u Zagrebu, Zagreb, 1962.*
4. *Uršić, J.: Stabilitet broda II dio, Sveučilište u Zagrebu, Zagreb, 1964.*

1.11. Recommended Reading

1.) *Uršić, J.: Plovnost broda, Sveučilište u Zagrebu, Zagreb, 1966.*
2.) *Fatur, J.: Teorija broda, Uredništvo časopisa „Brodogradnja", Zagreb, 1954.*
3.) *Vademecum Maritimus, Podsjetnik pomorcima, Pomorski fakultet u Rijeci, Rijeka, 2014.*
4.) *Pravila za tehnički nadzor pomorskih brodova, Dio 4. – Stabilitet, Hrvatski registar brodova, Split, **
5.) *Pravila za tehnički nadzor pomorskih brodova, Dio 5. – Pregrađivanje, Hrvatski registar brodova, Split,**
6.) *Pravila za tehnički nadzor pomorskih brodova, Dio 23. – Prijevoz tereta, Hrvatski registar brodova, Split,**
** važeća izdanja*
7.) *IMO Rezolucija A.749 (18), Kodeks o stabilnosti u neoštećenom stanju za sve vrste brodova koji su u skladu sa IMO propisima*
8.) *IMO Rezolucija A.562 (14) Preporuka o utjecaju jakog vjetra i valjanja (kriterij vremenskih prilika) za stabilnost u neoštećenom stanju putničkih i teretnih brodova duljine 24 m i više*

* valid editions

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
R. Mohović, Ships stability - teaching texts and attachments available on the e-learning system - Merlin (https://moodle.srce.hr)	*available on web*	*10 - 15*
Mohović, R.: Ships stability – theoretical foundations, teaching text on the website of the Faculty of Maritime Studies in Rijeka, Faculty of Maritime Studies, University of Rijeka, 2020.	*available on web*	
Uršić, J.: Stabilitet broda I dio, Sveučilište u Zagrebu, Zagreb, 1962.	*Library 2*	
Uršić, J.: Stabilitet broda II dio, Sveučilište u Zagrebu, Zagreb, 1964.	*Library 2*	

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	Bojan Hlača, PhD		
Course	Supply chain management		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	elective		
Year of Study	1	graduate	
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 student is introduced to an integrated approach to the supply chain.

The goal of the course is a strategic approach. The student is required to understand:

- All components of the supply chain, such as supply systems, procurement, raw material handling, production, stocks, ordering and transportation.
- Interaction between system supply chain components
- Method and technique of synthesis and analysis of the supply chain

1.2. Prerequisites for Course Registration

-

1.3. Expected Learning Outcomes

1. Understand the importance of supply chain management in a business environment
2. Identify different types of supply chains and identify stakeholders in the entire supply process
3. Explain the importance of integration and coordination of stakeholders in the supply chain and suggest ways to improve business processes
4. Identify carriers by type of goods
5. Use statistical methods to predict supply and demand in the supply chain.
6. Estimate transportation and storage costs to ensure an appropriate cost of logistics service

1.4. Course Outline

Abandonment of the classic functional approach to marketing, production, engineering, finance and personnel management and
increased importance of entrepreneurship on a project basis.
Logistics concept of physical distribution and information management, logistics goals, total cost management.
Porter's company models.
Supply chain management. Supply chain and information technology management organization.
Transaction costs. Supply chain models.

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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		
Regular class attendance and solving tasks assigned to work at home.		
1.8. Assessment[1] of Learning Outcomes		

Course attendance	2	Class participation	1	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

The final grade for the student's success in the course is the sum of the percentage of success achieved by the student in class (70% of the grade) and the percentage of success achieved in the final exam (30% of the grade), according to the rules of University of Rijeka and the Faculty of Maritime Studies in Rijeka.
Continuous assessment:
Midterm exam - it is necessary to achieve at least 50% of correct answers from each exam.
Essay - it is necessary to present in writing the acquired knowledge and research on a given topic.
Final exam - at least 50% correct answers are required.

Examples of evaluating learning outcomes:

1. List the business activities within the supply chain.
2. What models are used to deliver products in the supply chain?
3. What are the decision levels and time horizons in the supply chain?
4. What are the main reasons for system sluggishness in the supply chain?
5. Using Excel, anticipate supply and demand.
6. Describe the functioning of total quality management.

1.10. Main Reading

1. Bloomberg, LeMay, Hanna Logistika Mate 2006
2. Fawcet , Ellram, Ogden Supply chain Implementation Pearson 2007

1.11. Recommended Reading

1. Hugos. M.: Essentials of Supply Chain Management. J.Willey and sons 2003
2. Chorafas D.: Integrating ERP, CRM, Supply chain management and smart materials –CRC Press LLC 2001
3. Ch., Cypress, H.: Integrated Distribution Management, Business, One Irwin, Homewood Illinois, 1993

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Bloomberg, LeMay, Hanna Logistika Mate 2006	5	50
Fawcet , Ellram, Ogden Supply chain Implementation Pearson	1	50

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	Đani Mohović, PhD, Associate professor		
Course	Maritime Risk Management		
Study Programme	Nautical Studies and Maritime Transport Technology		
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 + 0 + 15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to familiarize students with the theoretical and practical basis for the analysis of maritime risks. Detailed knowledge and analysis of specific factors influencing risk assessment. Getting to know the methods for determining risk. Defining acceptable risk and measures to reduce maritime risk. Ability to identify risk on specific examples.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

It is expected that students after passing the exam can:
1. apply theoretical and practical bases for maritime risk analysis
2. be able to identify specific factors influencing determination of risk
3. select and properly apply risk assessment methods
4. select the appropriate method and define the acceptable risk
5. select and apply common measures to reduce maritime risk
6. gain the ability to identify risks on specific examples

1.4. Course Outline

The concept of risk. What is an incident and an accident? Risk picture. Incident and accident statistics. Preventive and improved measures. Security management-monitoring the level of risk. Actual risks and data. Statistical analysis of security-oriented decision-making alternatives. Maritime transport models. Probability of grounding and collision. Risk analysis methods: Hazard analysis, FTA, ETA, FMECA; HazOp. FSA, Cost Analysis and Profit Security Procedures. Analysis and modeling of emergency events on ships. Cost analysis and gain control method. Ship accident analysis and modeling. Human reliability and error mechanisms. Behavior in case of disaster, evacuation and search. Education, training and simulations of human behavior. Regulations and official control of maritime safety. National and international control authorities. Safety and quality management. ISO standard. Review. Examples of various cases.

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 class attendance, continuous learning, active class attendance, group work on examples of risk analysis, preparation and writing of seminars, presentation of research in the seminar, learning and taking the final exam (oral).

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation		Seminar paper	0,5	Experiment	
Written exam		Oral exam	2	Essay		Research	1
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.

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

During the classes, the quality of the seminar paper, mastery of the material and presentation of the seminar are scored. At the end of the class, the oral exam is scored. The percentage of evaluation is 70% in classes and 30% in the final exam (according to the Regulations on studies at the University of Rijeka and the Ordinance on studying at the Faculty of Maritime Studies in Rijeka).
Assessment during classes:
Through a seminar paper and in the presentation of a seminar paper where knowledge of theoretical foundations is tested as well as their application in the seminar paper.
Final exam:
The final exam (oral exam) checks the integrity of theoretical knowledge in the field of Maritime Risk Management - it is necessary to achieve a minimum of 50% of the required theoretical knowledge.

1.10. Main Reading

1. Authorized lectures, Ph. D. Đani Mohović, PH. D. Robert Mohović, Rijeka, 2011/2012.
2. "Managing risk in shipping"- The Nautical Institute, London, 1999.
3. "Safety Management and Risk Analysis" – Svein Kristiansen, Butterworth-Heinemann, 2004.

1.11. Recommended Reading

1. "Risk and reliability in marine technology"- COMETT Programme, Wegemt, 1993.
2. "Good practice in risk assessment and risk management 1"- Hazel Kemshall and Jacki Pritchard, Bristol, Jessica Kingsley Publ., 1996.
3. "Acceptable risk"- Baruch Fischoff, Cambridge, Cambridge University Press, 1981.
4. "General Security Risk Assessment"- ASIS International Guidelines Commission, Alexandria, Virginia, 2003.
5. "Procjena opasnosti za opasne tvari", Janeš V., Čavrak B., ZIRS, Intergrafika, Zagreb 1999.
6. "Risk analysis and its applications"- David B. Hertz and Howard Thomas, Chichester: Wiley, 1983.
7. "Quantitative risk analysis: a guide to Monte Carlo simulation modelling" – David Vose, Chichester: John Wiley, 1996.
8. "The risk ranking technique in decision making"- John. C. Chicken and Michael R. Hayns, Oxford: Pergamon Press, 1989.
9. "Reliability, maintainability and risk", Smith J. David, 2001.
10. "Offshore Risk Assessment", Vinnem J. E., Trondheim, Kluwer Academic Publisher, 1999.
11. "Metode procjene i upravljanja rizikom u procesnoj industriji", Enconet International, Zagreb, 1999.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Authorized lectures, Ph. D. Đani Mohović, Ph. D. Robert Mohović, Rijeka, 2011/2012.	unlimited	30
"Manging risk in shipping"- The Nautical Institute, London, 1999.	1	30
"Safety Management and Risk Analysis" – Svein Kristiansen, Butterworth-Heinemann, 2004.	1	30

1.13. Quality Assurance

The quality of studies is monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance, which is 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	Assoc. Prof. Borna Debelić, PhD		
Course	Financing in Maritime Affairs		
Study Programme	Nautical Studies And Maritime Transport Technology		
Type of Course	Elective		
Year of Study	2nd	III	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		6
	Number of Hours (L+E+S)		30+15+0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Acquiring knowledge in the special field of financing maritime projects and maritime organizations, necessary for persons responsible for the management and management of business and technological processes in projects and organizations in maritime affairs.

1.2. Prerequisites for Course Registration

No additional prerequisites.

1.3. Expected Learning Outcomes

1. Describe the system, market structures and elements of maritime investment and the sources, methods and models of financing.
2. Describe the principles, constituent elements and importance of financing the purchase of new and used ships, and describe the sources of possible financing.
3. Analyze the elements of credit business in the purchase and sale of ships, and describe the models of calculation and repayment and analyze the return through annuities in relation to installments.
4. Analyze the impact of liquidity and solvency on debt service management in terms of inflows of operating funds.
5. Analyze and explain financial transactions and their basic principles in the purchase and sale of ships, as well as business performance indicators as a basis for financial decisions and risk management.
6. Apply quantitative and qualitative methods of analysis of inflows of operating funds, operating costs, analysis of profit and loss account, and approaches, methods and techniques of risk management from the aspect of financing.
7. Identify and analyze the specifics of financing infrastructure investments in maritime and transport.

1.4. Course Outline

Generally about maritime investments. Sources, methods and models of financing in maritime affairs. Financing the construction of new ships from public sources and commercial banks. Financing the procurement of used ships and sources of funds. Buying used boats and specific reasons for buying and selling. Basic elements of credit business in the purchase and sale of ships. Interest and principal, calculation and repayment models. Loan repayment through annuities and through installments. Calculation of Libor and Euribor. Liquidity and solvency in the domain of debt service management expected expected inflow of funds. Analysis of financial transactions in the purchase and sale of ships and basic principles and conditions. Forecasting of operating cash inflows, operating expenses, profit and loss account analysis, and risk management from the aspect of debt financing. Receivables security instruments. Specific financing of infrastructure investments in maritime and transport. Documentation and execution of financial transactions.

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 solving tasks assigned to work at home.

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,5	Class participation	1	Seminar paper		Experiment	
Written exam	1,5	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

Discussion in class (10% of learning outcomes) in which students analyze the system of financing and sources of financing in maritime affairs and their characteristics as well as the impact on business, and principles, components and importance of different sources and dynamics of financing (I1 - I7) from the aspect of modern maritime organization and projects.

Written continuous knowledge test (2nd colloquium, 30% of learning outcomes each, which is a total of 60% of learning outcomes and a minimum of 50% of points achieved per colloquium) in which the student shows understanding of theoretical concepts and practical implications of specialist funding in maritime (I1 - I7) , mechanisms of action and effects on the operations of maritime companies and on the overall economy.

Final written test (30% of learning outcomes and a minimum of 50% of achieved points) in which the student shows understanding of the application and techniques of financial transactions of financial processes in maritime systems and projects, in the function of quality management decisions on financing development and infrastructure processes and projects in maritime I1 - I7).

1.10. Main Reading

1. Batalić, M., Mitrović, F.: Financiranje u pomorstvu, Pomorski fakultet Split, Split, 2010.

1.11. Recommended Reading

1. Harwood, S.: Shipping finance, third edition, Euromoney books, 2006.
2. Paine, F.: The Financing of Ship Acquisitions, Coulsdon, 1989.
3. Stokes, P.: Ship finance, second edition, LLP, 1997.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*

1.13. Quality Assurance

Quality assurance system of educational process is in accordance with ISO 9001:2000 system as implemented on Faculty of Maritime Studies Rijeka. Analysis of exams is carried out annually. Students' evaluation is carried out each semester (more details provided in part describing organization of the Faculty).

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Course description

Generic information			
Head of Course	Vlado Frančić, Associate Professor, Ph.D.		
Course	Marine Accident Investigation		
Study Programme	**Nautical Studies and Maritime Transport Technology**		
Type of Course	Elective		
Year of Study	2	Semester **3**	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		**30 + 0 + 15 (2 + 0 + 1)**

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The course objectives are to provide students the basic skills and knowledge required to organize and conduct marine accident investigation in accordance with generally accepted practice in shipping and international as well national legislation. In addition, the course will explain student's basic methodology of marine safety investigation and define the difference between safety and administrative investigation. Also, student will acquire skills to prepare and organize accident investigation and prepare investigation report according to generally accepted methodologies required for marine safety investigation basically developed and accepted by the IMO.

1.2. Prerequisites for Course Registration

It is expected that students possess at least basic knowledge about work and role of International Maritime Organization (IMO) and associate requirements related to safety of navigation as well as to understand basic technical and technological characteristics of ships.

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. **Unite and explain international and national regulations regarding marine accident investigation;**
2. **Elaborate and assess importance of safety investigation procedure;**
3. **Envisage the methodologies of a marine accident safety investigation;**
4. **Compare and envisage different investigation methods and different types of marine investigation (safety and administrative);**
5. **Elaborate and envisage procedures and tasks during performing marine safety investigation;**
6. **Explain the overall marine accident investigation process;**
7. **Explain process of collecting evidence and making an interview;**
8. **Prepare a marine safety investigation report.**

1.4. Course Outline

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Basic regulations on marine accident investigations. Definition of an accident and casualty. Review of international obligations regarding the investigation of marine accidents and incidents by national maritime administrations. Investigation methodology for different types of marine accidents. Investigators and tools needed to investigate maritime accidents. Legal status of investigators. Investigator's safety during the investigation. Basic interviewing techniques. Preliminary activities in the investigation. Collection of evidence (collection procedure). Witness interviewing. Evaluation of evidence. Sharing evidence with others involved in the investigation. Scope of the investigation. Content and method of writing a marine safety investigation report. Findings and recommendations of the investigation.

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	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	2	Essay		Research	
Project	2	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 preparation of tasks (projects) and the final exam are evaluated. Continuous assessment includes:
- Preparation of Marine Safety Investigation Report.
- Active participation in classes - performing tasks in groups.

Through oral examination student will achieve learning outcomes.
On the final exam (oral exam) student need to present theoretical knowledge in the field of the international maritime safety system, where it is necessary to achieve a minimum of 50% of the required theoretical knowledge.
Examples of Assessment of Learning Outcomes:

1. Describe methodology use in the process of marine accident investigation (Learning Outcomes 3,5,6)
2. Define and explain interview technique (Learning outcome 6)
3. Prepare marine safety investigation report (Learning Outcomes 5 and 8)

1.10. Main Reading

1. Code of International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code), IMO, 2008.
2. Guidelines to assist investigators in the implementation of the Casualty investigation code (IMO Resolution A.1075(28))
3. "Establishing the fundamental principles governing the investigation of accidents in the maritime **transport sector" Directive 2009/18/EC.**
4. **Lecturer's notes published on official webpage**

1.11. Recommended Reading

1. **Marine Accident Investigators International Manual, MAAIF**
2. **IMO Resolution related to accident investigations.**
3. **Marine accident reports, various sources.**

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1-4	**Web**	**30**

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.

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3.2. Course description

Generic information			
Head of Course	**Robert Mohović, PhD, Full professor**		
Course	**MARITIME ASPECT OF DESIGN OF PORTS AND WATERWAYS**		
Study Programme	Nautical Studies and Maritime Transport Technology		
Level	University graduate study program		
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+0+15

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to familiarize the students with the factors that affect the maritime aspect of planning and design of ports and waterways (especially access waterways in restricted areas). Special emphasis is given to defining the parameters of the port and waterways that directly or indirectly affect safety during manoeuvring and during the stay of ships at berths. Criteria for design are defined from the point of view of navigational safety and protection of the marine environment, and special emphasis is given to defining maritime safety measures. The goal of the course is to adopt analytical methods for defining project parameters. The course provides a scientific basis for a more detailed study of this area.

1.2. Prerequisites for Course Registration

There are no special requirements for enrolling in the course

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. Define, analyze and interpret the factors influencing the maritime aspect of the planning and design of ports and waterways (especially access waterways in restricted areas).
2. Evaluate the impact of individual parameters of ports and waterways that directly or indirectly affect safety during manoeuvring and the ship stay at berths.
3. Determine the correlation between the ship manoeuvring characteristics and the design elements of ports and waterways.
4. Define, analyze and interpret design criteria from the point of view of navigation safety and protection of the marine environment.
5. Define, analyze, interpret and evaluate maritime safety measures when manoeuvring and during the ship stay at berth.
6. Apply and interpret analytical methods for defining design parameters.
7. Investigate in more detail a particular topic in the field of planning and design of ports and waterways, and through this experience and assessment of the case study adopt a scientific basis for a more detailed study of this area.

1.4. Course Outline

Introduction to maritime port and waterway design. Defining the correlation between the navigational safety requirements, the protection of the marine environment and design principles. Definition of maritime ship safety. Analysis of significant factors in the ship manoeuvring system. Analysis of the impact of geographical position, structure and technological characteristics of port systems. Analysis of oceanographic and meteorological characteristics of the port and access area. Analysis of navigational characteristics of the approach area and the structure of maritime traffic. Organizational and technological support for ship manoeuvring. Comparative analysis of the impact of the ship type (technology) and the manner of operation on manoeuvring characteristics. Analysis of the influence of technical and technological characteristics of ships and tugs on ship manoeuvring. Human factor and analysis of its influence on the ship manoeuvring system. Safety conditions and restrictions when manoeuvring the ship and during the ship stay at berth. The total impact of ship manoeuvring on the safety and protection of the marine environment. Methods for determining the elements of the port and waterways important for maritime design. Using analytical and simulation methods to define design parameters. Determining the required depth and width of the waterway. Determining the necessary characteristics of the waterway from the point of view of navigation safety. Measures to improve the level of safety on the waterway. Determining safety criteria in manoeuvring system. Determining of the permitted approach speed of the ship. Selection and definition of fender system characteristics. Measures to improve the level of safety in the ship manoeuvring system. Determining the characteristics of shore mooring equipment. Criteria for the safety and efficiency of transhipment operations during the ship stay at the berth. Measures to improve the level of safety during the ship stay at the berth. The impact of navigation safety measures and protection of the marine environment on the economic aspect of the design or construction of ports and waterways. Optimization of the ship manoeuvring system and the impact on the design of ports and waterways, especially on the economic aspect of construction.

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 and at least 70% of classes.

Performed and positively evaluated project assignments (case studies) and research seminar, passing the final exam

1.8. Assessment[1] of Learning Outcomes

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

[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 evaluating the acquired learning outcomes is performed 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:

1. 70% of acquired learning outcomes are evaluated through continuous knowledge testing during the semester. The students must complete the project assignments (case studies) – learning outcome 6 (40%) and research seminar – learning outcome 7 (30%).

2. the final exam (oral exam) checks the integrity of theoretical knowledge in the field of maritime design of ports and waterways (30%) through analysis and evaluation of project tasks (case study) – learning outcome 6 and analysis of research seminar – learning outcome 7 , and a block of questions from the area of course content – learning outcomes 1-5. At the final exam it is necessary to achieve a minimum of 50% of the required theoretical knowledge.

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

1. Define external natural factors affecting the ship and interpret their impact on the maritime aspect of waterway width design.

2. Evaluate the impact of waterway depth on navigation safety.

3. Explain the correlation between the ship manoeuvring characteristics and the characteristics of the manoeuvring space.

4. Analyze the criteria for port design from the point of view of navigational safety and the protection of the marine environment.

5. Define and interpret the importance of making maritime studies in the design of ports and access waterways.

6. Apply and interpret analytical methods for defining project parameters – through the development of project tasks (case study).

7. Investigate in more detail a particular topic in the field of planning and design of ports and waterways – through the preparation of a research seminar.

1.10. Main Reading

1. *R. Mohović, Maritime aspect of planning and design of ports and waterways - teaching texts and attachments available on the e-learning system - Merlin (https://moodle.srce.hr)*
2. *Mohović, R., Mohović, Đ., Maritime aspect of planning and design of ports and waterways – theoretical foundations, teaching text on the website of the Faculty of Maritime Studies in Rijeka, Faculty of Maritime Studies, University of Rijeka, 2020.*

1.11. Recommended Reading

1.) *Mohović, Đ., Mohović R., Upravljanje rizikom u pomorstvu – teaching text on the website of the Faculty of Maritime Studies in Rijeka, Faculty of Maritime Studies, University of Rijeka, 2020.*
2.) *R.W. Rowe, The Shiphandler's Guide, The Nautical Institute, London, 2000.*
3.) *H. Hensen, Tug Use in Port, A practical guide, The Nautical Institute, London, 1997.*
4.) *Mooring Equipment Guidelines, Oil Companies International Marine Forum, Witherby and Co. Ltd., London, 2018.*
5.) *Squat, Interaction, Manoeuvering, The Nautical Institute, London, 1995.*
6.) *G.P. Tsinker, Marine Structures Engineering, Specialized Applications, Chapman & Hall, ITP An International Thomson Publishing Company, New York, 1995.*
7.) *P. Bruun, Port Engineering, Harbour Planning, Breakwaters and Marine Terminals, Volume 1 i 2, Gulf Publishing Company,Houston, 1989.*
8.) *P. Bruun, Mooring and Fendering Rational Principles in Design, The International Harbour Congress, Antwerp,1983.*
9.) *H. Agerschou i dr., Planning and Design of Ports and Marine Terminals, John Wiley and Sons, Chichester, 1985.*
10.) *Approach Channels, Preliminary Guidelines, First report of the joint Working Group PIANC and IAPH, in cooperation with IMPA and IALA, Supplement to Bulletin No. 87, Permanent International Association of Navigation Congresses - PIANC, Brussels, 1995.*
11.) *M. Chernjawski, Mooring of Surface Vessels to Piers, Marine Technology, Vol. 17. No.1., 1980., str. 1.-7.*
12.) *I.W. Dand - P.R. Lyon, The Element of Risk in Approach Channel Design, International Conference on Maritime Technology, Challenges in Safety and Environmental Protection, Singapore, 1993.*
13.) *I. Petković, Prikaz numeričkih vrijednosti krivulja brzina i specifičnih pritisaka vjetra iznad mora na bok broda u novim mjernim jedinicama, Simpozij «Teorija i praksa brodogradnje», Split, str. 4.193 – 4.203.*
14.) *T. Tabain, Standard Wind Wave Spectrum for the Adriatic Sea Revisited (1997 – 1997), Brodogradnja, 45, 1997, str. 303.– 313.*
15.) *Underkeel Clearance for Large Ships in Maritime Fairways with Hard Bottom, Report of a Working* Group of the Permanent Technical Committee II, Supplement to Bulletin No. 51, Permanent International Association of Navigation Congresses - PIANC, Brussels, 1985.
16.) *R. Solem, Probability Models of Grounding and Collision, Proceedings of Automation of Safety in Shipping and Offshore Petroleum Operations, 1980.*
M. McBride, Safety assessment for ships manoeuvring in ports, The Dock & Harbour Authority, Vol. 79., No. 889, 890, 891,892.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. R. Mohović, Maritime aspect of planning and design of ports and waterways - teaching texts and attachments available on the e-learning system - Merlin (https://moodle.srce.hr)	*available on web*	*30 - 40*
Mohović, R., Mohović, Đ., Maritime aspect of planning and design of ports and waterways – theoretical foundations, teaching text on the website of the Faculty of Maritime Studies in Rijeka, Faculty of Maritime Studies, University of Rijeka, 2020.)	*available on web*	

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	Dario Ogrizović, PhD		
Course	Simulation and modelling		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Core		
Year of Study	2nd		
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 course is intended to introduce students to simulation modelling and its application in the analysis and design of business processes. Simulation modelling enables the creation of dynamic business process models, execution of simulation experiments with the model and the evaluation of business process performance. Discrete event simulation allows the development of detailed queue system models.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

1. Analyze and interpret solutions after simulation experiments
2. Identify problems in the field of business systems that can be solved by different methods of simulation modelling
3. Develop models for identified problems using simulation modelling methods
4. Apply appropriate methods to perform simulation experiments
5. Develop a business decision-making process based on the results of simulation experiments
6. Apply simulation modelling in business process analysis and design
7. Create simulation models using software tools that support methods and techniques of simulation modelling and their verification

1.4. Course Outline

Basic ideas of simulation. Simulation modelling. Modelling and computers. Simulation in decision making. Types of simulation models. Simulation models development. Basic concepts of discrete event simulation. Structure of computer tools for simulating discrete events. Conceptual simulation models. Activity cycle diagrams. Simulation performance strategies. Time shift mechanisms. Simulation strategies. FlexSim simulation software. Simulation software selection criteria. Basic concepts, method of modelling, execution of simulation experiments and their analysis. Modelling and simulation of several problems with FlexSim software. Computer model verification. Evaluation of the conceptual model. Input data analysis. Statistical distributions. Estimation of distribution parameters. Simulation experiments planning. Design of simulation experiments. Variance reduction techniques. Output data analysis of simulation experiments.

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 hours of lectures and exercises, and must have passed the exams (continuous assessment) to take the final exam.

1.8. Assessment[1] of Learning Outcomes

Course attendance	2	Class participation		Seminar paper		Experiment	
Written exam	1	Oral exam		Essay		Research	
Project	1	Continuous Assessment	1	Presentation		Practical work	1
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 - total 70%) and at the final part of the exam (30%).

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

1. Analyze and interpret solutions after conducting simulation experiments
2. Identify problems in the field of business systems that can be solved by different methods of simulation modelling
3. Create models for identified problems using simulation modelling methods
4. Apply appropriate methods to execute simulation experiments
5. Develop business decision-making processes based on the results of simulation experiments
6. Apply simulation modelling in business process analysis and design
7. Create simulation models using software tools that support simulation modelling methods and techniques and their verification
8. Perform a data analysis of the simulation experiment output

1.10. Main Reading

1. Čerić, V. 1993, *Simulacijsko modeliranje*, Školska knjiga, Zagreb.
2. FlexSim user manual, https://docs.flexsim.com
3. Study materials available at e-learning platform (https://moodle.srce.hr)

1.11. Recommended Reading

1. Law, A.M. 2014, *Simulation Modeling and Analysis*, 5th Edition, McGraw-Hill.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Čerić, V. 1993, *Simulacijsko modeliranje*, Školska knjiga, Zagreb.	5	75
FlexSim user manual, https://docs.flexsim.com	120	75

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	Đanil Šabalja, Ph. D., Assistant Professor		
Course	Maritime Pilotage		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Elective		
Year of Study	4		
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

Course objectives are to introduce students to all the features of maritime pilotage, techniques, boats ii equipment available today to perform pilotage in different sailing areas.

1.2. Prerequisites for Course Registration

1.3. Expected Learning Outcomes

1. Define and explain the role of a pilot on board.,
2. Define and distinguish different types and techniques of pilotage,
3rd Distinguish and explain the legal regulations related to the maritime pilotage,
4. Compare and analyze piloting the ships of different propulsion system,
5. Distinguish and explain the use of the vessel, the equipment used for pilotage,
6. Explain the goals and activities of the Pilots Association.

1.4. Course Outline

1. In general about the pilotage, the history of piloting.
2. The responsibilities of the pilot on the bridge, communication and exchange of information during the pilotage on the bridge and the VTMIS. The use of tugs from the pilots perspective, communication of pilot with tugs.
3. Distribution of pilotage, coastal pilotage, harbor piloting, river pilotage, piloting in channel, deep waters piloting. Defining the boundaries of piloting.
4. Rules on maritime piloting, Pilotage Act of 1987, legislation on pilotage in a few selected areas around the world.
5. Pilot society, the conditions for the establishment of pilot companies, funds and equipment pilot unit of society, pilot log., Pilot Card, 2nd ISPO Code A International Standard for Maritime Organizations Pilot Pilots Association (EMPA, IMPA, UKMPA)
6. Refusal of pilotage by the master, refusal pilotage by pilots. Exemptions pilotage, pilotage error and responsibility of the pilot.
7. Acquisition of certificates of maritime pilots, training and practice, methods of continuous training of pilots IMO Resolution A.960 (23), Recommendations on Training & Certification and on Operational Procedures for Maritime Pilots Other Than Deep-Sea Pilots, Certified.
8. Panama Channel Piloting (Regulation on Navigation in Panama Canal Waters), Suez Channel Piloting

9. Kiel Channel Pilotage (German Traffic Regulations for Navigable Maritime Waterways), deep water and ice areas.
10. Piloting ships of different propulsion system, piloting input/output ship (without urge thrust).
11. Blind pilot technique, remote pilotage, piloting with a portable pilot unit,
12. Embarkation/Unloading of Pilot on the ship (Solas Regulation V / 23 and IMO Resolutions A.1045 (27) and A.1108 (29). IMO Circular MSC.1 / Circ.1428.

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		

1.8. Assessment[1] of Learning Outcomes

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

70% on teaching and 30% on the final exam (according to the Ordinance on Studies of the University of Rijeka and the Ordinance on Studying at Faculty of Maritime Studies). Continuous knowledge testing: a colloquium from the material, it is necessary to achieve a minimum of 50% of the correct answers (I1, I2, I3, I4). The seminar work and presentation of the given cases of maritime accidents caused by pilot error, which can achieve a maximum of 20% of the points on the object. Final Exam: oral exam from the material. It is necessary to achieve a minimum of 50% of the correct answers (I5).
Examples of Evaluation of Learning Outcomes:

1. Explain the significance of pilotage and the responsibility for the possible consequences of pilot error (I1).
2. Explain the distribution of piloting and the difference of piloting at that distribution.
   Explain the importance of communication with other participants during pilot operation. (12)
3. Explain techniques pilotage. Technique blind pilotage, piloting remotely piloting by PPU
4. Explain the role of the pilot on the bridge and duties of the master as well as the duties of officer in watch during the pilotage
5. Explain the conditions for the establishment of Pilot companies and the conditions for the acquisition of Pilot Certificate (I5).

1.10. Main Reading

1. Lectures Maritime pilot available on a Merlin e-learning system,
2. Theory and Practices of Marine Pilotage, Capt Santosha K Nayak (June 24, 2020),
3. BOW TUG OPERATIONS: RISKS AND EFFECTIVENESS, 3rd edition 2016

1.11. Recommended Reading

1. Marine Pilotage Code,
2. ISPO Code,
3. The Embarkation & Disembarkation of Pilots Code of Safe Practice,
4. 2021. Regulation for Transing The Panama Canal,
5. Piloting with special reference to accountability caused by piloting.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Lectures Maritime pilot available on a Merlin e-learning system	unlimited	
2. Theory and Practices of Marine Pilotage, Capt Santosha K Nayak (June 24, 2020.),	2	
3. Bow Tug Operations: Risks and Effectiveness, 3rd Edition 2016.	2	

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European quality assurance implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the student pass rate and adopt appropriate measures.

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Table 2.

3.2. Course description

Generic information			
Head of Course	Axel Luttenberger, Ph.D., Full Professor with tenure		
Course	**Maritime Labour Law**		
Study Programme	**Nautical Studies and Maritime Transport Technology**		
Level	Master		
Type of Course	Elective		
Year of Study	2	Semester	4
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		4
	Number of Hours (L+E+S)		(30+0+0)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to introduce students to the characteristics of labour relations in general and the specifics of labour relations between seafarers, namely: sources of labour law, essential elements of employment contracts, protection of the life, health and dignity of workers, working hours, holidays and permits, wages and remuneration, compensation for damages, termination of employment contracts, protection of rights under employment relations, collective entities of labour relations, collective bargaining and collective agreements.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

Define and interpret fundamental concepts of labour law
1. Explain the rights of seafarers from employment relationships
2. Explain how the rights of seafarers from employment relationships are exercised,
3. Determine ways to protect the rights of seafarers from employment relationships,
4. Analyze the specifics of maritime employment relationships,
5. Analyze the rights and obligations of workers and employers with regard to occupational safety,
6. Explain the role of trade unions and employers' associations in contracting rights and obligations in employment relations

1.4. Course Outline

The concept, legal sources, entities and basic characteristics of the employment contract. Features and elements of the employment contract. Protection of life, health and dignity of workers, working hours, holidays and permits, salaries and remuneration, compensation of special reference to compensation for damages due to an accident at work or occupational disease, termination of the employment contract, protection of rights from employment relationships, collective entities of labour relations, collective bargaining and collective contracts.

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1.5. Modes of Instruction	X Lectures ☐ Seminars and workshops X Exercises X E-learning ☐ Field work	☐ Practical work X 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 of Learning Outcomes

Course attendance	1	Class participation		Seminar paper	0	Experiment	
Written exam		Oral exam	2	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 continues assessment student achieves up to 70% (Learning Outcomes from 1 to 6), while with the written Final Exam (Learning Outcomes from 1 to 6) up to 30% of total Score.
Examples of Assessment of Learning Outcomes:
1. implementation of the principle of labour law
2. determine the rights of seafarers from employment
3. analyze the out-of-court and judicial exercise of employment rights
4. analyze the specificity of employment and stay in the workplace
5. employer responsibility for occupational safety

1.1. Main Reading

Učur, Marinko: Radnopravni status pomoraca, Pravni fakultet Sveučilišta u Rijeci, 2004
Course teaching material available on e-learning system - Merlin (https://moodle.srce.hr)

1.2. Recommended Reading

Convention of the International Labour Organization, www.ilo.org

1.3. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Učur, Marinko: Radnopravni status pomoraca, Pravni fakultet Sveučilišta u Rijeci, 2004	20	40
Course teaching material available on e-learning system - Merlin	web	web

1.4. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European quality assurance implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the student pass rate and adopt appropriate measures.

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Course description

Generic information			
Head of Course	PhD Mirano Hess		
Course	Ship chartering		
Study Programme	Nautical studies and maritime transport technology		
Type of Course	Compulsory course		
Year of Study	2		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		45 + 0 + 0

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

To enable students to understand and apply methods and procedures of ship contracting, primarily in the open maritime market, to understand the influential parameters for setting the carrier's decision regarding the selection of the optimal contract and to understand the rights and responsibilities defined by contractual clauses.

1.2. Prerequisites for Course Registration

/

1.3. Expected Learning Outcomes

1. Define, differentiate and explain the impact of maritime market dynamics on ship and freight valuation
2. Describe, explain and compare the elements of maritime market dynamics and their correlation with the business of carriers
3. Explain the procedure of determining technological-market parameters and indicate and single out their interaction
4. Explain changes in the ship's business regime and the process of optimizing the carrier's business
5. Isolate, compare and analyze the effect of different contractual clauses on the behavior of the contracting parties

1.4. Course Outline

1. Maritime market dynamics and the influence of maritime market factors on the valuation of ships and freight rates
2. Correlation and prediction of freight rates
3. Market transitions and maritime market efficiency
4. Setting the optimal policy of the carrier's business on the open market
5. Estimation of freight parameters and determination of ship performance elements and technical-technological parameters
6. Change and optimization of the ship's contract regime basis time charter and voyage charter
7. Selection of the optimal ship contracting mode and selection of the optimal route
8. Understanding the optimal business policy of the carrier
9. Comparison and analysis of individual contractual clauses, their impact on the behavior of the contracting parties, primarily the carrier and the charterer and the role of the ship's master in the execution of the contract

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*

Active class attendance. Preparation of a seminar / work assignment. Passed a midterm exam and final exam.

1.8. *Assessment*[1] *of Learning Outcomes*

Course attendance	1.5	Class participation		Seminar paper		Experiment	
Written exam	1.1	Oral exam		Essay		Research	
Project		Continuous Assessment	1.7	Presentation/ work assignment/sem.	0.7	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*

70% in classes and 30% in the final exam (according to the Ordinance on studies at the University of Rijeka and the Ordinance on studying at the Faculty of Maritime Studies in Rijeka). Continuous assessment of knowledge: colloquium from the material, it is necessary to achieve a minimum of 50% correct answers (I1, I2, I3, I4). Students, in groups, make a seminar / work assignment / presentation of materials from the selected topic / materials, for which they can achieve a maximum of 20% of points in the course. A minimum of 50% correct answers are required (I5).
Examples of evaluating learning outcomes:
1. Explain what will be the effect on the conclusion of the shipping contract, the same or similar view of the carrier and the charterer on the open maritime market regarding the future movement of the freight index. (I1)
2. Explain on the basis of what (what size or factors) the current freight is determined and what the freight for a longer period of time. (I2)
3. Explain the impact of the increase in the risk premium on the market and on the change in the ship's business regime in voyage charter. (I3)
4. Explain what will be taken into account and on the basis of what factors the carrier will decide which shipping contract to accept, a voyage charter or a time charter, after the ship has entered the market. (I4)
5. Explain which contractual obligations and rights arise from the cost of loading and discharging clause in

1.10. *Main Reading*

1. Hess, M.: Ship Chartering, 2021, script on web pages of Faculty of Maritime Studies Univerity of Rijeka
2. Hess, M.: Ship Chartering Documents, 2021, script on web pages of Faculty of Maritime Studies Univerity of Rijeka

1.11. *Recommended Reading*

1. Shipbroking and Chartering Practice, 8th Edition, Informa Law from Routledge, 2019.
2. Legal Principles in Shipping Business, Institute of Chartered Shipbrokers, 2016.
3. The Shipmaster's Business Self-Examiner, 10th edition, The Nautical Institute, 2016.
4. Master's Handbook On Ship's Business, 3rd Edition, Schiffer, 2011.
5. Maclachlam M.: The Shipmaster's Business Companion, 4th edition, NI, 2004.
6. Pomorski zakonik RH

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Hess, M.: Ship Chartering, 2021, script on web pages of Faculty of Maritime Studies Univerity of Rijeka	unlimited	40
2. Hess, M.: Ship Chartering Documents, 2021, script on web pages of Faculty of Maritime Studies Univerity of Rijeka	unlimited	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 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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Course description

Generic information			
Head of Course	Assoc Prof Ana Perić Hadžić, Assit. Prof. Dražen Žgaljić		
Course	PROJECT MANAGEMENT		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Elective course		
Year of Study	2nd	Graduate degree programme	
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 explain the importance of projects and international projects and the role of project management in the development of business systems. The emphasis is on strategic preparation, evaluation, initiation, and development of project management models at different management levels in order for students to be able to manage projects in the conditions of modern development of the economy.

1.2. Prerequisites for Course Registration

None

1.3. Expected Learning Outcomes

After passing the exam in this course, students will be able to:
1. correctly interpret the basic theoretical and practical concepts of project management in the development of business systems,
2. distinguish project management processes (strategic preparation, initiation, implementation, control).
3. analyze different stakeholders
4. apply skills and competencies that contribute to more effective implementation and help solve complex organizational and other problems related to project management.
5. correctly define the terms related to the structure of EU-funded projects
6. design, analyze and formulate their own idea and make a project proposal.

1.4. Course Outline

Theoretical-Methodological determination of project management (defining project, project management, Project life cycle, Projects section-stakeholder), Processes of project management (project planning, organization, management, control). Strategic aspects of project management, project management of company development (development policy, investment policy, evaluation of investment projects). Management of international projects. Organization and programmes of the EU (focusing on programmes that finance the development of Transport), planning of EU projects, logical matrix (log frame), measuring the achievement of objectives, management of work packages and project results, consortium agreements and protection Intellectual property, communication and project management team, exploitation, dissemination and sustainability of EU projects, quality planning, quality assurance and control, risk management. Business case: Harbour Business Plan, the justification for the concession in the field of maritime domain, the EU project.

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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		
1.8. Assessment[1] of Learning Outcomes		

Course attendance	1,5	Class participation		Seminar paper		Experiment	
Written exam		Oral exam	1	Essay		Research	
Project	1	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 final grade of the student's success in the course is the sum of the percentage of success achieved by the student during classes (70% of the grade) and the percentage of success achieved in the final exam (30% of the grade) according to the rules of the University of Rijeka and the Faculty of Maritime Studies in Rijeka.
Continuous assessment of knowledge:
- it is necessary to achieve at least 50% correct answers from continuous assessments
- project - it is necessary to show the acquired knowledge and application of project methodology for the selected example
Final exam:
- at the final exam it is necessary to achieve at least 50% correct answers

Examples of evaluating learning outcomes in relation to set learning outcomes are:
1. Draw the project life cycle and mark the basic stages in the project life cycle
2. List the basic processes / functions of project management and explain their purpose
3. Explain who the primary and secondary stakeholders are and explain their role in the project
4. On the given example, use the critical path method to show the sequence of project activities, print the critical path of project activities, calculate the total duration of the project and Gantt chart show the sequence of project activities
5. Explain the role of EU structural funds and programs in financing projects related to sustainable transport development
6. Formulate a project proposal individually or in a team that includes the project description, relevance of the project application, implementation capacities of applicants and partners (if you have a partner), project efficiency and feasibility, project budget, project sustainability.

1.10. Main Reading

1. Authorized lectures on the e-learning platform MERLIN (online materials)

1.11. Recommended Reading

1. European Funds for Croatian Projects, A Handbook of financial cooperation and European Union, Supported Programmes in Croatia, Središnji državni ured za razvojnu strategiju i koordinaciju fondova Europske Unije, Zagreb, 2009
2. Aid Delivery Methods, Volume 1. Project Cycle Management Guidelines, European Comission, Brusseles, 2004
3. Project Management Institute, A Guide to the Project management Body of Knowledge (PMBOK Guide), Fourth Edition, 2008.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
1. Authorized lectures on the e-learning platform MERLIN (online materials)	50	50

1.13. Quality Assurance

The quality of studies is monitored in accordance with the system ISO 9001 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, the results of passability are analyzed and appropriate measures are taken.

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3.2. Course description

Generic information			
Head of Course	Ph.D. Jasmin Ćelić, assistant professor		
Course	Intelligent transportation systems		
Study Programme	Nautical Studies and Marine Transport Technology		
Level	Graduate degree programme		
Type of Course	Elective course		
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 main objectives of this course are to acquire basic knowledge in the field of intelligent transportation systems, as well as to get acquainted with the basic principles and techniques in the design and operation of modern systems.

1.2. Prerequisites for Course Registration

There are no prerequisites.

1.3. Expected Learning Outcomes

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

1. Define the basic laws on which the ITS functionality is based.
2. Explain and demonstrate the principles of network management.
3. Describe the development of ITS.
4. Present and explain the procedures for the implementation of ITS in transport infrastructure.
5. Demonstrate the justification and benefit of ITS implementation.
6. Describe telematic solutions of the transport system.
7. Describe and present the principles of operation of electronic systems of transport entities.
8. Define the prerequisites for the development and implementation of ITS services.

1.4. Course Outline

General information on intelligent transport systems. Standards and norms. Fundamentals of systems theory and cybernetics. Physical and logical architecture of ITS. Traffic modeling. Communications in intelligent transport systems. Expert systems for the application of artificial intelligence to transport systems. Intelligent navigation system. Intelligent transport systems and control systems. Expert maintenance systems. Diagnostics in intelligent transport systems.

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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

1st colloquium, 2nd colloquium, development and presentation of a research task, final exam.

1.8. Assessment[1] of Learning Outcomes

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

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

The procedure for evaluating the acquired learning outcomes takes place according to the Ordinance on Studies of the University of Rijeka and the Ordinance on Studying at the Faculty of Maritime Studies in Rijeka as follows:

- *70% of acquired learning outcomes are evaluated through continuous testing of knowledge during classes:*

  through the 1st colloquium - learning outcomes 1.-4. (25%), 2nd colloquium - learning outcomes 5.-8. (25%), research task – learning outcomes 1.-8. (20%); in doing so, the student must realize a minimum of 50% of points for each colloquium, while the presentation of the research task is evaluated on the basis of elaborated assessment criteria;
- *at the final part of the exam, 30% of the acquired learning outcomes are evaluated (1.-8.), whereby the student must realize a minimum of 50% of points to pass the final exam;*
- *final ECTS grade, is defined on the basis of the achieved total % of knowledge, skills and competencies and numerical grade after the final / remedial exam as follows:*
  - *the grade excellent (5) corresponds to the grade A in the ECTS scale and the success rate from 90 to 100%,*
  - *a grade of very good (4) corresponds to a grade of B on the ECTS scale and a success rate of 75 to 89.9%,*
  - *grade good (3) corresponds to grade C on the ECTS scale and a success rate of 60 to 74.9%,*
  - *a grade of sufficient (2) corresponds to a grade of D on the ECTS scale and a success rate of 50 to 59.9%,*
  - *the grade insufficient (1) corresponds to the grade F in the ECTS scale and the success rate from 0 to 49.9%.*

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

1. Part of the ITS life cycle may be:
   - A Physical analysis ☐
   - B Physical synthesis ☐
   - C Functional composition ☐
   - D Functional decomposition ☐ (IU #1)

2. Types of control include:
   - A Feedforward control ☐
   - B Adaptive control ☐
   - C Control on demand ☐
   - D Feedback control ☐ (IU #2)

3. Physical, logical and communication point of view includes:
   - A Service ITS architecture ☐
   - B ITS Framework architecture ☐
   - C National ITS architecture ☐
   - D Mandatory ITS architecture ☐ (IU #3)

4. The basic step in the request detection process can be:
   - A User specification and problem prevention ☐
   - B User classification and troubleshooting ☐
   - C User prediction and problem separation ☐
   - D User identification and problem definition ☐ (IU #4)

5. The level of service in intelligent roads is measured by:
   - A Driving safety ☐
   - B Freedom of maneuver ☐
   - C Sensors ☐
   - D Driving comfort ☐ (IU #5)

6. ITS vehicle adaptation includes:
   - A Vehicle starting devices ☐
   - B Vehicle controls ☐
   - C Vehicle stopping devices ☐
   - D Vehicle maintenance devices ☐ (IU #6)

7. Sensors can be:
   - A MENS sensors ☐
   - B Chemical sensors ☐
   - C Magnetic sensors ☐
   - D Neon sensors ☐ (IU #7)

8. The benefits of ITS are visible in:
   - A Increase in emissions of pollutants ☐
   - B Reducing the number of road signs ☐
   - C Increasing the number of foreign guests ☐
   - D Number of employees at gas stations ☐ (IU #8)

1.10. Main Reading

- Williams, B. (2008.). Intelligent Transport Systems Standards, Artech House, Boston, USA.

1.11. Recommended Reading

- Group of authors. (2000.). Intelligent Transportation Primer, Institute of Transportation Engineers, Washington, USA.
- Chen, Y., Li, L. (2013.). Advances in Intelligent Vehicles, Elsevier, Academic Press.
- Zilouchian, A., Jamshidi, M. (2001.). Intelligent Control Systems Using Soft Computing Methodoligies, CRC Press, London, UK.
- Gupta, M., Sinha, N. K. (1995.). Intelligent Control Systems - Concept and Applications, IEEE Press, Piscataway NJ, USA.
- Internet:

http://local.iteris.com/arc-it/
http://its.dot.gov/
https://www.itsa.org/technology-scan-assessments
https://www.etsi.org/technologies/
https://www.pcb.its.dot.gov/eprimer/default.aspx
https://www.ieee-itss.org/its-transactions

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Williams, B. (2008.). Intelligent Transport Systems Standards, Artech House, Boston, USA.	*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 exams is made annually, and once a semester a survey is conducted among students.

Course description

Generic information			
Head of Course			
Course	Diploma Thesis		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Core		
Year of Study	2nd year	4th semester	
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		15
	Number of Hours (L+E+S)		

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

This course aims to enable students to apply theoretical and practical knowledge in independent processing given topics and to correctly apply the methodology and technology of writing the same, and present the relevant ones

1.2. Prerequisites for Course Registration

The student enrolls in the course Diploma Thesis by enrolling in the fourth (summer) semester of graduate study, and the conditions for enrollment are: all courses taken from the third (winter) semester and the absence of a possible ban on taking courses from the third (winter) semester.

1.3. Expected Learning Outcomes

It is expected that the student will be able to:
- Recognize and formalize a professional problem
- Methodologically correct the treated problem
- Write a paper in which he presented the problem in the introductory part, gives acceptable solutions

1.4. Course Outline

1.5. Modes of Instruction	☐ Lectures ☐ Seminars and workshops ☐ Exercises ☐ E-learning ☐ Field work	☒ Practical work ☐ Multimedia and Network ☐ Laboratory ☒ Mentorship ☐ Other (research and cooperation with businessmen, analysis and processing of examples and data from practice, ..)
1.6. Comments		

1.7. Student Obligations

The student in agreement with the mentor should choose the topic of the thesis and write it according to the instructions on the web
faculty page:
https://www.pfri.uniri.hr/web/hr/dokumenti/Upute_za_izradu_zavrsnog_rada_PFRI_2019_FINAL.pdf
As well as a template for the thesis:
https://www.pfri.uniri.hr/web/hr/dokumenti/Predlozak_za_zavrsni_rad_2019_FINAL.pdf
The paper must be grammatical, spelling and stylistically correct.

After the first consultative meeting of the student and the mentor, the student consults the assigned literature, studies
matter consults its own collected sources and elaborates the content of the paper in detail.
When the mentor approves and accepts the thesis, the student submits the final version to the student service

1.8. Assessment[1] of Learning Outcomes

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

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

Verification of learning outcomes is performed before an expert committee consisting of three members of the Department of Nauticals sciences.

The student should defend the diploma thesis, after the presentation of the paper and answer the questions professionally the commission decides on the defence of labour and evaluates it taking into account the quality and quantity of labour, answers to the professional questions asked and the student's ability to master the chosen subject

1.10. Main Reading

1.11. Recommended Reading

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
.	Available at:	

1.13. Quality Assurance

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

[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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Course description

Generic information			
Head of Course	Đani Mohović, PhD, Associate professor		
Course	Nautical tourism		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Elective		
Year of Study	2		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30 + 5 + 10

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The aim of the course is to familiarize students with the theoretical and practical basis of nautical tourism. Introduction to the types and characteristics of nautical tourism crafts and their use. Introduction to the technological features of the nautical tourism port. Introduction to the maintenance of nautical tourism ports and crafts. Familiarization with legal regulations relating to crafts and ports of nautical tourism with regard to safety of navigation and environmental protection. Introduction to the organization of work and management in the port of nautical tourism.

1.2. Prerequisites for Course Registration

None.

1.3. Expected Learning Outcomes

It is expected that students after passing the exam can:
1. apply the theoretical and practical foundations of nautical tourism
2. be able to determine the types and characteristics of nautical tourism crafts
3. recognize and determine the technological characteristics of nautical tourism ports
4. apply knowledge from the theory of maintenance of ports and crafts of nautical tourism
5. apply regulations relating to crafts and ports of nautical tourism
6. know and understand the organization of work and management in nautical tourism ports

1.4. Course Outline

Definition of nautical tourism. Forms of nautical tourism traffic. Types and characteristics of crafts in nautical tourism. Natural resources for the development of nautical tourism. Limitations of nautical tourism development. Characteristics of nautical tourist demand. Maritime good and development of nautical tourism. Legal regime of nautical tourism crafts. Ecological conditions for the development of nautical tourism. Characteristics and specifics of nautical tourism port management. Functioning of the nautical tourism port. Nautical tourism port business. Organization of nautical tourism port.

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

Class attendance, continuous learning, active class attendance, group work on research from the course program, preparation and writing of seminars, presentation of research in the seminar, learning and taking the final exam (oral).

1.8. Assessment[1] of Learning Outcomes

Course attendance	1,2	Class participation		Seminar paper	0,3	Experiment	
Written exam		Oral exam	2,5	Essay		Research	1
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

During the classes, the quality of the seminar paper, mastery of the material and presentation of the seminar are scored. At the end of the class, the oral exam is scored. The percentage of evaluation is 70% in classes and 30% in the final exam (according to the Regulations on studies at the University of Rijeka and the Regulations on studying at the Faculty of Maritime Studies in Rijeka).
Assessment during classes:
Through a seminar paper and in the presentation of a seminar paper where knowledge of theoretical foundations is tested as well as their application in the seminar paper.
Final exam:
At the final exam (oral exam) the integrity of theoretical knowledge in the field of Nautical Tourism is checked - it is necessary to achieve a minimum of 50% of the required theoretical knowledge.

1.10. Main Reading

1. Authorized lectures – Ph. D. Đani Mohović, Rijeka, 2009.
2. Dulčić A., Nautički turizam i upravljanje lukom nautičkog turizma", Ekokon, Split, 2002.
3. Šamanović J., Nautički turizam i management marina, Visoka pomorska škola u Splitu, 2002.

1.11. Recommended Reading

1. Favro S., Kovačić M., Nautički turizam i luke nautičkog turizma, Prostorna obilježja Hrvatskog Jadrana, Izbor lokacije luke nautičkog turizma, Ogranak Matice hrvatske Split, 2010.
2. Luković T., Gržetić Z., Nautičko turističko tržište u teoriji i praksi Hrvatske i europskog dijela Mediterana, HHI, Split, 2007.
3. Luković T., Šamanović J., Management i ekonomika nautičkog turizma, HHI, Split, 2007.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Authorized lectures – PH. D. Đani Mohović, Rijeka, 2009.	unlimited	15
Dulčić A., Nautički turizam i upravljanje lukom nautičkog turizma", Ekokon, Split, 2002.	5	15
Šamanović J., Nautički turizam i management marina, Visoka pomorska škola u Splitu, 2002.	5	15

1.13. Quality Assurance

The quality of studies is monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance, which is 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	Jasminka Bonato		
Course	Reliability and safety of technical systems		
Study Programme	Marine Engineering		
Type of Course	optional		
Year of Study	2. graduate study		
Estimated Student Workload and Methods of Instruction	ECTS coefficient of Student Workload		5
	Number of Hours (L+E+S)		30+15+0 (2+1+0)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

Presents and approximates the basic ideas of reliability theory; determining the reliability of the component (system); mathematical modeling of technical systems reliability.

1.2. Prerequisites for Course Registration

Passed the course Applied Mathematics.

1.3. Expected Learning Outcomes

1.Describe the basic quantities of reliability theory.

2. Analyze different configurations of technical systems.

3. Application in solving problems from the theory of reliability and availability of different configurations of technical systems.

4.Describe the possibilities of applying reliability theory in engineering and technology.

1.4. Course Outline

Starting terms relevant to the area of reliability of technical systems. Component reliability (fault density, fault frequency. Reliability, mean time to failure). Reproducibility of the component (renewal density, renewal frequency, reproducibility, mean time to renewal). Reliability of non-renewable systems with mutually independent components. Reliability of serial and parallel configuration systems. Reliability of non-renewable systems of parallel-serial and serial-parallel configuration. System reliability of "k of m" configuration. Reliability of non-renewable systems with interdependent components. Reliability of the standby system. Reliability of a renewable parallel configuration system.Reliability of a renewable reserve system. Availability of a renewable one-component system. Availability of a renewable parallel configuration system. Availability of a renewable reserve system. Reliable design of technical systems. FMEA. Design and safety of technical systems.

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

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1.6. Comments	

1.7. Student Obligations

Regular class attendance, taking colloquia, completing homework, as well as independent assignments through the merlin system, which students qualify for the final exam.

1.8. Assessment[1] of Learning Outcomes

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

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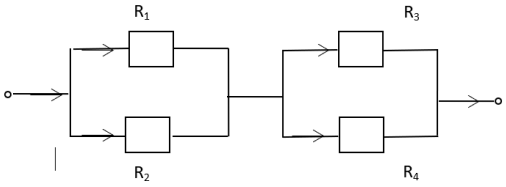
1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam

During classes 70% (colloquia + seminar + dz) and final exam 30%.

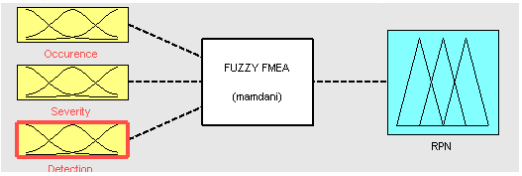
Examples of evaluating learning outcomes in relation to set outcomes:

1 Outcomes 1,2 i 3
Let the system consist of four independent components as shown in the figure. Their reliability at time t = 1000 h are: R1 = 0.6; R2 = 0.7; R3 = 0.8; R4 = 0.9. What is the reliability of the system at time t? Calculate the mean time to failure of this system! (picture)



2. Outcomes 4

Fuzzy FMEA, a method of security of technical systems



Final exam (outcomes 1,2,3 and 4)

1. Draw a statistical qualitative time diagram of the component failure frequency and write the name

2. What expression is used to determine the reliability of a component if the frequency of component failure when it is in operation is constant?

3. What is the process of failures in the operation of the technical system? Why?

1.10. Main Reading

1. Kraš, Antun; Bonato, Jasminka; Draščić Ban, Biserka: Reliability and availability of digital systems, Rijeka, 2017.
2. Notes from lectures and exercises.
3. V.Mikuličič, Z.Šimić: „Reliability, availability and risk models in the power system: Part 1 Analytical methods of reliability and availability calculatio“, Kigen, Zagreb, svibanj, 2008.
4. N. Elezović: Fourier series and integral
Laplace transformation, Školska knjiga, Zagreb

1.11. Recommended Reading

J. Bonato:“ Reliability and security of technical systems” Rijeka, 2020.

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Kraš, Antun; Bonato, Jasminka; Draščić Ban, Biserka Reliability and availability of digital systems: , Rijeka,2017.	5	23

1.13. Quality Assurance

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The quality of studies is monitored in accordance with the ISO 9001 system and in accordance with European standards and guidelines for quality assurance, which is carried out at the Faculty of Maritime Studies in Rijeka. Student survey conducted at the end of the semester.

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3.2. Course description

Generic information			
Head of Course	**Robert Mohović, PhD, Full professor**		
Course	MARITIME AND NAVIGATION HISTORY		
Study Programme	Nautical Studies and Maritime Transport Technology		
Level	University graduate study program		
Type of Course	Elective		
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

The goal of the course is to familiarize students with the history of the development of their profession, the development of vessels and their technical and technological characteristics, sea waterways, the development of navigation and navigation science. Special emphasis is placed on introducing students to Croatian maritime heritage and methods of preserving and revitalizing traditional and historical vessels as well as traditional maritime skills. Students are also introduced to the development of maritime education. The course provides a scientific basis for a more detailed study of this area.

1.2. Prerequisites for Course Registration

There are no special requirements for enrolling in the course

1.3. Expected Learning Outcomes

It is expected that the student will be able to:

1. analyze and interpret the historical development of vessels and their technical and technological characteristics,
2. analyze and interpret the historical development of navigation and navigation science,
3. analyze and interpret the discovery of maritime waterways and navigation methods,
4. analyze and interpret segments of Croatian maritime, fishing and shipbuilding heritage,
5. analyze and interpret the stages of development and specifics of maritime education,
6. define, analyze, interpret and assess the methods of evaluation, preservation and revitalization of traditional and historical vessels, and traditional maritime skills,
7. explore in more detail a topic in the field maritime and navigation history, and through this experience and evaluation of research results adopt a scientific basis for a more detailed study of this area.

1.4. Course Outline

Historical development of vessels and their technical-technological characteristics, and factors that have influenced and continue to influence the development of maritime and navigation. Maritime waterways and major historical discoveries related to seafaring. Historical development of Croatian seafaring. Historical development and specifics of vessels in the Adriatic. Croatian maritime heritage (maritime, fishing and shipbuilding). Methods of evaluation and preservation of maritime, fishing and shipbuilding heritage. Methods of revitalization of traditional and historical vessels and traditional maritime skills. Historical development of coastal navigation. Historical development of astronomical navigation. Historical development of electronic navigation and electronic navigation systems. Historical development of maritime education.

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	In addition to lectures, the students have an organized tour of the Maritime Museum and other institutions related to sources important for research of maritime, fishing and shipbuilding heritage, as well as field work in ports and shipyards; they also have the possibility to learn traditional maritime skills, volunteer at traditional events and other.	

1.7. Student Obligations

Active class attendance and at least 70% of classes.

Prepared and positively evaluated seminar paper in the field of navigation history, conducting research in the field of maritime history and presenting the results, passing the final exam.

1.8. Assessment[1] of Learning Outcomes

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

[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 evaluating acquired learning outcomes is performed according to the Regulation on Studies of the University of Rijeka and the Regulation on studying at the Faculty of Maritime Studies in Rijeka as follows:

1. 70% of acquired learning outcomes are evaluated through continuous knowledge testing during the semester. Students must make a seminar from the area of navigation history – learning outcome 6 (40%) and a research seminar in the field of maritime history – learning outcome 7 (30%).

2. the final exam (oral exam) checks the integrity of theoretical knowledge in the field of maritime history and navigation (30%) by analyzing the seminar paper in the field of navigation history and the presentation of results and research in the field of maritime history – learning outcome, and a block of questions from the field of course content – learning outcomes 1-6. At the final exam it is necessary to achieve a minimum of 50% of the required theoretical knowledge.

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

1. Analyze the typology of 19th century sailing ships with their technical and technological features.

2. Analyze and interpret the historical development of navigation instruments.

3. Analyze and interpret the way of sailing the Adriatic in the Middle Ages.

4. Analyze and interpret the construction characteristics of traditional boats on the Adriatic.

5. Analyze and interpret the stages of development and specifics of the development of Croatian maritime education.

6. Interpret possible ways of revitalizing traditional and historical vessels.

7. Investigate in more detail a particular topic in the field of maritime history and navigation – prepare a research seminar.

1.10. Main Reading

1. *Mohović, R.: Maritime History and Navigation - teaching texts and attachments available on the e-learning system - Merlin (https://moodle.srce.hr)*
2. *Hekman, I.: Povijest pomorske navigacije I i II dio, Tankerska plovidba – Zadar i Pomorski fakultet – Rijeka, 1995.*
3. *Franušić, B.: Povijest hrvatskog pomorstva, Veleučilište u Dubrovniku, Dubrovnik, 1996.*
4. *Keber, L.: Traditional Boats of the Croatian Adriatic, Technical Museum, Zagreb, 2013.*

1.11. Recommended Reading

1.) *Kozličić, M.: Hrvatsko brodovlje – Croatian shipping – Le navi croate, Književni krug Split, 1993.*
2.) *Novak, G.: Jadransko more u sukobima i borbama kroz stoljeća, Marijan tisak, Split, 2004.*
3.) *Barbalić, F. R., Marendić, I.: Onput kad smo partili, Rijeka, Matica hrvatska - Rijeka, 2004.*
4.) *Mendeš, N.: Stari jedrenjaci, Brodarstvo i brodogradnja Rijeke i Hrvatskog primorja od 18. do 20. stoljeća, Katalog muzejskih zbirki III., Pomorski i povijesni muzej Hrvatskog primorja, Rijeka, 2000.*
5.) *Suzanić, J.: Kostrena pod jedrima, Kostrena, Općina Kostrena i Narodna čitaonica, 1995.*

1.12. Number of Main Reading Examples

Title	Number of examples	Number of students
R. Mohović, Maritime History and Navigation - teaching texts and attachments available on the e-learning system - Merlin (https://moodle.srce.hr)	available on web	10 - 15
Hekman, I.: Povijest pomorske navigacije I i II dio, Tankerska plovidba – Zadar i Pomorski fakultet – Rijeka, 1995.	Library 5	

Franušić, B.: Povijest hrvatskog pomorstva, Veleučilište u Dubrovniku, Dubrovnik, 1996.	*Library 2*	
Keber, L.: Traditional Boats of the Croatian Adriatic, Technical Museum, Zagreb, 2013.	*Library 2*	

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	Đanil Šabalja, Ph. D., Assistant Professor		
Course	Technology of removing the contamination of the sea		
Study Programme	Nautical Studies and Maritime Transport Technology		
Type of Course	Elective		
Year of Study	5		
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

Course objectives are to introduce students to all kinds of marine pollution, techniques and equipment available today to control and remove the resulting pollution.

1.2. Prerequisites for Course Registration

1.3. Expected Learning Outcomes

1. Define, distinguish and explain the possible pollution of the sea...,
2. Define and distinguish sources of different sea pollution,
3. Distinguish and explain the legal regulation of the protection of the sea from contamination,
4. Compare and analyze the application of different methods of removing the sea pollution,
5. Distinguish and explain the use of the equipment used to prevent further spread of contamination,
6. Define and explain the procedures of intervention in the occurrence of a certain pollution of the sea.

1.4. Course Outline

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

1.8. Assessment[1] of Learning Outcomes

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

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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

70% on teaching and 30% on the final exam (according to the Ordinance on Studies of the University of Rijeka and the Ordinance on Studying at Faculty of Maritime Studies). Continuous knowledge testing: a colloquium from the material, it is necessary to achieve a minimum of 50% of the correct answers (I1, I2, I3,I4). Students make seminar work and presentation from the default cases of pollution of the sea, for which they can achieve a maximum of 20% of the points on the case. Final Exam: oral exam from the material. It is necessary to achieve a minimum of 50% of the correct answers (I5).
Examples of Evaluation of Learning Outcomes:
1. Explain all possible contamination of the sea. (I1)
2. Explain the negative impact of oil in the event of excitement, sources of oil pollution of the sea, the behavior of the water surface, the velocity of the spread of oil stains, the method of monitoring the oil contamination. (I2)
3. Explain methods of removing oil from the sea. Mechanical, physical, chemical and microbiological methods. (I3)
4. Explain the chemical contamination of the sea. (I4)
5. Explain the intervention plan for sudden pollution of the sea, sea response measures, land reaction measures. Subjects for the implementation of the intervention plan. Procedures and reaction measures to reduce damage to the marine environment. (I5)

1.10. Main Reading

1. Prevention & Best Response, Barbara E. Ornitz, Michael A. Champ

1.11. Recommended Reading

1. ITOPF Handbook2019.,
2. Oil Spill Statistic 2018, ITOPF
3. Oil Pollution in the Mediterranean Sea: Part I The International Context Editors: Carpenter, Angela, Kostianoy, Andrey G.(Eds.)
4. Oil Pollution in the Mediterranean Sea: Part II National Case Studies Editors: Carpenter, Angela, Kostianoy, Andrey G.(Eds.)

1.12. Number of Main Reading Examples

Title	*Number of examples*	*Number of students*
Prevention & Best Response, Barbara E. Ornitz, Michael A. Champ	unlimited	

1.13. Quality Assurance

The quality of study is monitored in accordance with the ISO 9001 system and in accordance with European quality assurance implemented at the Faculty of Maritime Studies in Rijeka. Once a year, the results of the student pass rate and adopt appropriate measures.