



I. DESCRIPTION FORM FOR LIFELONG LEARNING PROGRAM

Note: Specific fields in the form are marked with footnote ^{a, b, c}. The specified fields are not mandatory for the following program. Furthermore, all fields that are not specifically marked are mandatory to fill in.

General Information	
Course	Lifelong learning program (special education program) for acquiring certificate of competence for Chief Mates on ships of 3000 gross tonnage or more
Program holder	University of Rijeka, Faculty of Maritime Studies
Program execution	University of Rijeka, Faculty of Maritime Studies
Type of program	a) Distinctive education in the process of obtaining an academic title. b) Acquiring credit points in an accredited study program. c) Further training after the acquired academic title. d) Education for various social and work activities or personal development.

1. INTRODUCTION

1.1. Reasons for starting the program

The Minister of the Sea, Transport and Infrastructure, on the basis of Article 1021 of the Maritime Code (Official Gazette No. 181/04, 76/07, 146/08), enact December 10, 2010. "Rule on amendments and additions to the rulebook on qualifications and certificates of seafarers" (Official Gazette 142/2010). The Ordinance makes it possible to take the exam for obtaining the highest naval titles, subject to the conditions defined by the Maritime Code and the completion of the special education program from Annex I-2 of the said Ordinance, which is conducted at maritime colleges.

1.2. Evaluation of expediency with regards to the needs of the labor market in the public and private sectors ^{a, b, c}

In the global maritime industry, there is a great demand for Croatian seafarers that holds highest officer ranks, which they obtained by studying at the maritime institutions of higher education's in the Republic of Croatia. By amending and supplementing the Rulebook on titles, which was adopted precisely at the request of companies participating in the maritime labor market in the public and private sector, it is possible for seafarers with long-term maritime experience (prescribed by the Rulebook) to take the exam for the highest maritime ranks upon completion of the Special Program. The special program will be accessed by seafarers who are employed and will be able to advance in their profession after completing the program, as well as seafarers who will become more competitive on the world maritime market by acquiring the highest maritime ranks and thus find a suitable high-ranking job more easily.

1.2.1. Connection with the local community (economy, entrepreneurship, civil society) ^{a, b, c}

The maritime economy and all matters related to the maritime economy are at the top of the strategic interests of both our local community and the Republic of Croatia. Seafarers have always contributed to our community in a special way, especially in times of crisis.

1.2.2. Compliance with the requirements of professional associations (recommendations) ^{a, b, c}

All maritime professional associations as well as the maritime trade union have greatly contributed or even played a decisive role in bringing of the mentioned regulation.

1.2.3. List possible partners outside the higher education system who have expressed interest in the program

Possible partners in the implementation of the Special educational program are officers with the highest seafaring certificates who can participate in the implementation of the part of the classes from the courses listed in the Rulebook, as well as leading people of maritime companies who have the appropriate knowledge, authorization, and competence.

1.3. Compliance with the lifelong learning program of the University of Rijeka

The program is conformed with the Rulebook of lifelong education and with the basic draft document for lifelong learning of the University of Rijeka

1.4. Institutional strategy for the development of lifelong learning programs (compliance with the institution's mission and strategic goals)

The program is conformed with the mission and education strategy of the Faculty of Maritime Studies in Rijeka and is aimed at increasing the number quality jobs for its citizens and the creation of experts for successful participation in the world labor market.

1.5. Other important information - according to the proponent opinion

2. GENERAL INFO

2.1. Name of the lifelong learning program

Special education program for acquiring certificate of competence for Chief Mates on ships of 3000 gross tonnage or more

2.1.1. Type of program

- a) Distinctive education in the process of obtaining an academic title.
- b) Acquiring credit points in an accredited study program.
- c) Further training after the acquired academic title.**
- d) Education for various social and work activities or personal development.

2.1.2. Study program level ^{a, b, c}

2.1.3. Field of the program (scientific/artistic) - specify the name ^{a, b, c}

Technical sciences - field of traffic and transport technology

2.2. Program holder

University of Rijeka, Faculty of Maritime Studies

2.3. Program execution

University of Rijeka, Faculty of Maritime Studies

2.4. Duration of the program

6 months

2.4.1. ECTS credits – the minimum number of credits required for the student to complete the program ^{a, b, c}

15 ECTS

2.5. Conditions for enrolling in the program

The conditions are prescribed by the Ordinance on Amendments to the Ordinance on Titles and Certificates of Qualification for Seafarers (Official Gazette 142/2010), Articles 5 and 6.

- Completed high school education in marine engineering or another appropriate course lasting at least 4 years, which includes at least the contents in accordance with the program from Part A-II/1 of the STCW Ordinance or the adapted program from Part A-II/2 of the STCW Ordinance

- has at least 36 months of sea service as officer in charge of a navigational watch on ships of 500 gross tonnage or more,

- has at least 24 months of navigation service as officer in charge of a navigational watch on ships of 500 gross tonnage or more and at least 12 months of sea service as a chief mate on ships of 3000 gross tonnage or more

2.6. Learning outcomes of the program (competencies that the participant acquires by the end of the program)

Upon completion of the Program, the participant acquires the conditions and competencies for taking the exam to obtain the Certificate of Competence for Chief Mates on ships of 3000 gross tonnage or more (STCW II/2) and a certificate of competence for master on ships of 3000 gross tonnage or more (STCW II/2)

2.7. When enrolling for the program, state the study programs of the proposer or other institutions in the Republic of Croatia from which enrollment is possible into proposed program ^{a, b, c}

3. Course description

3.1. The structure of the program, schedule of attendance and participants obligations

The program consists of 6 modules, each of which is composed of several complementary courses whose ECTS sum does not exceed 15 ECTS points. The program lasts a total of 6 months, depending on the possibilities of the participants and the faculty organization. It is held in rounds of 2 x 3 months. The program consists of lectures and exercises in classrooms, laboratories and specially equipped classrooms with maritime simulators at the Faculty of Maritime Studies in Rijeka.

Through the program, the applicant fulfills the obligations provided by the program in accordance with ECTS credits. The program is carried out through direct teaching and independent work on the execution of practical tasks with individual consultations with subject teachers. Classes will be held in the afternoon with a maximum load of 6 hours per classes. The morning hours are intended for individual work and study with the possibility of using the faculty library and classroom. Classes are organized by modules and during class the knowledge tests (colloquiums) are organized. Final exam is taken after the course has been completed and all obligations have been met.

3.2. List of courses and/or modules (if they exist) with the number of hours of active teaching required for their implementation (and number of ECTS - points for program types a, b, or c) (attachment: Table 1)

Modules:

1. General Module	195 h active teaching hours, 14 ECTS
2. Ship Construction and tec.-technological ship systems at man. level	175 h active teaching hours, 15 ECTS
3. Navigation at management level	120 h active teaching hours, 13 ECTS
4. Safety at sea at management level	65 h active teaching hours, 9 ECTS
5. Cargo Handling at management level	90 h active teaching hours, 13 ECTS
6. Ship manoeuvring	105 h active teaching hours, 12 ECTS

3.3. Description of each subject (if any) (attachment: Table 2)

In attachment

3.3.1. Enrollment conditions for the next semester or trimester (subject name) ^{a, b, c}

3.4. List of subjects and/or modules that can be taught in a foreign language (specify which language)

3.5. Multidisciplinary of the program

The program is multidisciplinary and covers the fields of nautical science and logistics and management.

3.8 Method of completing the program

Participants are obliged to fulfill all obligations according to the established program. After fulfilling all obligations established by the program, the participant takes the final exam in a particular subject. After completing the entire program, they receive a certificate of completion.

Table 1.

3.1. List of courses and/or modules (if they exist) with the number of hours of active teaching required for their implementation with ECTS credits

List of Courses/Modules							
Module	Course	Course holder	L	E	S	ECTS ^{a, b, c}	
General Module	Applied Mathematics	Biserka Draščić Ban, PhD Martina Žuškin, univ. mag. educ.	20	10		2	14
	English language	Sandra Tominac Coslovich, PhD	30	30		4	
	Applied computer science	Marko Gulić, PhD Ivan Tudor, univ. mag. educ.	30	10		3	
	Maritime Law	Igor Vio, PhD	45			3	
	Shipping Economics	Alen Jugović, PhD	20			2	
Ship Construction and tec.-technological ship systems at man. level	Ship design and construction	Igor Rudan, PhD	60	30		8	15
	Marine Engineering Basics	Predrag Kralj, PhD	65			4	
	Ship maintenance	Renato Ivče, PhD	15	5		3	
Navigation at management level	Terrestrial navigation	David Brčić, PhD	25	25		5	13
	Astronomical Navigation	Đani Šabalja, PhD	20	20		4	
	Electronic navigation	David Brčić, PhD	20	20		4	
Safety at sea at management level	Safety at Sea	Damir Zec, PhD	30	10		5	9
	Maritime Meteorology and Oceanology	Tatjana Ivošević, PhD	15	10		4	
Cargo Handling at management level	Cargo handling	Renato Ivče, PhD Robert Mohović, PhD	60	30		13	13
Ship manoeuvring	Ship handling	Robert Mohović, PhD	30	20		5	12
	Passage planning	Đani Mohović, PhD	25	5		4	
	Ship organization and management	Mirano Hess, PhD	25			3	

Table 2.

3.2. Course description

Generic information		
Head of Course	Igor Rudan, PhD	
Course	Ship design and construction	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	8
	Number of Hours (L+E+S)	90 (60 + 30 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
The objective of the course is to acquaint students with the basic ship's dimensions and measures, transversal and longitudinal constructional elements, elementary conception of ship's strength and constructional features of different type of ships. To acquaint students with the basic characteristics of ship stability and the division of stability according to different criteria. In addition to numerical tasks, students should correctly interpret the criteria of initial transverse stability and transverse stability at higher tilt angles and longitudinal stability of the ship. Detailed introduction and analysis of transverse and longitudinal stability due to vertical and horizontal displacements of masses and transshipment. A thorough introduction and interpretation of the dynamic stability of the ship and the influence of the dimensions and technology of the ship on stability.
<i>1.2. Prerequisites for Course Registration ^a</i>
No prerequisites
<i>1.3. Expected Learning Outcomes</i>
It is expected that the student will be able to:
<ol style="list-style-type: none"> 1. Parse and apply international rules for ship's construction and historical development. 2. Parse and analyse type of ship construction, structural elements of longitudinal and transversal ship's strength. 3. Parse and define cargo system, ship's equipment, and ship's cargo handling equipment for different type of ships. 4. Parse and apply basic ship's dimensions and measures. 5. Properly apply the knowledge gained from the structural elements of longitudinal and transversal ship's strength in ship drawings and design. 6. Properly analyse ship's division toward purpose, type of cargo, navigational water categories, construction material, nature of shipping service, etc. 7. Define and parse technical and technological characteristics for different types of ships. 8. Describe and interpret the ship stability according to different criteria 9. Analyse and parse initial stability with basic elements of transverse statical stability 10. Analyse and calculate the effect of different mass shifting on the transverse stability of the ship 11. Analyse and calculate the elements of transverse statical stability in mass transshipment (loading/unloading)

12. Interpret and evaluate the effects of Free Surfaces Correction on ship stability
13. Analyse and parse the longitudinal ship stability
14. Analyse and calculate the effect of different mass shifting on the longitudinal stability elements of the ship
15. Analyse and calculate the effect of transshipment (loading / unloading) on the elements of longitudinal stability of the ship
16. Explain the basic concepts of dynamic ship stability

1.4. Course Outline

International rules for ship construction and historical development. Construction materials, welding, bulkheads, watertight bulkhead, watertight door. Type of ships. Structural elements of longitudinal and transversal ship's strength. Strength and stress of ship structure. Ship compartments, cargo compartments, navigation bridge and engine room. Ship's cargo handling equipment for different type of ships. Ship's operational equipment. Type of rudders, remarks for different kind of rudders, propeller execution with main particularities. Geometrical ship's dimensions and measures. Ship drawings and design. General plan of ship with different system technology. Wind surface and under water area. Ship's division toward purpose, type of cargo, navigational water categories, construction material, nature of shipping service, etc. Technical and technological characteristics for General Cargo ships, Container Ships, Ro-Ro vessels, Bulk Carriers, Oil/Oil products and Chemical Tankers, Gas takers, Passenger liner and cruise ships and offshore vessels with different purpose and service. Ship stability definition and division. Basic ship hydrostatics. Statical initial transverse metacentric high. Transverse statical stability change in vertical and horizontal mass shifting. Transverse statical stability change in mass transshipment (loading/unloading). Transverse statical stability change in hanging loads. Influence of Free Surface Correction (FSC) on transverse statical stability. Statical transverse stability at large angles of heel. GZ curve construction with Intact stability regulations analyses. KG calculation in transverse Ship stability definition and division. Basic ship hydrostatics. Statical initial transverse metacentric high. Transverse statical stability change in vertical and horizontal mass shifting. Transverse statical stability change in mass transshipment (loading/unloading). Transverse statical stability change in hanging loads. Influence of Free Surface Correction (FSC) on transverse statical stability. Statical transverse stability at large angles of heel. GZ curve construction with Intact stability regulations analyses. KG calculation in transverse stability. Statical longitudinal stability. Longitudinal stability change in mass shifting or mass transshipment (loading/unloading). XG calculation in longitudinal stability. Dynamical stability analyses. Damage stability. Ship's trim and stability book.

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. Participant Obligations

Active attendance of classes over 70 %. Longitudinal and transversal ship drawing – student task.
Passed two written exams. Final oral exams.

1.8. Assessment¹ of Learning Outcomes

Course attendance	2.0	Class participation	2.0	Seminar		Experiment	
Written exam	2.0	Oral exam	2.0	Essay		Research	
Project		Continuous Assessment		Presentation		Practical work	
Portfolio		Class participation		Seminar			

1.9. Assessment of Learning Outcomes

70 % of the course grade is based through 2 written exams in class and 30 % of the course grade is based in the oral final exam according to the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka.

Continuous assessment: Each written exam must have at least 60 % score.

Final oral exam checks the competences of theoretical knowledge where it is necessary to achieve a minimum of 50 % of the required theoretical knowledge.

1.10. Main Reading

Rudan, I., teaching materials from the course Ship design and construction on the teacher's personal web site (MERLIN) of the Faculty of Maritime Studies in Rijeka

Vademecum Maritimus, Podsjetnik pomorcima, Pomorski fakultet u Rijeci, 2002. Rijeka,

Videotel - Videotel's training solutions

Buljan, I., Stabilnost broda, Priručnik za pomorce, Školska knjiga Zagreb, 1982. Zagreb,

Uršić, J., Stabilitet broda I. dio, Sveučilište u Zagrebu, 1968. Zagreb,

Uršić, J., Stabilitet broda II. dio, Sveučilište u Zagrebu, 1968. Zagreb,

Komadina, P., Ro-Ro brodovi, Pomorski fakultet u Rijeci, 2001. Rijeka,

Komadina, P., Tankeri, Pomorski fakultet u Rijeci, 1994. Rijeka,

1.11. Recommended Reading

Uršić, J., Stabilitet broda I. dio, Sveučilište u Zagrebu, Zagreb, 1968.

Uršić, J., Stabilitet broda II. dio, Sveučilište u Zagrebu, Zagreb, 1968.

Fatur, J., Teorija broda, Uredništvo časopisa Brodogradnja, Zagreb, 1954.

Milošević, M., i Š., Osnove teorije broda 1, Sveučilište u Zagrebu, Zagreb, 1981.

Milošević, M., i Š., Osnove teorije broda 2, Sveučilište u Zagrebu, Zagreb, 1981.

Barrass, B., Derrett, D. R., Ship stability for Masters and Mates, Elsevier, 2008.

Eyres, D. J., Ship Construction, Butterworth-Heinemann, London, 2007

Dokkum, K., Katen, H.T., Koomen K., Pinkster J., Ship Stability, London, 2001.

Derrett, D.R., Ship stability – for Masters and Mates, Butterworth Heinemann, Woburn, 2001.

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
Teaching materials from the course Ship design and construction	MERLIN – online	20
Komadina, P., Ro-Ro brodovi	5	20
Komadina, P., Tankeri	5	20
Vademecum Maritimus, Podsjetnik pomorcima, Pomorski fakultet u Rijeci, Rijeka, 2002.	8	20
Videotel - Videotel's training solutions	On-line	20
Buljan, I., Stabilnost broda, Priručnik za pomorce, Školska knjiga Zagreb, Zagreb, 1982.	5	20

1.13. *Quality Assurance*

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Biserka Draščić Ban, PhD Martina Žuškin, univ. mag. educ. math. et inf.	
Course	Applied Mathematics	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	2
	Number of Hours (L+E+S)	30 (20 + 10 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
The main objective of the course is to provide general educational content and education about the mathematical apparatus used in other courses during studies and to emphasize the importance of accurately expressing and defining all the terms used in the courses during study.
<i>1.2. Prerequisites for Course Registration ^a</i>
No prerequisites
<i>1.3. Expected Learning Outcomes</i>
<ol style="list-style-type: none"> 1. Recognize the main concepts of linear algebra, one variable functions and differential calculus of a function with one variable. 2. Express and correctly interpret basic results in linear algebra, and the differential calculus of a function with one variable. 3. Interpret basic operations with matrices, vectors, determinants, determine solutions of random linear systems, as well as boundary values and derivations of functions with one variable. 4. Recognize and correctly explain basic concepts of integral calculus of real functions of one variable 5. Interpret basic calculations of indefinite integrals 6. Master the applications of definite integrals.
<i>1.4. Course Outline</i>
Sets of numbers. Complex numbers . Determinants. Matrices. Systems of linear algebraic equations. Vectors. Function with one real variable. Boundary value of a function, properties of limits of a sequence. Tabular limits of a sequence. Derivation. Properties of derivatives. The differential. Differential calculus theorems. Application of the derivative. Application of differential calculus in specifying a function. L'Hospitals rule. Curvatures, evolutes and involutes. Primitive function. Tabular integration. Methods of integrals. Definite integrals. Properties of definite integrals. Newton-Leibniz formula. Numerical integration. Simpsons rule. Trapezoidal rule.

1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work		<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other				
1.6. Comments							
1.7. Participant Obligations							
Active class attendance according to Regulation directive. Passed written exam.							
1.8. Assessment ¹ of Learning Outcomes							
Course attendance	0.5	Class participation	0.5	Seminar paper		Experiment	
Written exam		Oral exam		Essay		Research	
Project		Continuous Assessment	1.0	Presentation		Practical work	
Portfolio		Class participation		Seminar			
1.9. Assessment of Learning Outcomes							
Written exam - must have at least 50% score.							
1.10. Main Reading							
Boris Apsen: Repetitorija elementarne matematike Grupa autora: Matematika I i II dio, Pomorski fakultet Rijeka Grupa autora: Zbirka zadataka, Pomorski fakultet Rijeka							
1.11. Recommended Reading							
Demidovič: Zbirka zadataka							
1.12. Number of Main Reading Examples							
<i>Title</i>				<i>Number of titles</i>	<i>Number of participants</i>		
Grupa autora: Matematika I, Pomorski fakultet Rijeka				8	20		
Grupa autora: Matematika II, Pomorski fakultet Rijeka				8	20		
Grupa autora: Zbirka zadataka, Pomorski fakultet Rijeka				8	20		
1.13. Quality Assurance							
The quality of study is monitored in accordance with the ISO 9001 system and in accordance with the European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, exam passing results are analysed and appropriate measures are adopted.							

Table 2.

3.2. Course description

Generic information		
Head of Course	Sandra Tominac Coslovich, PhD	
Course	English language	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	4
	Number of Hours (L+E+S)	60 (30 + 30 + 0)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The objectives of the course are:

- to master the basic and specialized linguistic knowledge and skills in Maritime English required for education and training for certification under the provisions of IMO STCW Convention 1995, as amended for a watch-keeping officer on ships of 500 GT or more, Chief Officer and Master of ships of 3000 GT or more
- to acquire communicative competence for effective use of English as a language of international maritime communication for the purpose of ensuring safety of navigation and protection of marine environment
- to further develop the level of knowledge of maritime and general English language, as well as to master the linguistic knowledge and skills to enable students to learn, gain knowledge and follow the technological advances in the global maritime industry
- to further develop the four language skills: reading, listening, writing and speaking and team work abilities

1.2. Prerequisites for Course Registration ^a

N/A

1.3. Expected Learning Outcomes

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

1. apply the basic and specialized linguistic knowledge and skills in Maritime English required for education and training for certification under the provisions of IMO STCW Convention 1995, as amended for a watch-keeping officer on ships of 500 GT or more, Chief Officer and Master of ships of 3000 GT or more
2. interpret and compose routine radio messages, distress, urgency and safety radio messages according to the IMO STCW requirements for OOW on ships of 500 GT and more
3. define the basic meteorological terms and interpret a weather report
4. distinguish between and define in English different terms and communicative acts pertaining to the safety of navigation
5. give an oral presentation on a selected maritime topic
6. Interpret and provide information in both written and spoken form on various maritime topics

1.4. Course Outline

The course content meets the requirements of the IMO STCW Convention 1995.

The communicative approach to learning is a dominant characteristic of learning since it focuses on student-centered language learning, group work and developing cognitive abilities in language learning.

The course focuses on the following:

- professional maritime lexis/terms in English (simple lexical forms, compounds, collocations, lexical sets),
- maritime VHF communication in English (ITU Radio Regulations and IMO SMCP 2001) – routine radio messages, distress, urgency and safety messages
- maritime communication in various ship-handling situations
- marine meteorology – basic terms, weather reports
- speech acts and linguistic functions (orders, requests, instructions, information, advice, intention, warning,

prohibition, etc.) in maritime communication (discourse)
 - grammar: pronunciation and intonation; syntax (dominant grammar structures in a maritime text/discourse)
 - writing reports, filling out forms, completing check-lists, etc.

1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	<input type="checkbox"/> Practical work <input checked="" type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other
1.6. Comments		

1.7. Participant Obligations

Class attendance, continuous assessment (2 written tests) and final (oral) exam

1.8. Assessment¹ of Learning Outcomes

Course attendance	0.2	Class participation	0.8	Seminar paper		Experiment	
Written exam		Oral exam	1.2	Essay		Research	
Project		Continuous Assessment	1.8	Presentation		Practical work	
Portfolio							

1.9. Assessment of Learning Outcomes

Class attendance, continuous assessment (2 written tests) and final (oral) exam

1.10. Main Reading

- *MarEng* www.utu.fi/mareng
- *MarEng Plus* www.utu.fi/mareng
- B. Pritchard: *A Maritime English Course*, <https://www.pfri.uniri.hr/bopri/mareng1.html>
- B. Pritchard: *English in Shipping*, <https://www.pfri.uniri.hr/bopri/Shipping.html>
- P.van Kluijven: *International Maritime Language Programme*
- *IMO SMCP 2001*

1.11. Recommended Reading

1.12. Number of Main Reading Examples

Title	Number of titles	Number of participants
<i>MarEng</i>	www.utu.fi/mareng	20
<i>MarEng Plus</i>	www.utu.fi/mareng	20
B. Pritchard: <i>A Maritime English Course</i>	https://www.pfri.uniri.hr/bopri/mareng1.html	20
B. Pritchard: <i>English in Shipping</i>	https://www.pfri.uniri.hr/bopri/Shipping.html	20
P.van Kluijven: <i>International Maritime Language Programme</i>	20	20
<i>IMO SMCP 2001</i>	20	20

1.13. Quality Assurance

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Marko Gulić, PhD Ivan Tudor, univ. mag. educ. math. et inf.	
Course	Applied computer science	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	3
	Number of Hours (L+E+S)	40 (30+10+0)

1. GENERAL COURSE DESCRIPTION		
1.1. Course Objective		
To provide participants with basic knowledge about the structure and principle of computer operation, as well as knowledge about the use of computers in word processing and spreadsheets.		
1.2. Prerequisites for Course Registration ^a		
No		
1.3. Expected Learning Outcomes		
<ol style="list-style-type: none"> 1. Properly justify basic concepts of the structure and principle of operation of the computer 2. Describe different types of computer software support 3. Use the application program MS Word for text processing 4. Use the application program MS Excel for spreadsheets 		
1.4. Course Outline		
Mathematical and logical basics of computer operation. Computer hardware. Input/output units. Computer memory. Working (RAM, ROM) memory. External memory (HD, FDD disks, CD, DVD, BD, optical disks, optical disks, MO disks, SSD disks). Processor. The principle of computer operation. Computer program support (software). System software support. Operation system. Programs for the development of software support. Auxiliary programs. Application software support. Operating system: MS Windows. Word processing program: MS Word. Program for working with spreadsheets: MS Excel. Automatic computer monitoring, data recording and alarm systems.		
1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other
1.6. Comments		

1.7. Participant Obligations

Students' obligations are regular attendance and two knowledge tests.

1.8. Assessment¹ of Learning Outcomes

Course attendance	0.5	Class participation		Seminar		Experiment	
Written exam	1.0	Oral exam		Essay		Research	
Project		Continuous Assessment	0.5	Presentation		Practical work	
Portfolio		Class participation		Seminar			

1.9. Assessment of Learning Outcomes

The procedure for evaluating the acquired learning outcomes 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:

During the course, the learning outcomes achieved are assessed through continuous checking of knowledge in exercises and two tests, each of which must be positive (at least 50%).

The first test includes checking the part of first learning (25%)

Continuous checking of knowledge in exercises includes checking the third and fourth learning outcome (25%):

The second knowledge test includes checking second part of the first learning outcomes (50%) and checking the second learning outcome.

1.10. Main Reading

- Tudor, M. Primjena elektroničkih računala, University of Rijeka, Faculty for Maritime Studies, Rijeka, 2010.
- Course material available on the eLearning system - Merlin (<https://moodle.srce.hr>)

1.11. Recommended Reading

- Tudor, M. Osnove primjene računala, University of Rijeka, Faculty for Maritime Studies Rijeka, 2003.
- Grundler, D. Primijenjeno računalstvo, Graphis, Zagreb, 2000.
- Grundler et al, ECDL, Osnovni program, PRO-MIL d.o.o., Varaždin, 2005.

1.12. Number of Main Reading Examples

Title	Number of titles	Number of participants
Tudor, M. Primjena elektroničkih računala, University of Rijeka, Faculty for Maritime Studies, Rijeka, 2010.	Library 10, e-edition on Merlin (eLearning system)	20
Course material available on the eLearning system - Merlin (https://moodle.srce.hr)	On-line	20

1.13. Quality Assurance

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Predrag Kralj, PhD	
Course	Marine Engineering Basics	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	4
	Number of Hours (L+E+S)	65 (65+0+0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
<p>Introducing the participants to the basic concepts of solid body mechanics (force, moment of motion, friction, kinematics and dynamics). Basic knowledge of stress as a result of the action of external load. Introduction to the basic concepts of hydromechanics (statics, kinematics and fluid dynamics).</p> <p>Introducing the participants to the basic technical concepts, the most common designs of propulsion systems and their characteristics, the basic structural characteristics of ship propulsion machinery and other elements of the propulsion system. Introducing the participants to the systems of remote control and control of the main propulsion engine from the bridge and with the alarm system and automatic protection of the main propulsion engine. Introducing participants to assistive devices and systems, safe handling of auxiliary devices and systems that are directly or indirectly in the domain of deck officers. Basic knowledge about the ship's control and electrical systems; on the safe handling of devices and systems directly or indirectly within the domain of deck officers; basic knowledge of diagnosing malfunctions of management functions. Students will acquire enough technical knowledge to continue their studies and acquire engineering titles.</p>
<i>1.2. Prerequisites for Course Registration ^a</i>
None
<i>1.3. Expected Learning Outcomes</i>
<ol style="list-style-type: none"> 1. To recognize the forces acting on the body and the type of strain they cause. 2. To explain the basics of hydromechanics and application to ship and the ship systems. 3. To define and explain the conditions of exploitation of ship's mechanical and electrical devices 4. To describe and explain marine power devices and systems and other on-board energy conversion processes and equipment 5. To describe the marine lighting system, ship electric propulsion systems and general service systems 6. To define and explain the protective systems of ship main power source and auxiliary devices 7. To apply occupational safety measures 8. To describe and evaluate ship's emergency power sources 9. To define engine room automation classes 10. To explain the elements of automatic control circuit; the automatic and remote control of ship machines and devices and automatic control circuits and marine automation systems 11. To explain the interface of the main propulsion engine control panel on the bridge and the duties of a deck officer 12. To assess the condition of the hull and propulsor and the need for idling

1.4. Course Outline

General knowledge of statics, kinematics and solid body dynamics. General strain knowledge. General knowledge of statics, kinematics and fluid dynamics. Application to examples from practice.

General knowledge of ship technical concepts (7.01:1.10.3); marine propulsion plants –7.01: 1.10.1. (diesel engine plants, steam turbine plants, gas turbine plants, combined installations); marine auxiliary devices – 7.01:1.10.2. (pumps, fans, compressors, fuel and oil separators, bilge separators, fecal water treatment plants, steering gears, cooling appliances and elements); remote control and monitoring. Design, functions and characteristics of ships electrical systems, electric power converters, characteristic marine electrical devices, emergency electric power supplies, automatic control of electrical devices, functions of automation, automatic control circuit, sensors, control algorithms, integrated automation systems, integrity checks in accordance with the stcw convention and the IMO model course.

The focus is placed on safety when handling devices and systems that are directly or indirectly in the domain of deck officers, both under normal conditions and in excess situations, as well as diagnosing malfunctions.

1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures	<input type="checkbox"/> Practical work
	<input type="checkbox"/> Seminars and workshops	<input type="checkbox"/> Multimedia and Network
	<input type="checkbox"/> Exercises	<input type="checkbox"/> Laboratory
	<input type="checkbox"/> E-learning	<input type="checkbox"/> Mentorship
	<input type="checkbox"/> Field work	<input type="checkbox"/> Other _____

1.6. Comments	There are no hands-on exercises, but engine room simulators and other simulators can be used for informational purposes.
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1.7. Participant Obligations

Participants are obligated to attend lectures not less than 95%, and to pass partial and final exams.

1.8. Assessment¹ of Learning Outcomes

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

1.9. Assessment of Learning Outcomes

The course consists of three parts: 1) mechanics; 2) fundamentals of electricity; 3) marine engineering. There are partial exams and homeworks. Each part is graded separately, and the final grade is the average of the three parts.

1.10. Main Reading

1. Josip Brnić, Mehanika I elementi konstrukcija, Školska knjiga, Zagreb, 1993.
2. Dragan Martinović: Strojarski priručnik za časnike palube, Grafrade, Rijeka
3. B. Skalicki, J. Grilec, Brodski električni uređaji, Fakultet strojarstva i brodogradnje, Zagreb, 2000.

1.11. Recommended Reading

1. D.T.Hall, Practical Marine Electrical Knowledge, Witherby, London, 1999

1.12. Number of Main Reading Examples

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
1.10 – 1.	6	10 - 20
1.10 – 2.	8	
1.10 – 3.	6	

1.13. Quality Assurance

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Tatjana Ivošević, PhD	
Course	Maritime Meteorology and Oceanology	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	4
	Number of Hours (L+E+S)	25 (15 + 10 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
<p>The Marine Meteorology and Oceanology objectives are:</p> <ul style="list-style-type: none"> - to acquaint students with the purpose and importance of meteorological observations and the measurements of navigational safety; - to train students to perform meteorological measurements and observations on the ship; - to introduce students to conducting appropriate ship meteorological and oceanographic documentation; - to introduce students to appropriate use of the products of meteorological services for planning the navigation - to introduce students to understanding the scientific basics of meteorological and oceanographic processes and phenomena in the navigation.
<i>1.2. Prerequisites for Course Registration ^a</i>
/
<i>1.3. Expected Learning Outcomes</i>
<p>By the end of the course, students should be able to:</p> <ol style="list-style-type: none"> 1. Observe, measure and encode meteorological and oceanological factors in the ship to make a SHIP report; 2. Decode meteorological and oceanological factors from a SHIP report and "station model"; 3. Explain the consequences of the changes of meteorological and the oceanological factors during navigation; 4. Explain the surface analysis weather charts; 5. Apply the marine meteorological services for planning the navigation; 6. Recognize and interpret weather and oceanographic conditions as well as local conditions useful for navigation safety; 7. Analyze the impact of meteorological and oceanographic phenomena important for navigation safety; 8. Describe and understand the surface synoptic map and weather forecast for planning the navigation.

1.4. Course Outline

Meteorology and oceanology and their historical development.
 The position of the Earth in space, the atmosphere and meteorological processes in it.
 Meteorological factors: temperature, pressure and humidity, air currents, clouds, precipitation, fog and visibility, meteors.
 Weather analysis and forecast: Basic settings of the synoptic method, general atmospheric circulation, air masses, atmospheric fronts, cyclones and anticyclones, air movements in the atmosphere, storms.
 Weather in tropical areas, tropical cyclones.
 Weather in the polar regions.
 Atmospheric testing devices and methods.
 Maritime meteorological insurance.
 Water surfaces on Earth and the seabed. Properties of sea water. General sea conditions. Sea currents, waves and sea ice.
 Devices and methods for testing the sea. Oceanographic maritime insurance.

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. Participant Obligations

Students must achieve a minimum of 50 % of the points during classes which equals 30 points to taking the oral exam. They have to pass two colloquiums, practical work and successfully pass the final oral exam.

1.8. Assessment¹ of Learning Outcomes

Course attendance	1.0	Class participation		Seminar		Experiment	
Written exam		Oral exam	1.0	Essay		Research	
Project		Continuous Assessment	2.0	Presentation		Practical work	
Portfolio		Class participation		Seminar			

1.9. Assessment of Learning Outcomes

What does maritime meteorology study?

2. What is it based on?
3. How can the navigator best predict the change in weather?
4. What is the atmospheric pressure measured with? Where?
5. What are the two main weather systems?
6. Describe an anticyclone: circulation of wind, pressure at its centre, strength of winds, air, moving, forecasting anticyclones.
7. Describe a depression: circulation of wind, pressure, wind strength, air, moving, forecasting depressions.
8. Describe some of the features observed on a surface weather map
9. List the two primary ways in which fog forms.
10. Describe the conditions that are necessary for the formation of:
 - (a) radiation fog
 - (b) advection fog.
11. How does evaporation (mixing) fog form?
12. Clouds are most generally classified by height. List the major height categories and the cloud types associated with each.
13. With all other factors being equal, would you expect a lower minimum temperature on a night with cirrus clouds or on a night with stratocumulus clouds? Explain your answer.
14. What is a geostrophic wind?
15. What are the forces that affect the horizontal movement of air?
16. Describe how the wind blows around high-pressure areas and low-pressure areas aloft and near the surface
 - (a) in the Northern Hemisphere; and
 - (b) in the Southern Hemisphere.
17. If the clouds overhead are moving from north to south, would the upper-level center of low pressure be to the east or west of you?
18. On a surface map, why do surface winds tend to cross the isobars and flow from higher pressure toward lower pressure?
19. Explain surface weather map key
20. Decrypt SHIP report....etc.

1.10. Main Reading

1. C. Donald Ahrens and Robert Henson, *Essential of Meteorology, An invitation to the Atmosphere*, Cengage Learning, Boston, 2019.
2. Maurice M Cornish and Elaine E Ives, *Reed Maritime Meteorology*, Adlard Coles Nautical, London, 2009.
3. Tom Garrison and Robert Ellis, *Oceanography, An invitation to Marine Science*, Cengage Learning, Boston 2016.
4. *Marine Surface Weather Observations Observing Handbook No. 1*, National Oceanic and Atmospheric Administration, 2010.
5. *Manual on Codes, International Codes, Volume I.1 Annex II to the WMO Technical Regulations, Part A – Alphanumeric Codes*, World Meteorological Organization WMO-N.306, 2019.

1.11. *Recommended Reading*

1. Frank R Spellman, The Handbook of Meteorology, Scarecrow Press, Inc., 2013.
2. Larry Lawrence, MARINE METEOROLOGY Supplementary Notes, WestOne Services, 2003.
3. Paul Webb, Introduction to Oceanography, <http://rwu.pressbooks.pub/webboceanography>
3. Matthias Tomczak, Lecture Notes in Oceanography, <http://www.es.flinders.edu.au/~mattom/IntroOc/index.html>
4. Picard, G.L., Emery, W.J.: Descriptive Physical Oceanography. Pergamon Press, Oxford, 1990.
5. Guide to Surface Weather Observations, Antigua and Barbuda Meteorological Services, 2018.

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
Essential of Meteorology	On-line	20
Reed Maritime Meteorology	On-line	20
Oceanography	On-line	20
Marine Surface Weather Observations Observing Handbook No. 1	On-line	20
Manual on Codes, International Codes, Volume I.1 Annex II to the WMO Technical Regulations, Part A – Alphanumeric Codes	On-line	20

1.13. *Quality Assurance*

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

Table 2.

3.2. Course description

Generic information		
Head of Course	David Brčić, PhD	
Course	Terrestrial navigation	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	5
	Number of Hours (L+E+S)	50 (25+25+0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
The objective of the course is to acquaint students with the basic and advanced concepts in maritime surface navigation conducting, the relevant parameters terrestrial positioning methods, orientation at sea, earth's and ship's magnetism and magnetic compasses, theoretical and practical basics of mathematical maritime cartography, sea tides and currents, balisage systems, theory of errors, navigation methods (special cases of navigation, rhumb line and great circle navigation, combined navigation), navigation in demanding environments, basics of maritime kinematics, speed and distance measurements and usage, and the drifting of vessel due to external conditions.
<i>1.2. Prerequisites for Course Registration ^a</i>
<i>1.3. Expected Learning Outcomes</i>
It is expected that the student will be able to: <ol style="list-style-type: none"> 1. Analyse, describe and correctly explain the basic concepts in maritime surface navigation and orientation at sea (course, azimuth, absolute and relative coordinates, conversion of courses and azimuth, conversion of coordinates, 2. Properly conduct the navigation using the appropriate terrestrial positioning methods 3. Analyse, describe and correctly explain earth's / ship's magnetism, and properly use marine magnetic compasses 4. Analyse and properly use maritime cartographic projections, charts and navigation manuals 5. Interpret the basics of the ECDIS system 6. Analyse, explain and correctly calculate the relevant parameters of tides (static / dynamic theory of sea tides, tidal wave equation, tidal window...) 7. Properly apply the knowledge gained in theory of errors in the analysis of positioning errors in surface maritime navigation 8. Analyse and correctly calculate the navigation parameters in rhumb line, great circle and combined navigation, 9. Apply acquired knowledge in acting during navigation under demanding navigational situations (ice, fog, tropical cyclone, war zone...) 10. Analyse, explain and properly use relevant elements related to speed, distance and course, both through water and over ground.

1.4. Course Outline

Basic concepts in maritime surface navigation. The position of points on Earth. Orientation at sea. Basic plane angles in navigation. Earth's magnetism. Ship's magnetism. Marine magnetic compasses. Magnetic Compass Corrections. Cartographic projections. Nautical charts. Navigation publications. ECDIS basics. Sea Tides. Marking of maritime waterways. Theory of errors - Geometric Foundations of Ship's Position. Types and accuracy of positions in terrestrial navigation. Positioning precision. Basic elements of positioning accuracy. Positioning precision parameters. Rhumb line navigation. Great circle navigation. Combined navigation. Navigation in difficult navigation conditions. Ship speed. Distance and distance traveled. Basics of Maritime Kinematics. Drift and external influences on vessel.

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. Participant Obligations

Passed assessment (see 1.8) and class attendance of min. 95 %

1.8. Assessment¹ of Learning Outcomes

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

1.9. Assessment of Learning Outcomes

Written exam and final (oral) exam

1.10. Main Reading

1. Benković Franjo, Piškorec Mijo, Lako Ljudevit, Čepelak Krunoslav, Stajić Dušan: **Terestrička i elektronska navigacija**, Republički hidrografski institut, Split, 1986.
2. Grupa autora: **Vademecum maritimus; podsjetnik pomorcima**, Pomorski fakultet u Rijeci, Rijeka, 2002.
3. Kos Serđo, Zorović Dinko, Vranić Duško: **Terestrička i elektronička navigacija**, Pomorski fakultet u Rijeci, Rijeka, 2010.
4. Zorović D., Kos S., Vranić D.: Brodski magnetski kompasi – teorijske osnove, Pomorski fakultet u Rijeci, 1998.

1.11. *Recommended Reading*

1. Bowditch N.: American practical Navigator, Vol. I, DMAH/TC Washington, 1984.
2. House D.: Navigation for Masters, Whittherby & Co. ,Ltd., London, 1998.

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
1. Benković Franjo, Piškorec Mijo, Lako Ljudevit, Čepelak Krunoslav, Stajić Dušan: Terestrička i elektronska navigacija , Republički hidrografski institut. Split. 1986.	2	20
2. Grupa autora: Vademecum maritimus; podsjetnik pomorcima , Pomorski fakultet u Rijeci, Rijeka, 2002.	5	20
3. Kos Serđo, Zorović Dinko, Vranić Duško: Terestrička i elektronička navigacija , Pomorski fakultet u Rijeci, Rijeka, 2010.	5	20
4. Zorović D., Kos S., Vranić D.: Brodski magnetski kompas – teorijske osnove, Pomorski fakultet u Rijeci, 1998.	5	20

1.13. *Quality Assurance*

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Đani Šabalja, PhD	
Course	Astronomical Navigation	
Semester	First part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	4
	Number of Hours (L+E+S)	40 (20 + 20 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
The objective of the course is to provide students with a basic knowledge of the apparent daily movement of celestial bodies and the determination of the position of the ship by various methods of astronomical navigation, with the practical use of sextants and publications necessary to obtain the precise position of the ship.
<i>1.2. Prerequisites for Course Registration ^a</i>
<i>1.3. Expected Learning Outcomes</i>
<p>Students will be able to:</p> <ul style="list-style-type: none"> • display the position of celestial bodies using different coordinate astronomical navigation systems. • Convert the time, • Determine the beginning and end of the twilight as well as the time of the true sunrise / sunset • Make adjustments to the sextant and measure the height of the celestial body, • Determine the latitude of the ship's position using the Sun and Polaris • Determine the position of the ship by the direct method, • Determine the position of the ship by Marcq St. Hilaire method
<i>1.4. Course Outline</i>
<p>1. Basic concepts in astronomy and astronomical navigation,</p> <p>2. Determination of the celestial sphere. Coordinate systems: horizontal, equatorial, ecliptic. The apparent motion of the celestial bodies,</p> <p>3. The first astronomical spherical triangle. Second Astronomical Spherical Triangle,</p> <p>4. The celestial bodies of the solar system. Geocentric and heliocentric systems. The relationship between earthly and celestial coordinates. The true motion of the c,</p> <p>5. Phenomena that seemingly alter the position of the celestial bodies on the celestial sphere.</p> <p>Astronomical Refraction. Parallax. Aberration. Precession and nutrition,</p> <p>6. Navigation instruments for measuring altitude. Historical overview (quadrant, astrolabe, backbone,...). Ship sextant. Sextant optical principle. Sextant errors and their correction.</p>

7. Correcting measured altitude. Corrections, types, method and sequence of application, 8. Determination of ship position by astronomical navigation methods. Indirect method - (altitude - Marcq de Saint Hilaire method). The direct method., Running Fix.	
1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work <input checked="" type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other
1.6. Comments	

1.7. Participant Obligations							
1.8. Assessment ¹ of Learning Outcomes							
Course attendance	0.5	Class participation		Seminar paper		Experiment	
Written exam	1.5	Oral exam	2.0	Essay		Research	
Project		Continuous Assessment		Presentation		Practical work	
Portfolio		Class participation		Seminar paper			
1.9. Assessment of Learning Outcomes							
<p>Final Exam 70% in class and 30% in final exam (according to the Regulations on Studies of the University of Rijeka and the Regulations. Faculty of Maritime Studies in Rijeka). Continuous assessment: a pre-requisite exam, a minimum of 50% correct answers should be obtained (I1, I2, I3, I4). Final exam: oral exam. A minimum of 50% correct answers (I5) must be obtained. Examples of evaluating learning outcomes:</p> <ol style="list-style-type: none"> 1. Explain the movement of celestial bodies in the vertical and parallel spheres. (I1) 2. Explain the procedure for determining the time of passage of the Sun through the upper meridian and the time of beginning and end of nautical twilight (I2) 3. Explain the positioning of the ship by the direct method. 4. Explain the determination of the sextant index correction value and the sequence of procedures preceding it (I4) 5. Explain what the options are for determining the value of the magnetic compass deviation in 							
1.10. Main Reading							
<ol style="list-style-type: none"> 1. Astronomical Navigation / Miloš Š. Lipovac 2. A Short Guide to Celestial Navigation 							

1.11. *Recommended Reading*

1. Astronomical Navigation 2 / Maksim Klarin

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
1 Astronomical Navigation / Miloš Š. Lipovac	4	20
2. A Short Guide to Celestial Navigation	On-line	20

1.13. *Quality Assurance*

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Renato Ivče, PhD Robert Mohović, PhD	
Course	Cargo handling	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	13
	Number of Hours (L+E+S)	90 (60 + 30 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
Introduce students to international regulations, recommendations and standards related to handling, stowing, securing and transporting cargo. Introduce students to ship's tables and other ship's documentation related to cargo handling and cargo transportation. Introduce students to calculation of ship's stability and ship's strength in exploitation. Introduce students to loading calculation and problems in waters of different densities, stowing, securing and transportation of dangerous goods by sea. Introduce students to methods of draft survey. Also, the objective of the course is to acquaint students with the characteristics of cargo in maritime transport, the principles of handling with significant types of cargo, planning loading cargo on the vessels with different technologies, safety measures for cargo transportation.
<i>1.2. Prerequisites for Course Registration ^a</i>
<i>1.3. Expected Learning Outcome</i>
It is expected that the student will be able to:
<ol style="list-style-type: none"> 1. specify the essential characteristics of significant cargoes by sea and determine the necessary conditions during transport and transshipment 2. analyse and properly interpret the basics of cargo handling and influencing factors for cargo stowage 3. correctly interpret International regulations, recommendations and standards related to technology of cargo transportation 4. use of tables and other ship's documentation related to cargo handling and transportation of cargo by sea 5. solve problems related to ship's stability and stress in exploitation 6. solve problems related to loading cargo in waters of different densities 7. know how to use methods of draft survey 8. solve problems related to stowing and securing of cargo 9. know the technology of transporting of dangerous goods and stowing and segregation of dangerous goods 10. plan cargo stowage on vessels of different technologies

11. analyze transporting and cargo handling for different categories of vessels

1.4. Course Outline

Introduction to the subject. Main categories of cargo in maritime transport. Stowage factor and broken stowage factor. Significant dry and liquid cargoes transported by sea. International regulations, recommendations and standards related to cargo handling. Capacity plan and Deadweight of the vessel. Use of ship's tables. Basic principles of stowage plans. Ship's stress in exploitation. Influence of cargo and cargo operations on the transverse and longitudinal stability of the vessel. Characteristics of the equipment for dunnaging, lashing and securing cargo, Methods to assess the efficiency of securing arrangements. Loading in salt, brackish and fresh water. Determining the weight of loaded/discharged cargo with draft survey methods. Transportation of dangerous goods by sea. Principles of cargo stowage plan. Transportation of general cargo by sea. Transportation of containers by sea. Transportation of bulk cargo by sea. Transportation of grain by sea. Transportation of liquid cargo by sea. Transportation of crude oil and products by sea. Transportation of chemicals in bulk by sea. Transportation of liquefied gases by sea. Transportation of timber cargo by sea. Transportation of refrigerated cargo by sea. Transportation of cargo by RO-RO vessels.

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

Practically use of various ship's tables and other ship's documentation related to cargo handling and solving various problems in the field of planning and transportation of cargo by sea.

1.7. Participant Obligations

Active attendance of classes and at least 95% of completed classes.
Pass colloquia in which to solve tasks with practical examples of calculating planning and carriage of goods by sea, and the final exam passed.

1.8. Assessment¹ of Learning Outcomes

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

1.9. Assessment of Learning Outcomes

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:

1. through continuous testing of knowledge during the semester, 70% of the acquired learning outcomes are evaluated. Students must pass 4 colloquia. The colloquium solve various problem tasks in the field of planning and transport of cargo by sea - it is necessary to solve all tasks.
2. at the final exam (oral exam) the integrity of theoretical knowledge in the field of cargo handling is checked, through questions from the field of course content (from the theory of cargo handling). At the final exam it is necessary to achieve a minimum of 50% of the required theoretical knowledge.

1.10. Main Reading

1. R. Mohović, *Cargo handling 1 - teaching texts and attachments available on the e-learning system - Merlin* (<https://moodle.srce.hr>)
2. Renato Ivče, *Cargoes in maritime transport, teaching texts and attachments available on the e - learning system - Merlin* (<https://moodle.srce.hr>)
3. Renato Ivče, *Cargo Handling 2, teaching texts and attachments available on the e - learning system - Merlin* (<https://moodle.srce.hr>)
4. D. Vranić, R. Ivče, *Cargo in maritime transport, Faculty of Maritime Studies Rijeka, Rijeka, 2010.*
5. *Ship's mate Library, Vol. 1, vol. 2, vol. 3, vol., Vol. 4*

1.11. Recommended Reading

1. Thomas Stowage 8th edition, Brown Son & Ferguson Ltd., London 2018.
2. Buljan, I.: *Krcanje i slaganje tereta, Ognjen prica, Zagreb, 1980.*
3. House, D.J.: *Cargo Work 8th edition, Butterworth-Heinemann, UK, 2016.*
4. Uršić, J.: *Stabilitet broda I dio, Sveučilište u Zagrebu, Zagreb, 1962.*
5. Derrett, D.R., Barrass, C.B.: *Ship Stability for the Masters and Mates, Butterworth-Heinemann, Oxford, 2011.*
6. Clark, I.C.: *The Management of Merchant Ship Stability, Trim and Strenght 6th edition, The Nautical Institute, London, 2006.*
7. Milošević, M.: *Nauka o brodu III dio, Pomorska škola Kotor, Kotor, 1961.*
8. *Vademecum Maritimus, Podsjetnik pomorcima, Pomorski fakultet u Rijeci, Rijeka, 2014.*
9. *Pravila za tehnički nadzor pomorskih brodova, Dio 4. – Stabilitet, Hrvatski registar brodova, Split*.*
10. *Pravila za tehnički nadzor pomorskih brodova, Dio 23. – Prijevoz tereta, Hrvatski registar brodova, Split*.*
11. *Code of Safe Practice for Cargo Stowage and Securing, IMO, 2011 with amendments**
12. *SOLAS, Consolidated, IMO**

<i>1.12. Number of Main Reading Examples</i>		
<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
Renato Ivče, Cargoes in maritime transport, teaching texts and attachments available on the e - learning system - Merlin (https://moodle.srce.hr)	web	20
Robert Mohović, Cargo Handling 1, teaching texts and attachments available on the e - learning system - Merlin (https://moodle.srce.hr)	web	
Renato Ivče, Cargo Handling 2, teaching texts and attachments available on the e - learning system - Merlin (https://moodle.srce.hr)	web	
D. Vranić, R. Ivče, Cargo in maritime transport, Faculty of Maritime Studies Rijeka, Rijeka, 2010.	Library 10	
Ship's mate Library, Vol. 1, vol. 2, vol. 3, vol. 4, Faculty of Maritime Studies, Rijeka	Library 10	
<i>1.13. Quality Assurance</i>		
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.		

Table 2.

3.2. Course description

Generic information		
Head of Course	David Brčić, PhD	
Course	Electronic navigation	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	4
	Number of Hours (L+E+S)	40 (20 + 20 + 0)

1. GENERAL COURSE DESCRIPTION		
<i>1.1. Course Objective</i>		
The aim of the course is to acquaint students with the basic principles of modern electronic technologies and navigation and non-navigation devices used in maritime navigation, and with the correct using of navigational equipment, crucial for quality and safe conducting of maritime navigation.		
<i>1.2. Prerequisites for Course Registration ^a</i>		
N/A		
<i>1.3. Expected Learning Outcomes</i>		
It is expected that students will be able to:		
1. Analyze and correctly interpret the principles, features and operation of hyperbolic, radar, satellite and inertial navigation.		
2. Analyze and correctly interpret the use of navigational and non-navigational equipment on-board vessel;		
3. Analyze and correctly interpret the principle of operation of the ECDIS system with all its associated subsystems.		
4. Analyze and correctly interpret the concept of Integrated Navigation System (INS) and Integrated Bridge System (IBS).		
5. Analyze and correctly interpret and calculate avoidance manoeuvres in radar plotting		
6. Apply the acquired knowledge in the conducting of safe, effective and optimal maritime navigation.		
<i>1.4. Course Outline</i>		
Radio-goniometric principles (hist.). Hyperbolic navigation. Working principles. Impulse and phase systems. E-Loran system. Working principle and errors. Radar navigation - principle of operation and errors. Application of radar in navigation. Characteristics of navigation radars. ARPA system - working principle and characteristics. Satellite navigation. GNSS. PNT. Working principles. Total positioning error budget. Inertial navigation. Fundamentals of maritime kinematics. ECDIS. INS/IBS. e-Navigation.		
<i>1.5. Modes of Instruction</i>	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input checked="" type="checkbox"/> Simulator exercises

1.6. Comments							
1.7. Participant Obligations							
Passed assessment (see 1.8)							
1.8. Assessment ¹ of Learning Outcomes							
Course attendance	1.5	Class participation		Seminar paper		Experiment	
Written exam	1	Oral exam	1	Essay		Research	
Project		Continuous Assessment	0.5	Presentation		Practical work	
Portfolio		Class participation		Seminar paper			
1.9. Assessment of Learning Outcomes							
Written exam and final (oral) exam							
1.10. Main Reading							
<ol style="list-style-type: none"> 1. Benković F. i dr.: Terestrička i elektronska navigacija, Hidrografski Institut ratne mornarice, Split, 1986. 2. Bowditch: American Practical Navigator, Vol I, Defense Mapping Agency, Washington, USA, 1984. 3. Brčić, D., Žuškin, S. i suradnici.: ECDIS EHO. Available online: https://www.researchgate.net/project/ECDIS-EHO 4. Grupa autora. (2014). Vademecum Maritimus – podsjetnik pomorcima. Rijeka: Sveučilište u Rijeci, Pomorski fakultet. 5. Kos S., Vranić D., Zorović D.: Elements of Electronic Navigation for Deck Officers and Masters, Faculty 							
1.11. Recommended Reading							
1.12. Number of Main Reading Examples							
Title				Number of titles		Number of participants	
Benković F. i dr.: Terestrička i elektronska navigacija , Hidrografski Institut ratne mornarice, Split, 1986.				2		20	
Bowditch: American Practical Navigator , Vol I, Defense Mapping Agency, Washington, USA, 1984.				2		20	
Brčić, D., Žuškin, S. i suradnici.: ECDIS EHO . Available online: https://www.researchgate.net/project/ECDIS-EHO				Online		20	
Grupa autora. (2014). Vademecum Maritimus – podsjetnik pomorcima . Rijeka: Sveučilište u Rijeci, Pomorski fakultet.				5		20	
Kos S., Vranić D., Zorović D.: Elements of Electronic Navigation for Deck Officers and Masters , Faculty of Maritime Studies,				5		20	
Kos S., Zorović D., Vranić D.: Terestrička i elektronička navigacija , Pomorski fakultet u Rijeci, Rijeka, 2010.				5		20	

Sušanj J.: Radar i radarsko osmatranje , Pomorski fakultet u Rijeci, Rijeka, 2001.	5	20
1.13. <i>Quality Assurance</i>		
The quality of study is monitored in accordance with the ISO 9001 system and in accordance with the European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, exam passing results are analysed and appropriate measures are adopted.		

Table 2.

3.2. Course description

Generic information		
Head of Course	Igor Vio, PhD	
Course	Maritime Law	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	3
	Number of Hours (L+E+S)	45 (45 + 0 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
Participants should become familiar with international and national legal framework regulating the boundaries of national jurisdiction at sea, rights and duties of states at sea, their mutual relations related to exploration and exploitation of marine and submarine resources and their protection, their relations concerning war and neutrality in armed conflicts at sea, as well as safety of navigation and protection of the marine environment, organization of maritime administration, labour relations of seafarers, flag state and port state control, maintenance of order in ports and regime of maritime domain.
<i>1.2. Prerequisites for Course Registration ^a</i>
none
<i>1.3. Expected Learning Outcomes</i>
<ol style="list-style-type: none"> 1. To list and compare the international conventions and other sources of the international law of the sea, to describe its basic principles and to explain their influence on the regimes of navigation of ships in various parts of the sea, as well as on the regime of the exploitation of the resources of the sea and the seabed. 2. To explain the regime of entry and navigation of various foreign ships (merchant, government, military, fishing or scientific) and foreign yachts and boats in internal waters, territorial sea and exclusive economic zone of Croatia. 3. To enumerate and interpret rules and regulations of international maritime law governing the safety of navigation and the protection of the marine environment. 4. To explain the structure and describe the activities of the International Maritime Organization (IMO) and the European Maritime Safety Agency (EMSA). 5. To list the laws and regulations of the Republic of Croatia in the area of maritime administrative law and explain their application to ships and other maritime vessels and crafts, maritime navigation, sea lanes, pilotage and order in ports. 6. To describe the organization of the maritime administration in the Republic of Croatia, explain the role and organization of harbour master's offices, to enumerate their functions, highlight the features of the certificate of registration and other ship documents and books, indicate the principles and procedures of inspection, explain the technical control and list other activities of the Croatian Register of Shipping.

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

8. To compare the roles of shipowner and ship operator, to describe the concept of shipowner's limitation of liability for maritime claims, to analyze legal framework for ownership of the ship, and to explain the role maritime liens and mortgages.

9. List and discuss the types of shipping contracts for carriage of goods and passengers by sea, describe the use of bills of lading and seawaybill, and to explain the principles in the Hague-Visby Rules, Hamburg Rules and Athens Convention.

10. To explain and interpret the basic features of the maritime law concepts of general and particular average, ship collisions, salvage at sea and wreck removal, as well as indicate the principles of shipowner's liability for pollution of the marine environment and to specify the main elements of marine insurance.

1.4. Course Outline

Part I: International Law of the Sea: definition and codification: UNCLOS I, II and III - Geneva Conventions (1958) and UN Convention on the Law of the Sea (1982); internal waters, ports, bays, historic bays and historic waters, archipelagic waters, regime of islands, territorial sea, contiguous zone, straits used for international navigation, canals, continental shelf, exclusive economic zone, maritime boundary delimitation, area, high seas, land-locked states, geographically disadvantaged states, enclosed and semi-enclosed seas, marine scientific research, marine pollution, marine and submarine areas of the Republic of Croatia, status of foreign ships in Croatian internal waters and territorial sea. International Law of Armed Conflicts at Sea: rights and duties of neutral and belligerent states, war zones at sea, status of neutral ships in convoy, status of military and merchant ships in armed conflicts, naval blockade, contraband of war.

Part II: International Maritime Organization (IMO) – structure, goals and functions. International conventions on safety of navigation and protection of the marine environment: SOLAS, COLREG, LOADLINES, TONNAGE, INTERVENTION, LDC, MARPOL, OPRC, AFS and BWC. Principles of ISM and ISPS Code, Paris Memorandum of Understanding on Port State Control, problems of flags of convenience. European Maritime Safety Agency (EMSA) - structure and functions. Master and crew, STCW Convention, Maritime Labour Convention and other Conventions and Resolutions of the International Labour Organization (ILO). Croatian maritime legislation, Maritime Code, harbour master's offices and inspection of safety of navigation, categories of navigation, sea lanes, pilotage, ships – legal regime, ownership, nationality, registration, classification, name and call sign, ship registers, ship's documents, log book. Croatian Register of Shipping, technical supervision of ships, jurisdiction – flag state, coastal state and port state jurisdiction. Maritime Domain and Seaports Act, concept of maritime domain, concessions, definitions and characteristics of ports, concessions for port activities, port fees.

Part III: Limitation of shipowner's liability, maritime liens and mortgages, contracts of carriage of goods and passengers by sea, towage, concept of particular and general average, collision of ships, salvage at sea, wreck removal, marine pollution from ships and liability, marine insurance basics - hull, cargo and liability insurance through P&I Clubs.

1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other					
1.6. Comments							
1.7. Participant Obligations							
a) Participants' main obligations are active course attendance and they are required to pass two mid-term exams. b) Participants must score at least 15 out of a possible 30 points on final exams (50%).							
1.8. Assessment ¹ of Learning Outcomes							
Course attendance	1.0	Class participation		Seminar paper		Experiment	
Written exam	1.0	Oral exam		Essay		Research	
Project		Continuous Assessment	1.0	Presentation		Practical work	
Portfolio		Class participation		Seminar paper			
1.9. Assessment of Learning Outcomes							
<p>The evaluation procedure consists of continuous examination of knowledge in the form of two tests and a final exam. Examples of evaluating learning outcomes during classes and on the final exam:</p> <ol style="list-style-type: none"> 1. Compare the concept and legal regime of the contiguous zone according to the Convention on the Territorial Sea and Contiguous Zone (1958) and the UN Convention on the Law of the Sea (1982). 2. Indicate and explain conditions for entry and navigation of ships, yachts and boats of foreign nationality in internal waters of the Republic of Croatia, including their stay in seaports and shipyards. 3. List and discuss international acts regulating the protection of the marine environment from pollution. 4. Describe the structure of the International Maritime Organization (IMO) and highlight the role and functions of each body (Assembly, Council, Secretariat, Committees and Subcommittees). 5. Interpret the term and types of pilotage according to the provisions of the Maritime Code of the Republic of Croatia, specify the rights and duties of the pilot, and explain potential responsibility and liability of the pilot and of the company. 6. Describe the structure of the maritime administration in the Republic of Croatia, highlight the most important powers of harbour master's office, and in particular explain and describe the rules of procedure for maritime offenses. 7. Explain the legal concept of maritime domain and indicate which parts of land and sea have this status. 8. Describe the concept of limitation of liability for maritime claims, explain the role of maritime liens and 							
1.10. Main Reading							
Luttenberger, Axel, Pomorsko upravno pravo, Pomorski fakultet, Rijeka, 2005. Luttenberger, Axel, Osnove međunarodnog prava mora, Pomorski fakultet, Rijeka, 2006. Luttenberger, Axel, Pomorsko ratno pravo, Pomorski fakultet, Rijeka, 2008. Pavić, Drago, Pomorsko imovinsko pravo, Književni krug, Split, 2006.							

1.11. *Recommended Reading*

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

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
Osnove međunarodnog prava mora	Sufficient (in library and book shop)	20
Pomorsko ratno pravo	Sufficient (in library and book shop)	20
Pomorsko upravno pravo	Sufficient (in library and book shop)	20
Pomorsko imovinsko pravo	Sufficient (in library and book shop)	20

1.13. *Quality Assurance*

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Damir Zec, PhD	
Course	Safety at Sea	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	5
	Number of Hours (L+E+S)	40 (30 + 10 + 0)

1. GENERAL COURSE DESCRIPTION		
1.1. <i>Course Objectives</i>		
The objective of the course is to familiarize students with the international navigation safety system, including the most important maritime conventions and to enable them to perform basic maritime safety tasks independently, in accordance with the provisions of the STCW Convention.		
1.2. <i>Prerequisites for Course Registration</i> ^a		
1.3. <i>Expected Learning Outcomes</i>		
Students are expected to be able to:		
<ol style="list-style-type: none"> 1. enumerate and interpret the legal sources of the international and national safety system, 2. control the ship safely, 3. perform basic search and rescue operations at sea, 4. use means of communication in case of emergency, 5. prepare to abandon the ship and use safety crafts and means available on board the ships, 6. explain the functional characteristics, technological conditions and the way of maintaining fire-fighting devices on ships, 		
1.4. <i>Course Outline</i>		
International and national maritime safety system, search and rescue at sea, maritime accidents, life-saving means, communications while assisting in danger, leaving the ship and surviving at sea, people at sea, fire protection, maintenance and surveillance of all safety systems on board		
1.5. <i>Modes of Instruction</i>	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other
1.6. <i>Comments</i>		

1.7. Participant Obligations

Active participation and attendance.

1.8. Assessment¹ of Learning Outcomes

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

1.9. Assessment of Learning Outcomes

Attendance and active participation. Marking the answers.

1.10. Main Reading

1. Zec, D., "Sigurnost na moru", izdanje 2001.

1.11. Recommended Reading

1. International Maritime Organization, SOLAS, London, 2009.
2. International Maritime Organization, SAR, London, 2003.
3. International Maritime Organization, IAMSAR, Vol. 1, Vol. 2, Vol. 3, 2006.

1.12. Number of Main Reading Examples

Title	Number of titles	Number of participants
Zec, D. Safety at sea	Available in PDF form	20

1.13. Quality Assurance

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Mirano Hess, PhD	
Course	Ship organization and management	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	3
	Number of Hours (L+E+S)	25 (25 + 0 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
To train participants to understand and apply the procedures of organized teamwork, human resources management and on-board management in accordance with the latest maritime recommendations and rules.
<i>1.2. Prerequisites for Course Registration ^a</i>
<i>1.3. Expected Learning Outcomes</i>
<ol style="list-style-type: none"> 1. Indicate and interpret procedures for conducting navigational watch 2. Define, explain and differentiate the factors that influence the planning and organization of teamwork 3. Explain and compare elements of human resources management on board 4. Explain, separate and compare the influence of human and other factors on the awareness of the real situation and the decision-making process 5. Highlight and point out similarities and differences in the form of leadership
<i>1.4. Course Outline</i>
<ol style="list-style-type: none"> 1. Organization of duties and allocation of crew responsibilities, ship master, keeping navigational watch 2. Keeping a port watch, general requirements for the crew of a ship 3. Human resources management, error chain, analysis and prevention, awareness of the real situation 4. Management and organization of work, relationship between team members, management and attitude, communication 5. International and national rules and recommendations, maritime organizations and institutions 6. Emergency and emergency preparedness, planning of work activities 7. Forms of leadership and teamwork, ability to perform work tasks, and workload management 8. Working knowledge of crew management and training 9. Knowledge and necessary ability to apply effective resource management and to apply decision-making methods 10. Correlation of human factor and marine accident, analysis of selected marine accident

1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work		<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input checked="" type="checkbox"/> Presentation				
1.6. Comments							
1.7. Participant Obligations							
Active attendance at classes. 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	0.5	Oral exam		Essay		Research	
Project		Continuous Assessment	1	Presentation		Practical work	
Portfolio		Class participation		Seminar paper			
1.9. Assessment of Learning Outcomes							
70% in class and 30% in final exam. Continuous assessment: a midterm written exam, a minimum of 50% correct answers must be obtained. Final exam in the course subject. A minimum of 50% correct answers should be obtained.							
1.10. Main Reading							
Hess, M.: Ship organization and management, 2022 (available as an e-publication on platform for e-learning - Merlin)							
1.11. Recommended Reading							
1. Code of Safe Working Practices for Merchant Seafarers, TSO, 2020 2. Bridge Procedures Guide 5th Edition, ICS, 2016 3. Bridge Team Management, Nautical Institute, 2nd Edition 2004 4. Pomorski zakonik RH 5. Konvencija STCW 2010							
1.12. Number of Main Reading Examples							
Title			Number of titles		Number of participants		
Hess, M.: Ship organization and management, 2022			Unlimited		20		
1.13. Quality Assurance							
The quality of study is monitored in accordance with the ISO 9001 system and in accordance with the European standards and guidelines for quality assurance carried out at the Faculty of Maritime Studies in Rijeka. Once a year, exam passing results are analysed and appropriate measures are adopted.							

Table 2.

3.2. Course description

Generic information		
Head of Course	Robert Mohović, PhD	
Course	Ship handling	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	5
	Number of Hours (L+E+S)	50 (30 + 20 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
<p>The objective of the course is to familiarize students with the factors that influence ship maneuvering, ship maneuvering characteristics, maneuvering with different types of ships in all conditions, including extraordinary circumstances, safety measures during maneuvering and during the stay of the ship at the berth. A detailed introduction and analysis of the International Rules on avoidance of collisions at sea. Practical work on drills and navigation practice requires students to acquire skills in accordance with the STCW Convention. Also, the course provides a scientific basis for a more detailed study of this field.</p>
<i>1.2. Prerequisites for Course Registration ^a</i>
<i>1.3. Expected Learning Outcomes</i>
<p>It is expected that the student will be able to:</p> <ol style="list-style-type: none"> 1. analyze and properly interpret the International Regulations for Preventing Collisions at Sea, 2. describe and define the factors that influence ship maneuvering, 3. analyze and correctly interpret the ship's maneuverability, 4. correctly interpret the principles of maneuvering for different types of ships in all conditions, including extraordinary circumstances, 5. analyze and correctly interpret safety measures during maneuvering and during the stay of the ship at the berth, 6. be able to operate the ship in navigation simulators and navigation practice, 7. apply skills in the field of ship maneuvering in accordance with the requirements of the STCW 1978 Convention.

1.4. Course Outline

Introduction, concept and division of ship handling. Analysis of International Rules for the Prevention of Collisions at Sea. Influence of geometric and structural features on the maneuverability of a ship. Rudder and rudder action. Ships propulsion. External factors - influence on ship maneuvering. Interaction. Types of maneuvers and safety during ship maneuvering. Types and technical and technological characteristics of tugboats - influence on ship maneuvering. Ship maneuvering with and without tugboats in all conditions. Safety during the stay of the ship at the berth. Special cases of maneuvering. Emergency maneuvering. Support system for maneuvering. The human factor and its impact on ship maneuvering. Development of a ship maneuvering system. STCW Convention requirements.

1.5. Modes of Instruction

- | | |
|---|---|
| <input checked="" type="checkbox"/> Lectures | <input type="checkbox"/> Practical work |
| <input type="checkbox"/> Seminars and workshops | <input type="checkbox"/> Multimedia and Network |
| <input checked="" type="checkbox"/> Exercises | <input type="checkbox"/> Laboratory |
| <input type="checkbox"/> E-learning | <input type="checkbox"/> Mentorship |
| <input type="checkbox"/> Field work | <input type="checkbox"/> Other |

1.6. Comments

Part of the exercises related to the International Rules for the Prevention of Collisions at Sea are related to the "case study" and contain an analysis of events and conclusions in accordance with the Rules. The second part of the exercises refers to the practical work of students on specialized simulators of navigation and ship maneuvering.

1.7. Participant Obligations

Active attendance of classes and at least 95% of completed classes.
 Passed midterm colloquiums and successful demonstration of ship handling techniques using ship's simulator.
 The student is required to pass the final exam.

1.8. Assessment¹ of Learning Outcomes

Course attendance	1.5	Class participation		Seminar		Experiment	
Written exam		Oral exam	2	Essay		Research	
Project		Continuous Assessment	1	Presentation		Practical work	0.5
Portfolio		Class participation		Seminar			

1.9. Assessment of Learning Outcomes

70% in class and 30% in final oral exam

- Continuous assessment:
 - 2 colloquiums in the field of International rules on collision avoidance at sea - minimum 80% of correct answers required
 - 2 colloquiums in the field of ship handling technique (ship maneuvering) - theoretical part - must be accomplished a minimum of 60% correct answers.
 - Exercises in the navigation simulator where it is necessary to show the ship's handling skills - should be shown minimally 80% of the required skills.
- Final exam:

1.10. *Main Reading*

1. R. Mohović, Ship handling, lectures on the web pages of the Faculty of Maritime Studies in Rijeka, Faculty of Maritime Studies, University of Rijeka, 2022.
2. R.W. Rowe, The Shiphandler's Guide, The Nautical Institute, London, 2000.
3. Sijekavica, I., Kačić, H., Pravila za izbjegavanje sudara na moru, Školska knjiga Zagreb
4. e.colregs - Link: <http://www.ecolregs.com/index.php?lang=hr>

1.11. *Recommended Reading*

1. H. Hensen, Tug Use in Port, A practical guide, The Nautical Institute, London, 1997.
2. Mooring Equipment Guidelines, Oil Companies International Marine Forum, Witherby & Co. Ltd., London, 1997.
3. D.H. MacElrevey, Shiphandling for the Mariner, Cornell Maritime Press, Ins. Centerville, 1998.
4. Pilotage and Shiphandling, The Nautical Institute, London, 1990.
5. A.Vučinić, Hidrodinamika plovnih objekata (Otpor i propulzija), Tehnički fakultet Sveučilišta u Rijeci, Rijeka, 1997.
6. R. Ratko, Manevriranje brodom, Profil International d.o.o., Zagreb, 2001.
7. Vademecum Maritimus, Podsjetnik pomorcima, Pomorski fakultet u Rijeci, Rijeka, 2002.
8. Pomorska enciklopedija, Leksikografski zavod Hrvatske, Zagreb
9. P.R. Williamson, Ship Manoeuvring Principles and Pilotage, Witherby & Co. Ltd., London, 2001.
10. K.J. Rawson, E.C. Tupper, Basic Ship Theory, Longman Scientific & Technical, Essex, 1984.

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
Ship handling technique, lectures on web pages	unlimited	20
The Shiphandler's Guide	available on web	
International Regulations for Preventing Collisions at Sea	5	
COLREG-c ACT-s	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.

Table 2.

3.2. Course description

Generic information		
Head of Course	Đani Mohović, PhD	
Course	Passage planning	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	4
	Number of Hours (L+E+S)	30 (25 + 5 + 0)

1. GENERAL COURSE DESCRIPTION
<i>1.1. Course Objective</i>
The objective of the course is to acquaint students with the legal sources of maritime passage planning, the elements of a passage plan, principles and order of analysis of factors affecting the choice of fairway and type of navigation, division of maritime navigation, planning of the ocean, coast and port part of the voyage, vessel traffic management information systems for specific areas, the work of the VTS service and to familiarize students with the principles of international and national regulations of watchkeeping and explain the principles of watchkeeping on deck, at anchorage and in port.
<i>1.2. Prerequisites for Course Registration ^a</i>
<i>1.3. Expected Learning Outcomes</i>
It is expected that the student will be able to: <ol style="list-style-type: none"> 1. Describe and explain the elements of a passage plan 2. define and describe the factors that influence the choice of fairway 3. Describe the factors relevant to planning the oceanic, coastal and port portion of the trip 4. Develop a passage plan for the specific voyage of the ship 5. Explain the objectives and the way the navigation guidance system works in specific areas 6. Explain the objectives and operation of the maritime navigation control and management system 7. Explain the principles and technological conditions for optimizing maritime voyage 8. Demonstrate the skill of keeping a deck watch in navigation, at anchorage and in port during navigation practice.
<i>1.4. Course Outline</i>
The concept of maritime voyage. International maritime navigation system. International sources. International official and unofficial organizations. International Navigation Safety Organizations. Shipowners associations and non-governmental organizations. International and national regulations and rules on the safety of navigation. Basic Maritime Conventions for Navigation Safety. Technology support for navigation safety. Navigation support. World Navigation Alert Service. Characteristics and structure of maritime navigation. Passage planning. Ocean passage Planning. Coastal passage planning. Passage planning in limited waters (inland waterways and ports). Passage planning optimization. Ship operation in time. Passage planning cost model. Keeping deck watch in navigation, at anchorage and in port. Coastal State Rights and Obligations. Domain Theory. Collision hazard coefficient.

Navigation guidance. Service control of maritime navigation. Communication with the Navigation Control Service. Models of structure. Means of control and data collection. Navigation management. STCW Convention requirements.

<i>1.5. Modes of Instruction</i>	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input checked="" type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other
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1.6. Comments

1.7. Participant Obligations

Active attendance at least 70% of classes and to pass the final exam.

1.8. Assessment¹ of Learning Outcomes

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

1.9. Assessment of Learning Outcomes

30% in class and 70% in final exams (according to the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka)
 Continuous assessment:
 -checking the completion of thematic tasks of passage planning - the student must show complete knowledge and skill
 Final exam:
 Final exams (written and oral) checks the completeness of theoretical knowledge in the field of course Passage Planning, it is necessary to achieve a minimum of 50% of the required theoretical knowledge.

1.10. Main Reading

1. Zec, D., Planiranje pomorske plovidbe, Pomorski fakultet u Rijeci, Rijeka, 1997.
2. Đ. Mohović, Passage planning, lectures on web sites
3. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1995.
4. Pravilnik o uvjetima i načinu održavanja straže, te obavljanju drugih poslova na brodu kojima se osigurava sigurna plovidba i zaštita mora od onečišćenja, NN 125/2005, NN 126/2008 (izmjene i dopune)
5. Swift, A. J., Bridge Team Management, London, 2004.

1.11. *Recommended Reading*

1. Master's thesis: Mohović, Đ., An algorithmic approach to maritime navigation planning, Faculty of Maritime Studies in Rijeka, Rijeka, 2003.
2. Anwar, N., Khalique, A., Passage planning – Principles, Witherbys Publishing, London, 2006.
3. Anwar, N., Khalique, A., Passage planning – Practice, Witherbys Publishing, London, 2006.
4. Rowe, R. W., The Shiphandler's Guide, London, 2000.
5. The Nautical Institute on Command, London, 2000.
6. House, D. J., Navigation for Master, London, 1998.
7. Bridge Watchkeeping, London, 2003.

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
Passage Planning, lectures on web pages	unlimited	20
Maritime navigation planning - textbook	10	20
STCW Convention	3	20
Pravilnik o uvjetima i načinu održavanja straže, te obavljanju drugih poslova na brodu kojima se osigurava sigurna plovidba i zaštita mora od onečišćenja, NN 125/2005, NN 126/2008	unlimited	20
Bridge Team Management, London, 2004.	2	20

1.13. *Quality Assurance*

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

Table 2.

3.2. Course description

Generic information		
Head of Course	Renato Ivče, PhD	
Course	Ship maintenance	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	3
	Number of Hours (L+E+S)	20 (15 + 5 + 0)

1. GENERAL COURSE DESCRIPTION		
1.1. Course Objective		
The objective of the course is to acquaint students with the importance of ship maintenance system,. Introduce students to corrosion processes and methods of corrosion protection. Especially, indicates to the importance of maintaining handling and deck equipment.		
1.2. Prerequisites for Course Registration ^a		
1.3. Expected Learning Outcomes		
It is expected that the student will be able to: 1. recognize the importance of maintaining ship systems 2. determine the effects of corrosion 3. recognize of corrosion type and determine the characteristics 4. determine corrosion protection 5. apply cathodic and anodic corrosion protection 6. apply principles of maintenance on deck equipment and systems.		
1.4. Course Outline		
Introductory considerations. Importance of ship maintenance system. Methods of maintenance. Corrosion of metals and forms of corrosion. Corrosion properties of individual technical materials. Corrosion protection. Cathodic and anodic protection. Protection of the underwater part of the hull with anti-fouling coatings. Maintenance of deck equipment and systems.		
1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	X Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other

1.6. Comments	<i>Practically use of various ship's tables and other ship's documentation related to cargo handling and solving various problems in the field of planning and transportation of cargo by sea.</i>
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1.7. Participant Obligations

Active attendance of classes and at least 95% of completed classes for admission to the exam.
Successful passing colloquiums and the final oral exam

1.8. Assessment¹ of Learning Outcomes

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

1.9. Assessment of Learning Outcomes

70% in class and 30% in final oral exam according to the Regulations on Studies of the University of Rijeka and the Regulations on Studies at the Faculty of Maritime Studies in Rijeka.

Continuous Assessment:

2 colloquiums in the field of ship maintenance, it is necessary to achieve a minimum of 60% correct answers

Final exam:

Final exam (oral exam) checks the completeness of theoretical knowledge in the field of course Ship maintenance, it is necessary to achieve a minimum of 50% of the required theoretical knowledge.

1.10. Main Reading

1. Renato Ivče, Ship maintenance, teaching texts and attachments available on the e - learning system - Merlin (<https://moodle.srce.hr>)
2. Zorović, D. Zaštita materijala, Fakultet za pomorstvo i saobraćaj, Rijeka, 1991.
3. Zorović D. Renato Ivče, Mohović R., Mohović Đ., Održavanje broda – Zaštita materijala, Rijeka 2008.
4. Lovrić: Osnove brodske tehnologije, Pomorski fakultet, Dubrovnik, 1989;

1.11. Recommended Reading

1. Kenneth A., MARINE AND OFFSHORE CORROSION, Butterworth, 1985.
2. Caridis P., INSPECTION, REPAIR AND MAINTENANCE OF SHIP STRUCTURE, Witherby Co, London 2001
3. Dugi Z. i Esib I., TEHNOLOGIJA ZAŠTITE OD KOROZIJE, Školska knjiga, Zagreb, 2003.
4. Francis L. La Que, MARINE CORROSION, Copyright by John Wiley & Sons, 1975.
5. Hrvatski registar brodova, PRAVILA ZA TEHNIČKI NADZOR BRODOVA, Dio 24, Split, 2000.

1.12. *Number of Main Reading Examples*

<i>Title</i>	<i>Number of titles</i>	<i>Number of participants</i>
1. Renato Ivče, Ship maintenance , teaching texts and attachments available on the e - learning system - Merlin (https://moodle.srce.hr)	web	20
2. Zorović, D. Zaštita materijala, Fakultet za pomorstvo i saobraćaj, Rijeka,	9	
3 Zorović D. Renato Ivče, Mohović R., Mohović Đ., Održavanje broda – Zaštita materijala, Rijeka 2008.	10	
4. Lovrić: Osnove brodske terotehnologije, Pomorski fakultet, Dubrovnik, 1989;	3	20

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.

Table 2.

3.2. Course description

Generic information		
Head of Course	Alen Jugović, PhD	
Course	Shipping Economics	
Semester	Second part	
Estimated Workload and Methods of Instruction	ECTS Workload coefficient	2
	Number of Hours (L+E+S)	20 (20 + 0 + 0)

1. GENERAL COURSE DESCRIPTION

1.1. Course Objectives

The goal of the course is to acquaint students with the field covered by the Shipping Economics and to apply this knowledge into specific cases in practice. Pursuant to the goal, the tasks and content of the course were designed in such a way that, by applying basic economic principles, the attempt was made to explain the business of shipping companies and all entities in the maritime transport service.

1.2. Prerequisites for Course Registration ^a

None

1.3. Expected Learning Outcomes

1. Concretely define and interpret the basic terms within the maritime shipping industry.
2. Describe the characteristics of maritime shipping as an economic entity.
3. Differentiate the subtypes of sea shipping, the market and the ways of forming freight charges.
4. Explain trends in the development of maritime shipping.
5. Argue the significance and impact of certain phenomena (globalization, computerization ...) on the development and competitiveness of shipping companies.
6. Analyze and apply the basics of the economic setting to individual cases from maritime shipping (calculation of travel costs, freight charges, etc.).

1.4. Course Outline

1. General about the economics of sea shipping
2. Merchant fleet: world and national, special types of marine shipping activities
3. Passenger shipping: national and world, division; free, liner and tanker shipping
4. Maritime traffic: passenger and cargo; maritime market: general, division and market structure
5. Market of free ship space, market of liner ship space, market of tanker ship space
6. Indicator of maritime market dynamics, freight indices and market typology
7. Freight rates in maritime shipping: generally, about freight rates, principles, types and determination of freight rates
8. Freight charges in free shipping; freight rates in liner shipping
9. Tariffs: general, division, calculation
10. Freight charges in tanker shipping; freight rates in passenger shipping
11. Costs of maritime transport: generally, about costs in sea shipping and costs in general
12. Types of expenses: by places and by bearers
13. Depreciation in sea shipping: types, depreciation calculations and calculation of depreciation
14. Model of the total costs of the ship's journey; fixed, variable and marginal costs
15. Indicators of business success in maritime shipping: economy, profitability and productivity

MARITIME SHIPPING ECONOMICS. Definition, subject of research, application of scientific and theoretical knowledge in practice.

CALCULATIONS. Measuring business results. Business success and benchmarks, productivity, economy, profitability.

SPECIAL TYPES OF MARITIME SHIPPING ACTIVITIES. Economic and technological criteria defining different types of shipping. Passenger shipping, free, liner, tanker shipping.
 FORMATION OF FARES IN MARITIME SHIPPING. The concept and types of fares. Characteristics and formation of freight rates in certain types of shipping industry.
 MARITIME TRANSPORT COSTS. Definition of costs. Types of costs in maritime shipping. Fixed and variable costs. Marginal cost. Total costs of a ship's voyage.
 SHIPPING COSTS OPTIMIZATION.
 PERFORMANCE INDICATORS IN MARITIME SHIPPING. Labor productivity. Business efficiency. Business profitability. Optimal size and speed of the ships in terms of cost-effectiveness.

1.5. Modes of Instruction	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Seminars and workshops <input type="checkbox"/> Exercises <input type="checkbox"/> E-learning <input type="checkbox"/> Field work	<input type="checkbox"/> Practical work <input type="checkbox"/> Multimedia and Network <input type="checkbox"/> Laboratory <input type="checkbox"/> Mentorship <input type="checkbox"/> Other <hr style="width: 100%;"/>
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1.6. Comments

1.7. Participant Obligations

Attending classes (classroom activity)
 Tests (continuous assessment)
 Final exam

1.8. Assessment¹ of Learning Outcomes

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

1.9. Assessment of Learning Outcomes

70% during classes, 30% on the final exam; according to the current Regulations on studies at the University of Rijeka and Regulations on studies at the Maritime Faculty of the University of Rijeka

1.10. Main Reading

1. Domijan-Arneri, I.: Poslovanje u morskom brodarstvu, Redak, Split, 2014.
2. Kesić, B; Jugović, A.; Debelić, B.: Ekonomika brodarstva riješeni zadaci, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2013.
3. Stopford, M.: Maritime Economics, Routledge, London & New York, 2015. and newer editions.

1.11. Recommended Reading

1. Kesić, B., Jugović, A.: Menadžment pomorskoputničkih luka, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2006.
2. Wayne K. Talley: The Blackwell Companion to Maritime Economics, John Wiley & Sons, 2011.

1.12. Number of Main Reading Examples

Title	Number of titles	Number of participants
Domijan-Arneri, I.: Poslovanje u morskom brodarstvu, Redak, Split, 2014.	20	20
Kesić, B; Jugović, A.; Debelić, B.: Ekonomika brodarstva riješeni zadaci, Pomorski fakultet Sveučilišta u Rijeci, Rijeka, 2013.	30	20
Stopford, M.: Maritime Economics, Routledge, London & New York, 2015.	10	20

1.13. Quality Assurance

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