UNIVERSITY OF SPLIT

FACULTY OF MARITIME STUDIES

ELABORATE PROPOSAL OF THE STUDY PROGRAMME

University undergraduate study programme in

NAUTICAL ENGINEERING

SPLIT, 2025

GENERAL INFORMATION OF HIGHER EDUCATION INSTITUTION

Name of higher education institution	University of Split, Faculty of Maritime Studies
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GENERAL INFORMATION OF THE STUDY PROGRAM

Name of the study program	Nautical engineering		
Provider of the study program	University of Split, Faculty of Maritime Studies		
Other participants	/		
Type of study program	Vocational study program ☐	University study program ☒	
Level of study program	Undergraduate ☒	Graduate ☐	Integrated☐
	Postgraduate ☐	Postgraduate specialist ☐	Graduate specialist ☐
Academic/vocational title earned at completion of study	Bachelor (baccalaureus/baccalaurea) of Science in Nautical Engineering (univ. bacc. ing. naut.)		

1. INTRODUCTION

1.1. Reasons for starting the study program

Undergraduate study program of Nautical engineering is carried out in the spirit of modern requirements of education of management personnel on merchant ships. The Faculty has modern equipment necessary to acquire the required knowledge and skills and the study program is in compliance with the STCW Convention.
The main aims and goals of the Nautical engineering study program are:

- regular education for the highest naval officer ranks (first deck officer and marine master of a ship of 3000 GT or more) for Croatian shipping companies and the world market,
- development of a safety culture at sea and protection of marine environment through permanent education and training of seamen,
- scientific approach to the renewal and revival of Croatian maritime economy,
- continued improvement of the quality of higher education (training) of maritime experts according to international and EU standards and in accordance with the Bologna Declaration and lifelong learning (continuous training).

Upon the completion of this undergraduate study program, students acquire competences for the management, operation and maintenance of marine and navigation systems. They obtain a university degree and national and international merchant marine ranks.
This study program is a synthesis of technical sciences on the one hand, and practical achievements in maritime transport on the other hand. The completion of the study enables employment on world fleet ships, in the companies involved in technology, maritime transport, coast guard, ports, in companies engaged in development, designing, installing (shipbuilding), and maintenance of computer, electronic, communication and navigation systems, as well as systems for the automatic control of processes in marine industry.
The students of this study program have always had an excellent reputation on the labour market.

1.2. Relationship with the local community (economy, entrepreneurship, civil society, etc.)

With respect to the needs of the labour market in public and private sectors, this enhanced study program is a response to the constant demands of shipping companies for staff able to work on modern ships with complex technical and technological systems, and for staff with a comprehensive and thorough understanding of shipping business, taking into consideration the views of all stakeholders in marine industry.
This study program finds application in all branches of the economy which are connected to shipping industry and different fields of science. At the same time, it forms a basis for a successful cooperation between companies and relevant social and state structures. Upon the completion of the studies, students are, with their acquired knowledge and skills, able to get a position in various institutions as well as in maritime, transport and commercial companies, and in companies connected with marine industry.

1.3. Compatibility with requirements of professional organizations

This undergraduate study program of Nautical Engineering represents a logical and meaningful improvement of the existing study programs at the Faculty of Maritime Studies.
The entire program is completely in accordance with STCW II / 2 provisions, i.e. with the Ordinance on Ranks and Certification of Seafarers, which lays down minimum requirements for acquiring the rank and title of the first deck officer and marine master of a ship of 3000 GT or more. Moreover, this study program is completely compliant with the contents of IMO Model Course 7.01, i.e. with the content of STCW II / 2 recommended by the International Maritime Organization (IMO).
The curriculum of this undergraduate study program is fully harmonized with the spirit and intentions of the STCW (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers), IMO and ISO standards. Their mutual objective is education of seamen in terms of their increase in knowledge in application of technologies necessary for successful management and operation of a ship and in terms of raising the level of security in the maritime transport in its broadest sense.
This study program has been recertified by the competent European Union body - European Maritime Safety Agency (EMSA).
The evaluation of Nautical Engineering undergraduate study program has also been conducted by the Ministry of Maritime Affairs of Japan. The occupations/ranks have been aligned with the mandatory requirements of higher education in Japan in order to enable direct employment of graduated seamen on Japanese merchant ships.

1.4. Potential partners outside the higher education system

In addition to companies and institutions from the maritime industry, such as Plovput, Jadrolinija (whose core business is operations at sea), there are also companies in the maritime industry whose activities are related to the mainland (shipyards, overhaul depots, electronic centres, institutions working on projects) and seafarer boarding and training shipping agencies. A notable cooperation has also been achieved with the Croatian Army.

1.5. Funding

The undergraduate study program is primarily funded by the Ministry of Science and Education, and to a lesser extent by the Faculty's budget allocated for specific purposes.

1.6. Comparability of the study program with other accredited programs in higher education institutions in the Republic of Croatia and EU countries

In the development of this study program, a special attention has been given to harmonize the curricula and courses with similar internationally recognised study programs.
It should be emphasized that educational system of maritime experts in the world is very diverse and no two countries have the same educational system. This can be applied to almost all components of enrolment and education: the enrolment process, the goal and the purpose of education, types and organization of study, duration of study, names of higher education institutions, etc.

An analysis of corresponding institutions engaged in the education of seafarers in Croatia and in the European Union has indicated a high level of comparability of their curricula. This applies in particular to the following institutions:

- University of Ljubljana, Faculty of Maritime Studies and Transport, Portorož (link: https://www.fpp.uni-lj.si/studij/1-stopnja/navtika-(vss)/)
- Faculty of Navigation, Gdynia Maritime Academy, Gdynia, Poland (link: https://www.umg.edu.pl/en/faculty-navigation)
- University of Rijeka, Faculty of Maritime Studies, (link: http://pfri.hr/web/hr/studij_pre_N.php)

1.7. Openness of the study program to student mobility (horizontal, vertical in the Republic of Croatia, and international)

This undergraduate study program is compliant with the relevant studies carried out at the Faculty of Maritime Studies in Rijeka and Kotor, the Department of Maritime Studies, University of Dubrovnik, Faculty of Transport and Traffic Sciences in Zagreb, but also with some other higher education institutions in the world with which the Faculty of Maritime Studies, University of Split has already established various forms of cooperation.
This guarantees that the Faculty can, together with some of those institutions, start achieving the Bologna Declaration goals: compatibility of study programs and mobility of teachers and students.

1.8. Compatibility of the study program with the mission and strategy of the University and the proposer, as well as with the strategy statement of the network of higher education institutions

Nautical engineering undergraduate study program is fully compatible with the Mission and Strategy of the Faculty of Maritime Studies, University of Split, as well as with the mission and strategic goas stipulated in the 2021-2025 Strategy of the University of Split.

1.9. Current experiences in equivalent or similar study programs

The Faculty of Maritime Studies in Split has a long tradition (the history of the Faculty dates back to December 1959, when the Maritime College was founded) in the implementation of similar programs, and studies entitled "Nautical engineering" - a two-year college and a four-year graduate study program. The study programs are in line with the Bologna Process since 2005, within which a new three-year undergraduate study program and two-year graduate study program have been established. The contemporary market needs require a continuous modernization of these study programs and consequently new study programs have been developed. The undergraduate study program enables continuation of studies within any graduate study program in the field of nautical engineering.
As Croatia is a maritime country and has a tendency to stay a leader within the maritime industry, we believe that first-class education and training of seafarers in new technologies is a prerequisite for achieving this goal. Currently, there are no similar undergraduate study programs at the University of Split.

2. DESCRIPTION OF THE STUDY PROGRAM

2.1. General information

Scientific/artistic area of the study program	Technical sciences, Traffic Technology and Transport
Study program duration	3 years
The minimum number of ECTS required for study completion	180
Enrolment requirements and admission procedure	Completed four-year high school education

2.2. Learning outcomes of the study program

1. Independently plan sea voyage by analysing and using nautical charts and handbooks, weather reports, navigation information and warnings, and apply methods for optimisation of sea voyage.
2. Determine the ship's position and safely conduct the ship in all conditions, using instruments and aids to navigation, modern electronic navigation systems and devices, and elements of dead reckoning.
3. Recognize and eliminate errors in navigation instruments and devices, analyse errors and reliability of navigation and other onboard systems, and act properly in the event of their failure.
4. Properly undertake actions of search and rescue, individually or in coordination with others; make proper use of rescue equipment, apply techniques for survival at sea, first aid, medical care, etc.
5. Keep a safe navigational watch, use navigation, meteorological, communication and other equipment on the bridge; define appropriate procedures and a system for monitoring of their implementation.
6. Interpret weather reports, independently use meteorological instruments, and assess hydro-meteorological conditions.
7. Assess risks, especially elements threatening safety and security, and maintain them at an appropriate level, know how to act in emergencies, and develop procedures for taking action in emergencies.
8. Maintain life-saving apparatus, fire-fighting system and other ship's safety systems.
9. Conduct and manoeuvre the ship in all conditions, properly react in a case of an emergency during navigation, avoid collisions and other hazards at sea, use ship's communication systems and communication protocols in normal conditions and emergencies.
10. Interpret the fundamental elements of operation of the basic parts of engine and power systems, using practical knowledge of the control systems.
11. Distinguish different types of cargo and technologies in maritime transport; plan and carry out operations of loading, discharging, stowing, securing and storing of

cargo; identify dangerous substances and properly handle them; assess damage of cargo, ship's cargo spaces and equipment, and take appropriate preventive actions to avoid further damage; use ballast system.
12. Analyse and estimate the essential elements of ship's stability and stress in the ship structure; organize procedures for maintenance of the ship and ship systems.
13. Interpret and critically assess the elements of maritime international and national legislation, especially regarding the protection of human lives at sea, protection of property and prevention of marine environment pollution.
14. Manage the crew and groups of people in general, and act appropriately in emergencies.
15. Explain and interpret business principles in shipping.
16. Have knowledge of standard seamanship, organization of work on board, ship terminology and practices.
17. Make practical use of Maritime English in all situations.

2.3. Employment possibilities

Students who complete the program can be employed in companies in maritime industry (shipbuilding, overhaul depots, naval electronic centres, supporting services), national and foreign shipping companies, maritime agencies for seafarer boarding and training, the Croatian Army, the Croatian Navy, and the Coast Guard.

2.4. Possibilities of continuing studies at a higher level

The Faculty of Maritime Studies in Split advertises vacancies for enrolment in the graduate studies of Nautical Engineering every year.

2.5. Lower level studies of the proposer or other institutions in the Republic of Croatia that qualify for admission to the proposed study

A person with completed four-year (4) high-school education can enrol in the undergraduate study program.

2.6. Structure of the study

The undergraduate study program of Nautical Engineering is a 3 year study program lasting 6 semesters and a student earns a minimum of 180 ECTS credits.
The terms of enrolment in the next semester or academic year, are defined in accordance with the Regulations on Study and Study System at the University of Split, the Regulations on Studying at the Faculty of Maritime Studies and the decisions of the Faculty Council.
A student who takes a break from the study may be allowed to continue the study in accordance with the Regulations on Studying at the Faculty of Maritime Studies and the decisions of the Faculty Council.
A student who loses the right to study at another higher education institution or at another constituent of the University may be permitted to continue and complete the study under the conditions and within the prescribed time frame in accordance with the Regulations on Studying at the Faculty of Maritime Studies and the decisions of the Faculty Council.

The size of student groups for lectures, exercises and other forms of teaching, is organized according to the prescribed limitations, while always trying to apply the standard. The number of students in groups for lectures depends on the number of students who are enrolled in a particular course. For courses with a larger number of students, the number of students in a group does not generally exceed 100 students. The groups for exercises are also adjusted according to the number of enrolled students, having usually 30 students in one group and exceptionally up to 36 students if there is only one group. The groups for exercises in computer lecture rooms are smaller. The size of a group in all types of exercises enables effective and interactive classes with students.

2.7. Counselling and tutoring during studies

At the Faculty of Maritime Studies in Split there is no formal system of student counselling. However the Head of the Study Program constantly maintains communication with students providing advice and individual guidance when necessary. The Dean and the Vice-Dean for Student and Academic Affairs have regular consultation hours.

2.8. List of courses that the student can take in other study programs

2.9. List of courses offered in a foreign language as well

Semester	COURSE	ECTS
1	Marine meteorology and oceanology	4
1	Ship construction and stability I	5
2	Sea and marine environment protection	2
2	Ship construction and stability II	5
3	Cargo handling I	5
3	Safety at sea	5
3	Maritime property law	3
3	Seamanship	2
3	Medicine for seafarers	3
3	Maritime communications	4
4	Shipping economics	3
4	Cargo handling II	5
5	Passenger transport technology	4
5	Work organization and management on board	5
6	Liquid cargo transport technology	5
6	Autonomous ships	4

2.10. Criteria and conditions for transferring the ECTS credits

The transfer of ECTS credits can be accomplished among different study programs. The criteria and conditions for transferring ECTS credits are stipulated in the Rules and regulations of the University, and the Regulations on Studying at the Faculty.

2.11. Study completion

Final requirement for study completion	Bachelor thesis ☐ Master thesis ☐	Bachelor exam ☒ Master exam ☐
Requirements for final/diploma thesis or final/diploma/exam	Requirement for applying for Bachelor exam are passed all the exams included in the study curriculum.	
Procedure of evaluation of final/diploma exam and evaluation and defence of final/diploma thesis	In compliance with the Faculty Ordinance on Application for and the Course of Bachelor exam, and the Protocol of the Bachelor Exam.	

2.12. List of mandatory and elective courses

LIST OF COURSES							
Year of study: 1							
Semester: I							
STATUS	CODE	COURSE	HOURS IN SEMESTER				ECTS
			L	S	E	F	
Mandatory	PFP171	Maritime English I	15		30		4
	PFP311	Mathematics I	30		30		6
	PFP120	Marine information technologies and cyber security	30		30		5
	PFE202	Marine electrical engineering and electronics	45		15		5
	PFN211	Marine meteorology and oceanology	30		15		4
	PFS122	Ship construction and stability I	30		30		5
	PFP147	Physical education I	00		30		1
	Total		180		180		30

LIST OF COURSES							
Year of study: 1							
Semester: II							
STATUS	CODE	COURSE	HOURS IN SEMESTER				ECTS
			L	S	E	F	
Mandatory	PFP172	Maritime English II	15		30		4
	PFP312	Mathematics II	30		30		6
	PFS123	Ship construction and stability II	30		30		5
	PFP128	Maritime public law	30		00		3
	PFS208	Marine power systems	45		15		5
	PFS100	Technical mechanics	30		15		4
	PFN205	Sea and marine environment protection	15		00		2
	PFP147	Physical education II	00		30		1
	Total mandatory		195		150		30

LIST OF COURSES							
Year of study: 2							
Semester: III							
STATUS	CODE	COURSE	HOURS IN SEMESTER				ECTS
			L	S	E	F	
Mandatory	PFP177	Maritime English III	15		30		4
	PFN201	Safety at sea	45		3	12	5
	PFN101	Terrestrial navigation I	30		15		4
	PFN302	Cargo handling I	30		30		5
	PFP130	Maritime property law	45		00		3
	PFE301	Maritime communications	30		45		4
	PFN004	Seamanship				15	2
	PFP142	Medicine for seafarers	30		15		3
	Total mandatory		225		138	27	30

LIST OF COURSES							
Year of study: 2							
Semester: IV							
STATUS	CODE	COURSE	HOURS IN SEMESTER				ECTS
			L	S	E	F	
Mandatory	PFP178	Maritime English IV	15		30		4
	PFN102	Electronic navigation	45		30		5
	PFN102	Terrestrial navigation II	15		30		4
	PFN303	Cargo handling II	30		45		5
	PFN105	Ship manoeuvring	30		45		5
	PFP142	Shipping economics	30		0		3
	PFS217	Ship maintenance	30		15		4
	Total mandatory		195		195		30

LIST OF COURSES							
Year of study: 3							
Semester: V							
STATUS	CODE	COURSE	HOURS IN SEMESTER				ECTS
			L	S	E	F	
Mandatory	PFP103	Maritime English V	15		15		4
	PFN110	Passage planning	30		30		5
	PFN103	Astronomical navigation	30		26	4	5
	PFN314	Work organization and management on board	30		15		5
	PFN315	Modern transport technologies	30		15		4
	PFN308	Passenger transport technology	30		11	4	4
	PFN111	Professional practice			20	10	1
	Total Mandatory		165		132	18	28
Elective	PFN500	Onboard Internship				150	5

LIST OF COURSES							
Year of study: 3							
Semester: VI							
STATUS	CODE	COURSE	HOURS IN SEMESTER				ECTS
			L	S	E	F	
Mandatory	PFP157	Maritime English VI	15		15		4
	PFN316	Safety management and risk in shipping	45		15	0	4
	PFN112	Navigational practice				30	2
	PFN	Autonomous ships	45				4
	PFN304	Liquid cargo transport technology	30		15		5
	PFN104	Integrated navigation system	30		15		5
	PFN400	Bachelor exam	0		10		8
	Total mandatory		165		70	30	32

2.13. Course description

COURSE NAME	MARITIME ENGLISH I					
Code	PFP171	Year of study	1			
Course teacher	Mira Pavlinović, PhD, Assoc. Prof.	Credits (ECTS)	4			
Associate teachers	Jelena Žanić-Mikuličić, PhD, senior lecturer	Type of instruction (number of hours)	L	S	E	F
			15	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Acquisition of basic and specialist language knowledge and skills for students to be able to obtain certificates and authorizations for a deck officer on vessels of 500 GT and more, the first deck officer on vessels of 500 GT and more, the first deck officer on ships of 3000 GT and more, and a master of a vessel of 3000 GT and more (according to STCW Convention 1995 requirements and amendments) - English as a language of official communication in the global maritime industry. Raising the level of knowledge of “maritime English”, and general English language. Acquisition of student communication skills of English language in order to ensure safe navigation and protection of marine environment. Encouraging and developing cognitive abilities of students, as well as developing basic four language skills: reading, listening, writing and speech. Developing skills, ability to collect, organize and critically evaluate information.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Demonstrate four basic language skills: reading, writing, listening, speaking, at the B level (“independent user") in accordance with the "Common European Framework of Reference for Languages" (CEFR, Council of Europe, 2002). Distinguish, define and implement specialized technical terms; follow lectures on a familiar subject, participate in discussions on general topics as well as topics related to their future profession, give/follow instructions, ask questions/give feedback. Correctly group professional terminology by topic and translate maritime English terms into Croatian and from Croatian into English. Read, analyse and present a brief written material, write a short composition/letter/report/note.					
Course content broken down in detail by weekly class schedule (syllabus)	The content of the course is compatible with the requirements of the STCW Convention. **Lectures** 1. Ship and Ship Terms I. 2. Ship and Ship Terms II. 3. Ship and Ship Terms III. 4. Types of Ships - Liners. 5. Types of Ships – Tramps. 6. Types of Ships – Specialized Vessels. 7. Types of Ships IV – Break Bulk Cargo Ships. 8. Types of Ships V – Tug, Salvage Tug, Oil Rig Supply Vessel, etc. 9. The Merchant Ship and Its Organisation I – Deck Department. 10. The Merchant Ship and Its Organisation II – Engine Department. 11. Manning. 12. Weather systems. 13. Tides.					

	14. Currents. 15. Revision. **Exercises:** 1. Collocations. Shipbuilding I. 2. Word buliding. Shipbuilding II. 3. Prepositions. Collocations. Shipbuilding III. 4. Parts of a sentence. Liners – a type of Ship Operation. 5. Word building. Questions. Tramp Trade – a type of Ship Operation. 6. Articles. Questions. Specialised Vessels – Different Types of Ship Operations. 7. Collocations. Word building. Adjectives. Break-bulk cargo ships- a type of ship operation. 8. Word buliding. Tugs and Supply Vessels and Their Operation. 9. Mid-term test. 10. Adjectives. Articles. Organisation on Board – Deck Department. 11. Adjectives. Articles. Organisation on Board – Engine and Catering Departments. 12. Tenses. Types of Weather Systems and their Characteristics. 13. Adjectives. Quantifiers. Beaufort Scale. 14. Adjectives. Quantifiers.Currents and Tides. 15. End-term test.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online in entirety* X partial e-learning ☐ field work X independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory, and attendance records are kept. Minimum 80 % lecture and 80 % exercise attendance is required to be eligible for the exam and earn ECTS credits. Students who fail to meet minimum attendance requirements, will not be eligible for the exam and will be required to re-enrol in the course the following academic year. The exam consists of a written and an oral part. The written part of the exam can be taken through continuous evaluation in the course of the semester in the form of mid-term exams or by taking the final exam (written). Students who fail the mid-term exams, but are eligible for the final exam, are required to take the written exam within the exam period. All students are required to take the oral part of the exam after passing the written part of the exam. Students who have collected a sufficient number of credits during classes are required to formally apply for the exam using Studomat (exam application service) in the first exam period after the end of lectures. Their grade will be entered in the ISVU system during the exam period. **Obligations of part-time students** Lectures and exercises are mandatory for part-time students and attendance records are kept. To be eligible for the exam, minimum 50 % lecture and 50 % exercise attendance is required. Exam taking methods are the same as for full-time students.

uired	Class attendance	1.125	Research		Practical training	
	Experimental work		Report		Homework	
	Essay		Term paper		Independent work during lectures	0.375
		1	Oral exam	1.5	(other)	

	Mid-term exams/Written exam		Project		(other)	

Grading and evaluation of students:

The exam consists of two parts: written and oral.
Students may take the written part of the exam in the form of mid-term exams. The subject matter is covered in teaching materials and includes professional vocabulary, and grammar. Students may take the written part of the exam and the professional terminology mid-term exam prior to the beginning of exam periods. In that case, only the oral part of the exam (lessons) is taken during the exam period.

Students who fail to take or pass the written part of the exam in the form of mid-term exams, but meet the minimum requirements in the course of the semester, will take the written and oral final exam during the exam periods.

To pass the mid-term exams/final exam, and take the oral part of the exam, students have to achieve minimum 50 % of the total number of points.

To take the exam during an exam period, and have the grade entered in the system, students have to apply for the exam in their target exam period.

Exam applications and cancellations are made online, using Studomat (exam application service).

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Mid-term exams	50	30
Continuous assessment during lectures		10
Total		50 (in this case the student is exempted from the written exam)

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	40
Theoretical part of the exam (written and/or oral)	50	60
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)

Grading and evaluating student work in class and at the final exam

	80 – 89	above average achievement with few mistakes	very good (4)
	90 – 100	extraordinary achievement	excellent (5)

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. Kluijven, P. van (2003) International Maritime English Program, Alk & Heinen, Alkmaar		
	2. Pritchard, B. 1995. *Maritime English 1*, Školska knjiga, Zagreb		
Optional literature (at the time of submission of study program proposal)	1. Blakey,TN. *English for Maritime Studies*. Prentice Hall International English Language Teaching, University Press, Cambridge 2. Pritchard B. Hrvatsko-engleski rječnik pomorskog nazivlja, Školska knjiga, Zagreb, 1989. 3. Plančić B., Skračić, T., Englesko - hrvatski pomorski rječnik, Kartular, Split, 2013.		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	MATHEMATICS I					
Code	PFP 311	Year of study	1.			
Course teacher	Tatjana Stanivuk, PhD, Full Professor	Credits (ECTS)	6			
Associate teachers	Goran Kovačević Marina Laušić	Type of instruction (number of hours)	L	S	E	F
			30	-	30	-
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Acquire knowledge and skills in the areas of mathematics which are necessary to follow the curricula of other courses envisaged by the study program (basic algebra, mathematical analysis and appropriate mathematical methods), and are expected to be implemented in practice.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Know the basic concepts of sets and set operations 2. Describe properties of real elementary functions 3. Analyse graphs of real variable of real functions 4. Apply differential calculus to mid-term exam properties of real functions 5. Solve problems within sets of real and complex numbers 6. Define and describe elements of linear algebra (interpret the results of linear equation and matrix systems and of vector algebra and analytical geometry) 7. Solve problems in the field of spherical trigonometry 8. Develop the skills of critical thinking and creativity in analysing and interpreting statistical data.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Introduction. Overview of symbols. Sets and basic operations on sets. 2. The concept of function. Elementary functions. 3. Spherical trigonometry. 4. Function continuity and border values. 5. The concept of function derivatives. Derivatives of elementary functions. Derivatives of function composition. Logarithmic derivatives. Derivatives of implicit and parametric functions. Higher order derivatives. 6. Tangent and normal on graph of a function. Basic theorems of differential equations. Application of derivatives in determining function limits. 7. Testing the flow and drawing graphs of functions. 8. Set of complex numbers. 9. Matrices. System of linear equations by Gauss-Jordan. 10. Vector algebra. 11. Combinatorics. 12. The notion and basics of probability theory. 13. Elements of statistics. 14. Interpolation. 15. Overview and repetition. **Exercises:** 1. Sets 2. Elementary functions. 3. Spherical trigonometry. 4. Function continuity and border values. 5. Elementary function derivation techniques. Derivatives of function composition. Logarithmic derivatives. Derivatives of implicit and parametric functions. Higher order derivatives.					

	6. Tangent and normal on graph of a function. Application of derivatives in determining function limits. 7. Testing the flow and drawing graphs of functions. 8. Set of complex numbers. *First mid-term exam.* 9. Matrices. System of linear equations by Gauss-Jordan. 10. Vector algebra. 11. Combinatorics. 12. Basics of probability theory. 13. Elements of statistics. 14. Interpolation. 15. *Second mid-term exam.*
Format of instruction:	☒ lectures ☐ seminars and workshops ☒ exercises ☐*online in entirety* ☐ partial e-learning ☐ field work ☐ individual work on assignment ☒ multimedia ☐ laboratory ☐ work with mentor ☒consultations
Student responsibilities	**Obligations of full-time students:** Minimum 80 % lecture and exercise attendance. Active participation in classes and taking mid-term exams during classes. Students who pass both mid-term exams will be exempt from taking the final written part of the exam during the exam period, to which students are required to apply at Studomat (exam application service). Students who fail to meet minimum attendance requirements will be required to re-enrol in the course in the next academic year. **Obligations of part-time students** Obligations of part-time students differ from the obligation of full-time students only in the following: 1. Minimum 50 % lecture and exercise attendance. 2. Option to re-schedule mid-term exams with the course teacher if a student is unable to take them at the agreed time for justified reasons.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance and activity	1.5	Research	-	(other)	-
	Experimental work	-	Report	-	(other)	-
	Essay	-	Term paper	-	(other)	-
	Midter exams or written exam	4.5	Oral exam	-	(other)	-
	Arial		Project	-	(other)	-

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of full-time students:** Every student is required to take the written part of the exam. The written part consists of two mid-term exams, which are taken during the lecture period (week 8 and 15), or the final written exam organized during the exam period. 50 % of the total number of points are required to pass mid-term exams. Students who pass both (two) mid-term exams will be exempt from taking the final written part of the exam. Students who pass only one (of two) mid-term exam, will not be required to retake the exam from the topics covered by that mid-term exam and only be required to take the exam from the topics in which they did not meet the minimum criteria. The grade is the mean value of points earned in mid-term exams or points earned in the final written part of the exam (if a student fails to pass two mid-term exams).

Class attendance and activity of each student are monitored and assessed during classes, and also contribute to the final grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Mid-term exam 1	50	45
Mid-term exam 2	50	45
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Written exam	50	90
Previous activities (all elements of continuous monitoring are included)	80	10
Total		100

Grading:

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

Grading and evaluation of part-time students is the same as for full-time students:

Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. MareMathics; https://matemathics.pfst.hr/	-	YES
2. Merlin, https://moodle.srce.hr/2021-2022/		YES
3. T. Bradić et al: Matematika [za tehnološke fakultete], Element, 2006	5	-
4. K. Rivier et al.: Matematika 1, College for Information Technologies, Zagreb, 2010	17	-
5. K. Rivier: Matematika 2, Split Polytechnics, Split, 2002	5	-
6. M. Tomašević, Diferencijalni račun, VPŠ, 2001	20	YES
7. M. Tomašević, Skupovi, brojevi funkcije, VPŠ, 2001	20	YES

Optional literature (at the time of submission of study program proposal)	1. B. Apsen, Riješeni zadaci više matematike 1, Zagreb: Tehnička knjiga, 1989 2. B. P. Demidovič, Zadaci i riješeni primjeri iz matematičke analize za tehnički fakultete, Zagreb, 1995
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	INFORMATION TECHNOLOGIES AND CYBER SECURITY IN THE MARITIME SECTOR					
Code		Year of study	1			
Course teacher	Anita Gudelj, PhD, Full Prof.	Credits (ECTS)	5			
Associate teachers	Jelena Čulić Gambiroža, PhD	Type of instruction (number of hours)	L	S	E	F
			30	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	20 %			
COURSE DESCRIPTION						
Course objectives	Getting to know the computer and modern information and communication technology (ICT) as a prerequisite for digitization in the maritime sector. Learning the basics of programming and developing digital skills to solve problems by developing algorithms. Equalizing knowledge and creating approximately equal bases among students to allow them to follow courses that rely on the application of ICT in different business areas. This course aims to develop student awareness that the behaviour of each individual is a key factor in protecting against increasingly sophisticated and complex cyberattacks which affect our daily life and business.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain the computer system with respect to its main components 2. Interpret parameters that affect computer performance 3. Distinguish between the types of software support for the computer and interpret the operating system 4. Compare different computer networks with respect to their characteristics and purpose 5. Identify the basic devices and functions of a ship's network 6. Describe the impact and challenges of 4IR in the maritime sector 7. Describe different cyber threats to ship systems with regard to the motive, method and goal of the attack 8. Apply data and computer network protection against cyber attacks 9. Independently use application programs (MS Word and MS Excel) 10. Develop an algorithm using the constructs of the selected programming language					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Introduction to the course. Introduction to the application of computers in the maritime sector. 2. Computer system. Hardware and software. Types of computers 3. Hardware: CPU and GPU. Computer memories. 4. Software: System and application programs 5. Computer networks. Ship computer networks 6. Fourth industrial revolution. Digitization in shipping **7. First mid-term exam** 8. Cyber security. Threats and risks of information technologies. 9. Cyber security in the maritime sector: Vulnerability of ship systems. Case studies. 10. Cyber security in the maritime sector: Protection. Regulations. 11. Solving computer issues. Algorithm. Creating algorithms. 12. Algorithm elements. Data types. Operators. Basic commands. 13. Control structures of the algorithm. Sequence. Branching and selection. 14. Repeating the execution of commands in the algorithm. Conditional loop. Counter loop.					

<table>
<tr><td></td><td colspan="2">15. Second mid-term exam

Exercises:
1. File management (compression, cloud storage, sharing). Text processor MS Word (inserting symbols, tables, drawings, formulas...).
2. Advanced text processing techniques (headers, footers, sections, table of contents)
3. MS Word – check
4. MS Excel spreadsheet program. Basic functions: mathematical and trigonometric, logical and statistical.
5. IF function. Data sorting.
6. MS Excel – creation of diagrams. Data protection in Excel.
7. MS Excel – knowledge mid-term exam.
8. Cyber security: Protection of data, computers, networks. File encryption.
9. C/C ++ - software support development program. Sequence programming.
10. Printing data. Data input from the keyboard, joining operators.
11. Arithmetic and logical operators, relational operators (appropriate examples).
12. Control structures: branching and selection.
13. Loops: with explicit counter- for (appropriate examples).
14. Loops with exit on the top – while, loop with exit on the bottom - do while.
15. C/ C++ environment – knowledge assessment.</td></tr>
<tr><td>Format of instruction:</td><td>☒ lectures
☐ seminars
☒ exercises
☐ online in entirety
☐ partial e-learning
☐ field work</td><td>☒ independent assignments
☐ multimedia
☒ laboratory
☐ work with mentor</td></tr>
<tr><td>Student responsibilities</td><td colspan="2">Obligations of full-time students:

Students are required to regularly attend and actively participate in classes: minimum 80 % lecture and 100 % exercise attendance. In case of unsatisfactory attendance level, students <u>will not be allowed to take the exam</u> and will be required to re-enrol in the course the following year. If a student fails to attend an exercise for an objectively justified reason, the method and form of compensation can be agreed with the assistant.
Students are required to take all mid-term exams. Minimum 50 % of all points are required to pass a mid-term exam.
In the course of the semester, two mid-term exams from the theoretical part and three mid-term exams from the practical part of the course will be held (computer exercises from the following areas: MS Word, MS Excel, writing programs in the C programming language).
<u>Students who pass the first and second mid-term exam in laboratory exercises can register for the exam at Studomat.</u>
Students may apply for the exam from this course if they have met all their obligations in full: they have met lecture and exercise attendance requirements, have passed the first and second mid-term exam in laboratory exercises.
Students who have collected a sufficient number of points during classes (they have passed all theoretical and practical mid-term exams) are required to register for the exam at Studomat in the first exam period, and depending on the result achieved, their grade will be entered in the ISVU system.
The passed part of the exam will be recognized in the academic year in which the student enrolled in the course.
The final exam will be held in the exam period determined by the lecturer. Exam application at Studomat is required.

Obligations of part-time students</td></tr>
</table>

<table>
<tr><td></td><td colspan="6">Students are required to attend minimum 50 % of lectures and 50 % of exercises, and pass the first and second mid-term exam from exercises. They can pass the remaining part of the exam either continuously through mid-term exams or by taking the final exam (written and oral exam) during the exam periods.</td></tr>
<tr><td rowspan="6">Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)</td><td>Class attendance</td><td>1,5</td><td>Research</td><td></td><td>Practical training</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>Individual work and homework (other)</td><td>1,5</td></tr>
<tr><td>Essay</td><td></td><td>Term paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Mid-term exams</td><td>2</td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Grading and evaluating student work in class and at the final exam</td><td colspan="6">Grading and evaluation of full-time students

During the lecture period, students can take three mid-term exams on topics covered by lectures and exercises.

Three mid-term exams from laboratory exercises are envisaged. The mid-term exams are written on a computer.
Mid-term exam 1 (3rd week of classes) – computer skills assessment - MS WORD
Mid-term exam 2 (7th week of classes) – computer skills assessment - MS EXCEL
Mid-term exam 3 (15th week of classes) – basics of programming.
Two theoretical mid-term exams are envisaged (8th and 15th week of classes). The mid-term exams are taken in written form, with minimum 50 % of total points required to pass. The answers have to be correct and well elaborated.
Students who pass all mid-term exams will be exempt from the written/oral part of the exam, and depending on the result achieved at the first final exam period, their grade will be entered in the ISVU system.

Students who score less than 50 % at the first or second mid-term exam from laboratory exercises may retake them (the first time by the end of semester, the second time in February).
Students who fail the third mid-term exam from laboratory exercises will take it in written form at the final exam in the exam period determined by the lecturer, with exam application at Studomat, providing they meet the conditions to apply for the exam.
The theoretical part of mid-term exams is taken in written form.

Continuous evaluation of students:

<table>
<tr><th>Elements of evaluation</th><th>Success (min. %)</th><th>Percentage (%)</th></tr>
<tr><td>Class attendance and activity during exercises</td><td>Minimum 80 % lecture attendance, 5 homeworks</td><td>10</td></tr>
<tr><td>Continuous assessment of laboratory practice</td><td>50</td><td>Mid-term exam 1
10
Mid-term exam 2
15
Mid-term exam 3
20</td></tr>
<tr><td>Continuous assessment during lectures</td><td>50</td><td>45</td></tr>
<tr><td>Total</td><td></td><td>100</td></tr>
</table></td></tr>
</table>

Students who successfully pass some of the mid-term exams will be exempt from the topics covered by such mid-term exams in the final written exam. The assessment of the remaining topics will be conducted in the form of a practical (writing a program in a select programming language) and theoretical part of the final exam (written and/or oral).

Students who fail the theoretical part of the exam, but pass its practical part (writing a program in the C programming language), will not be required to take that part of the exam in the next exam period. Students are only required to pass the failed part of the exam.
Students who fail to pass any mid-term exam from the theoretical part of the material, are required to take the written exam from both mid-term exams. Minimum 50 % of all points are required to pass the exam, providing that minimum 50 % of points are scored from each part (mid-term exam).
The exam consists of a practical part and a theoretical (written and/or oral) part.

Students who fail the theoretical part of the exam, but pass its practical part (writing a program in the C programming language), will not be required to take that part in the next exam period. Students are only required to pass the failed part of the exam.
Students who fail to pass any mid-term exam from the theoretical part of the material will be required to take the written exam from both mid-term exams. Minimum 50 % of all points are required to pass the exam, providing that minimum 50 % of points are scored from each part (mid-term exam).

Final exam

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	20
Theoretical part of the exam (written and/or oral)	50	45
Previous activities (all elements of continuous assessment are included)	50	35
Total		100

Grading

Percentage (%)	Criteria	Grade
0 – 49.9	does not meet the minimum criteria	insufficient (1)
50 – 61.9	meets the minimum criteria	sufficient (2)
62 – 74.9	average achievement with noticeable insufficiencies	good (3)
75– 87.9	above average achievement with few mistakes	very good (4)
88 – 100	extraordinary achievement	excellent (5)

Grading and evaluation of part-time students
The criteria for grading and evaluation are the same as for full-time students.

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	Reviewed materials from lectures and exercises		Merlin, e-learning system

	A. Munitić, P. Ristov, A. Gudelj Bolanča, M. Nadrljanski, Primjena elektroničkih računala, udžbenik, Split: Pomorski fakultet Sveučilišta u Splitu, 2007	25	
	N. Lipljin, Programiranje/1, TIVA Tiskara Varaždin, 2004	10	
	Gary C. Kessler, Steven D. Shepard: Maritime Cybersecurity: A Guide for Leaders and Managers, September 2, 2020	1	
	C++ programiranje za apsolutne početnike		http://download.tutoriali.org/Tutorials/C/C++_za_apsolutne_pocetnike.pdf
Optional literature (at the time of submission of study program proposal)	1. A. Arora, Computer Basics and Applications, Vikas Publishing, 2015 2. The Guidelines on Cyber Security Onboard Ships – Bimco https://www.bimco.org/about-us-and-our-members/publications/the-guidelines-on-cyber-security-onboard-ships 3. Resolution MSC.428(98) (adopted on 16 June 2017) MARITIME CYBER RISK MANAGEMENT IN SAFETY MANAGEMENT SYSTEMS		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	MARINE ELECTRICAL ENGINEERING AND ELECTRONICS					
Code	PFE 202	Year of study	1			
Course teacher	Miro Petković, PhD, Assistant Professor	Credits (ECTS)	5			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			45	-	15	-
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Have general knowledge of marine electrical engineering terms (STCW Table A-II / 2). Learn the principles of work of electrical circuits and devices for the production, storage, distribution and consumption of electricity on board. Understand the basic principles of transmission, propagation and reception of electromagnetic waves, and elements of maritime radio communication devices on board. Understand the principles of sensor, controller, and actuator operation, and the basics of automation system adjustments.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Present the underlying principles of electrostatics, magnetism. 2. Present the basic principles of electrical machinery operation. 3. Compare DC, single-phase and three-phase AC electricity distribution systems. 4. Distinguish security elements of a ship's electrical network. 5. Present the basic principles of generation and propagation of electromagnetic waves. Identify factors that influence the spreading of electromagnetic waves. 6. Compare different types of modulations used in maritime radio communications. Draw and explain the transmitter, and receiver block diagrams. 7. Present the principle of a block diagram of a radar. 8. Present the basic principles of ship sensor and actuator operation. 9. Draw an open automation system, a system with disturbance compensation and 10. a closed-loop regulation system. 11. Identify the parameters that affect the reliability of an automatic control system.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Introduction, the effects of electric current, Kirchhoff laws, DC circuit. 2. Power, work and energy, sources of electricity. Electrostatics. 3. Electromagnetism, alternating current. 4. Ship's electrical devices, electronics. 5. Adjusters, GMDSS power supply. 6. Physical basics of an electromagnetic wave, spreading of electromagnetic waves. 7. Principles of work of a transmitter and receiver, modulation. 8. Radio horizon, channels, multiplexing. 9. Radar, satellite radio communication devices. Antennas, Lidar. 10. Basics of automatic control, definition of a regulator. Parts of a regulator. Hydraulic, pneumatic and electrical performances. 11. Sensors - principles of operation of temperature, pressure, velocity, displacement, and course sensors. 12. Actuators - principles of operation of hydraulic, pneumatic and electric actuators.... 13. Centralized, distributed and integrated automation. Hierarchical distributed automation systems - layers. Industrial computer network.					

	14. Examples of cargo loading systems. Automatic pilotage systems. 15. Adaptive and expert management systems. Diagnostics and maintenance of automation systems. **Exercises:** 1. Direct current circuit 2. Ohm's law. Resistor compounds 3. Power, work, energy and efficiency 4. Electrostatics, volume of plate capacitor 5. Magnetism 6. Measuring alternating current 7. Inductive and capacitive resistance 8. Calculating resistor and capacitor connections 9. Measuring resistance and capacity 10. Kirchhoff laws 11. RLC serial resonant circuit 12. Resonant circuit 13. Magnetic circuit - transformer 14. Analysis of automatic electric propulsion regulation system 15. Analysis of automatic vessel course regulation system
Format of instruction:	☒ lectures ☐ seminars ☒ exercises ☐ *online in entirety* ☐ field work ☐ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students** Students are required to attend lectures and exercises, and attendance records are kept. Students are required to attend minimum 80 % of lectures and exercises, and 95 % of lectures have to be from topics defined by the STCW Convention. Students who fail to meet minimum attendance requirements, can not take the exam and will be required to re-enrol in the course in the next academic year. Students can pass the oral exam through continuous evaluation during the semester by taking mid-term exams. Students are not required to take the mid-term exams. Students who do not pass the mid-term exams, and are eligible for the exam, are required to take both the written and oral exam during the exam period. Students can work independently or as a team on given topics using e-learning materials. Students who successfully pass the mid-term exams are required to apply for the final exam using Studomat (Exam application service) in the first exam period, following which their grade will either be entered in the ISVU system or they can take the oral exam to get a higher grade. **Obligations of part-time students** Total lecture attendance requirements for part-time students may not be below 50 % of attendance set for full-time students. Examination methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1,5	Research		Practical training	
	Experimental work		Report		Individual work and homework (other)	
	Essay		Term paper		(other)	
	Mid-term exams	2,5	Oral exam	1	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

1. Grading and evaluation of full-time students

Class attendance is mandatory for full-time students, i.e. they are required to attend minimum 80 % of lectures, auditory and laboratory exercises.

During a semester, students can take two mid-term exams. The first mid-term exam will be held in week 8 and cover auditory exercises from lectures 1-7. The second mid-term exam will be held in week 15 and cover topics from auditory exercises from lectures 8-15. Sample mid-term exam questions are available to students at the Merlin e-learning platform. Minimum 50 % score is required to pass each mid-term exam. Students who do not pass both mid-term exams are required to take the entire final exam in the exam period. Class attendance and mid-term exam results count towards the final grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity during exercises	80 (95 %)	10
Mid-term exam I	50	45
Mid-term exam II	50	45
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	30
Theoretical part of the exam (written and/or oral)	60	50
Previous activities (all elements of continuous assessment are included)	100	20
Total		100

Grading

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

2. Grading and evaluation of part-time students

To be eligible for a grade, students have to attend minimum 50 % of lectures and exercises. Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. I. Kuzmanić: Brodska elektrotehnika i elektronika, Faculty of Maritime Studies, University of Split, Split, 2006	10	
2. D. Kezić: Osnove radiotehnike za pomorske nautičare, teaching materials, Split 2008		YES
3. I. Kuzmanić, I. Vujović: Osnove elektrotehnike - Zbirka riješenih zadataka,	10	

	Faculty of Maritime Studies, University of Split, Split, 2005		
	4. Antonić, R.: Automatizacija broda II, Faculty of Maritime Studies in Split, 2007	10	
Optional literature (at the time of submission of study program proposal)	1. J. Payne: The Marine Electrical & Electronics Bible – A Practical –handbook for Cruising Sailors, Adlard Coles Nautical, London, 2007. 2. Kuzmanić, R. Vlašić, I. Vujović: Elektrotehnički materijali, Visoka pomorska škola u Splitu, Split, 2001. 3. V. Pinter: Osnove elektrotehnike - knjiga prva i druga, Tehnička knjiga, Zagreb, 1980.		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	MARINE METEOROLOGY AND OCEANOLOGY					
Code	PFN211	Year of study	1			
Course teacher	Nenad Leder, PhD, Assoc. Prof.	Credits (ECTS)	4			
Associate teachers	Vice Milin	Type of instruction (number of hours)	L	S	E	F
			30		15	
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Ability to understand and interpret synoptic charts and forecast local weather, taking into account local weather conditions and information obtained through weather radar receivers. Knowledge of characteristics of different weather systems, including tropical storms, avoiding storm centres and dangerous quadrants. Knowledge of currents and waves in the Adriatic Sea, the Mediterranean Sea and the oceans. Ability to calculate elements of tides. Using all appropriate navigational charts and publications that show meteorological and oceanographic features and phenomena.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Know meteorological and oceanographic features and phenomena important for the safety and efficiency of navigation; 2. Monitor, decode and code marine meteorological and oceanographic phenomena and elements; 3. Use navigation publications for the planning, execution and after the voyage; 4. Recognize and interpret weather and oceanographic conditions, know forecast conditions including local conditions; 5. Apply weather forecasts during planning of maritime voyage, follow real weather conditions during a voyage, and be able to analyse their impact on safety, accuracy of arrival time and cost-effectiveness of a voyage.					
Course content broken down in detail by weekly class schedule (syllabus)	Lectures 1. Introduction - the atmosphere, radiation. 2. Temperature; air pressure. 3. Humidity; wind. 4. Clouds, precipitation, fog, visibility and meteors. 5. Basics of synoptic methods; general circulation of the atmosphere; air masses; 6. Front. Depressions and anticyclones. 7. Movement of air in the atmosphere; winds; jet stream; storm; twister; tornado. 8. Trade winds, monsoons and tropical storms. 9. Tropical cyclones and hurricanes. 10. Weather analysis and forecast; basics of weather analysis and forecast; data; weather charts and their interpretation; usefulness of weather forecast and analysis. 11. Importance of Oceanology; historical development, branches of Oceanology; water areas and their formation; seabed; marine and fresh water; temperature, salinity and density. 12. Sea surface - the movement of water and starting equations: tides; waves, sea currents. 13. Distribution and characteristics of sea currents, waves and tidal fluctuations in the Adriatic Sea, the Mediterranean Sea and the oceans. 14. Visual appearances at sea; ice at sea; types and distribution of ice; icing of a vessel.					

	15. Meteorological and oceanographic maritime security; organization of marine meteorological and oceanographic services; ice monitoring service; meteorological and oceanographic information and data; passage planning. Exercises 1. Introduction - the atmosphere, radiation. 2. Temperature; air pressure. 3. Humidity; wind. 4. Clouds, precipitation, fog, visibility and meteors. 5. Basics of synoptic methods; general circulation of the atmosphere; air masses; 6. Front. Depressions and anticyclones. 7. Movement of air in the atmosphere; winds; jet stream; storm; twister; tornado. 8. Trade winds, monsoons and tropical storms. 9. Depressions; properties of meteorological parameters and phenomena. 10. Weather in polar regions. 11. Historical development of Oceanology; branches of Oceanology; water areas and their formation; seabed; marine and fresh water; temperature, salinity and density. 12. Sea surface; tides; waves, sea currents. 13. Methods and devices for measuring and monitoring the atmosphere and the sea. 14. Weather analysis and forecast, interpretation of weather conditions. 15. Structure of marine meteorological services.
Format of instruction:	☒ lectures ☐ seminars and workshops ☒exercises ☐*online in entirety* ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☒laboratory ☐ work with mentor ☒Onboard Training(other)
Student responsibilities	**Obligations of full-time students** Lectures and exercises are mandatory and attendance records are kept. Minimum 95 % lecture and 100 % exercise (auditory and practical at training grounds) attendance is required. Students who are prevented from attending lectures and exercises due to illness or other justified reasons, but have attended more than 75 % lectures, will be allowed (with a written excuse note) to compensate the topics they missed by taking additional classes during the semester concerned or no later than one month after the end of the lecture period. Students who fail to meet minimum lecture and exercise attendance requirements, will be required to re-enrol in the course in the next academic year. Students can pass the exam through continuous evaluation by taking two mid-term exams during the lecture period. Students are required to take both mid-term exams. Students who do not pass the mid-term exams, but meet the lecture and exercise attendance requirements, will be required to take the written exam during the exam period. Students who successfully earn a sufficient number of points during classes and through mid-term exams are required to apply for the final exam at Studomat (exam application service) during the first exam period after the end of the lecture period. The final grade will be entered in the ISVU system or students may take an oral exam if they want a higher grade. **Obligations of part-time students** The same as for full-time students.

Screening student work (name the	Class attendance	1.125	Research		Practical training	1.375

proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Experimental work		Report		(other)	
	Essay		Term paper		(other)	
	Mid-term exams	1.5	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluation of students

During a semester, students can take two mid-term exams. The first mid-term exam will be held in week 7 and covers lectures 1-6. The second mid-term exam will be held in week 15 and covers lectures 7-14. Sample mid-term exam questions will be made available to students at the end of each lecture. Minimum 50 % score is required to pass each mid-term exam. Students who fail to take one mid-term exam for objective reasons or do not achieve a minimum percentage of points, will be allowed to retake the mid-term exam in week 7 or week 15. Students who fail to pass mid-term exam 1, will not be allowed to take mid-term exam 2.

Class attendance, mid-term exam results and practical work (individual and group tasks) all contribute to the final grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	95	5
Practical work	100	5
Mid-term exam I	50	45
Mid-term exam II	50	45

Grading

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-61	meets the minimum criteria	sufficient (2)
62-74	average achievement with noticeable insufficiencies	good (3)
75-87	above average achievement with few mistakes	very good (4)
88-100	extraordinary achievement	excellent (5)

Students who do not pass the mid-term exams during a semester, but meet the lecture and exercise attendance requirements will be required to take a written exam in the exam period. The same grading criteria apply to continuous evaluation and in the exam period.

Grading and evaluating student work in class and at the final exam

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. B. Gelo, Opća i pomorska meteorologija, University of Zadar, 2010	16	
	2. M. M. Cornish, E. E. Ives, Maritime meteorology,Thomas Reed Publications, 1997	3	
	3. J. A. Knauss, N. Garfield: Introduction to Physical Oceanography, Waveland Press, 3rd edition, 2017	2	
Optional literature (at the time of	1. B. Penzar, I. Penzar, M. Orlić, *Vrijeme i klima Jadrana*, Zagreb: "Dr. Feletar", 2001		

submission of study program proposal)	2. L. D. Talley, G. L. Pickard, W. J. Emery, J. H. Swift: **Descriptive Physical Oceanography**, Elsevier, 6rd edition, 2011 3. Guidelines for ships operating in polar waters, IMO, 2010 4. Peljar I. Jadransko more – istočna obala, Hrvatski hidrografski institut, 2012 5. http://skola.gfz.hr/ - Mala internet škola oceanografije.
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	SHIP CONSTRUCTION AND STABILITY I					
Code	PFS122	Year of study	1			
Course teacher	Marko Katalinić, PhD, Assoc. Prof.	Credits (ECTS)	5			
Associate teachers	Andro Bakica, PhD, Asst. Prof.	Type of instruction (lessons per semester)	L	S	E	F
			30	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	No application of e-learning			
COURSE DESCRIPTION						
Course objectives	The course objective is to introduce students to the basics of ship geometry, to acquire knowledge of materials in shipbuilding and ship maintenance, to distinguish structural elements of a ship and their role in ship strength and watertightness and to have knowledge of ship technology and master basic concepts of stability, manoeuvrability and ship seaworthiness.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Describe and explain the development of ships throughout the history. 2. Know the role of classification societies. 3. Categorize terms of ship geometry. 4. Analyse various ship blueprints and plans. 5. Identify different types of ships according to their application and type of cargo. 6. Acquire knowledge of basic shipbuilding materials. 7. Analyse systems of shipbuilding, elements of ship longitudinal and transverse strength. Detail the structural elements of ships. 8. Distinguish ship construction processes in a shipyard. 9. Know the basics of welding and recognize the importance of preparation and weld quality. 10. Define ship bulkheads and know the construction of watertight bulkheads and their hatches. 11. Distinguish types of corrosion protection. 12. Establish the level of maintenance and the importance of ship inspection. 13. Examine basic concepts of ship stability, manoeuvrability and seaworthiness.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures** 1. The historical development of ships and the importance of ships and shipbuilding. 2. The importance of classification societies and the International Maritime Organization. 3. Geometric ship modelling, main dimensions and measures. 4. Ship blueprints, shipping lines, general plan, diagram sheet. 5. Classification of ships by application and type of cargo. 6. Materials in shipbuilding and the importance of their characteristics. 7. Construction systems, various elements of the construction system, structural elements of a ship. 8. Bulkheads, watertightness and requirements of classification societies. 9. Strength and strain of ship construction. 10. The course of the shipbuilding process in a shipyard. 11. Welding in shipbuilding. 12. Ship resistance, propulsion and manoeuvrability. 13. Ship structure maintenance, inspection and corrosion protection. 14. The basics of ship stability. 15. The basic elements of seaworthiness.					

	Exercises 1. Learning the principle of work of classification societies. 2. An overview of ship dimensions, calculation of form coefficient. 3. An overview of ship blueprints. 4. Calculating ship coefficients through the application of numerical integration. 5. The characteristics of materials in shipbuilding. 6. Ship structure elements in blueprints. 7. Visit to a shipyard, getting acquainted with ship construction. Fulfilment of an assignment. 8. Sketching structural elements. Mid-term exam 1. 9. Calculating bending moment and shear forces. 10. Visit to a shipyard. The course of shipbuilding process. Fulfilment of an assignment. 11. Sketching ship rudder and propellers. 12. Calculating decrease in structural load due to corrosion. 13. Establishing sea and wave conditions. 14. Sketching and recognizing ship's equipment. 15. Revision. Mid-term exam 2.
Format of instruction:	☒lectures ☐ seminars and workshops ☒exercises ☐ *online in entirety* ☐ partial e-learning ☐field work ☒independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lecture and exercise attendance is mandatory. Lecture and practical training session attendance records will be kept continuously throughout the semester. To be eligible for the exam, students have to attend minimum 80 % of classes (lectures and auditory exercises) and 100 % of practical training sessions. A written excuse (medical certificate) cannot be a replacement for lecture or practical training session attendance. **Obligations of part-time students:** Lecture and practical training session attendance records will be kept continuously throughout the semester. To be eligible for exam, students have to attend minimum 50 % of classes (lectures and auditory exercises) and 100 % of practical training sessions. A written excuse (medical certificate) cannot be a replacement for lecture or practical training session attendance.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.5	Research		Practical training	
	Experimental work		Report		(other)	
	Essay		Term paper	0.5	(other)	
	Mid-term exams (I and II)	3	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of full-time students** Class attendance is mandatory for full-time students, i.e. to be eligible for the exam, students have to attend minimum 80 % of lectures and auditory exercises (12 sessions) and 100 % of practical training sessions.

During a semester, students can take two mid-term exams. The first mid-term exam will be held in week 8 and covers lectures 1-7. The second mid-term exam will be held in week 15 and covers lectures 8-14.
The examples of mid-term exam questions will be made available to students.
Minimum 60 % score is required to pass each mid-term exam. Students who fail to take one mid-term exam for objective reasons or do not achieve a minimum percentage of points may retake the exam.
The retake will be organized for such students in week 9.
Students who fail mid-term exam 1 will not be allowed to take mid-term exam 2.
Class attendance, mid-term exam results and independent work all contribute to the final grade.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	15
I Mid-term exam	60	40
II Mid-term exam	60	40
Individual tasks	100	5

Grading:

Percentage (%)	Criteria	Grade
0-59	does not meet the minimum criteria	insufficient (1)
60-69	meets the minimum criteria	sufficient (2)
70-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

Students who do not pass the mid-term exams during the lecture period, but are eligible for the exam, are required to take a written exam in the exam period. The same grading criteria and continuous evaluation criteria will be applied during the exam period.

Grading and evaluation of part-time students
To be eligible for the exam, students have to attend minimum 50 % of lectures and auditory exercises, and 100 % of practical training sessions.
Grading and evaluation criteria are the same as for full-time students.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. I. Grubišić, Geometrija broda, digitalni udžbenik 2. M. Grubišić, Brodske konstrukcije, Zagreb, 1979 (and other editions) 3. J. Uršić, Čvrstoća broda I, II, III, Zagreb.	 3 4	www.fsb.hr/geometrija.broda
Optional literature (at the time of submission of study program proposal)	1. J. Lechter, The Geometry of Ships, SNAME 2. A. Biran, Ship Hydrostatics and Stability 3. SNAME: Ship Design and Construction I & II,2003		
Quality assurance methods that ensure	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		

the acquisition of exit competences	
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	PHYSICAL EDUCATION I					
Code	PFP147A	Year of study	I			
Course teacher	Mislav Lozovina, PhD, Assoc. Prof.	Credits (ECTS)	1			
Associate teachers	Marin Barišić	Type of instruction (lessons in a semester)	L	S	E	F
					30	
Status of the course	Mandatory	Percentage of application of e-learning				

COURSE DESCRIPTION	
Course objectives	Preparing students for individual training at a workplace or adequate training facility on a vessel where he/she lives and works. Enabling students to select and determine the volume of workout, especially for muscle groups that are affected by the workplace. Empower students to use procedures and techniques for abandonment of a sinking vessel, coming out of water, opening a life raft, climbing on a lifeboat or a boat, setting an overturned life raft into an appropriate position, jumping into water and swimming with a lifejacket, jumping into water and swimming in an isothermal suit, diving, survival in water.
Course enrolment requirements and entry competences required for the course	No requirements.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Gain general and specific motor knowledge, skills, abilities and habits. 2. Keep and improve motor skills of an individual, as a prerequisite for seafarer's health on board. 3. Adapt exercises and techniques to student's abilities. 4. Apply acquired knowledge and motor skill habits to individual training at the workplace. 5. Demonstrate and apply acquired knowledge and techniques for coming out of water, opening a life raft, climbing on a lifeboat or a boat, setting an overturned life raft into an appropriate position, jumping into water and swimming with a lifejacket, jumping into water and swimming in an isothermal suit, diving, survival in water.
Course content broken down in detail by weekly class schedule (syllabus)	Classes of Physical Education I are carried out at different locations: the pool, the gym and at sea. Weather conditions at sea determine the number of rowing classes. The number of swimming classes depends on the coordination of the teaching timetable with pool availability. The number of classes at sea depend on favourable weather conditions. Classes at the gym are organised to maintain good health of seafarers and students through physical exercise. 1. Familiarizing the students with the course curriculum, class locations and specific equipment. Obtaining information on the current medical status of students. 2. Rules of behaviour at the pool, water jumps, getting out of the water, testing swimming skills. 3. Rescuing and pulling a person out of water in case of imminent drowning and providing first aid. 4. Swimming and rescuing a drowning person. 5. Diving under an imaginary oil spill. 6. Putting on an isothermal suit. 7. Getting out of the water, opening the life raft, climbing into the raft/lifeboat; flipping an overturned raft, diving and swimming with a life jacket, diving and swimming in an isothermal suit, diving, survival in water. 8. How to overcome drag and preserve spinal health. 9. Take-off, rebound, landing when running on board and potential injuries.

	10. Running to meeting point. 11. Climbing and descending a rope and sailor's ladder. 12. Ascending and descending ship's stairs. 13. General and specific training of seafarers. 14. Explosive strength of seafarers and reactions during an accident on board. 15. Typical and irregular movements. Rowing in a cutter - basic techniques (rowing will be organized depending on the availability of material and technical conditions). Basics of kinesiological transformation – classes are held at a gym, where students build psychophysical fitness sufficient for the proper performance of their professional duties and tasks. ROWING- a special remark Rowing classes are organized depending on vessel availability times, to allow part-time students to meet course requirements. Full-time students can also take part in rowing classes. Rowing is carried out in a cutter and/or boat. Part-time students may write a term paper to meet course requirements.
Format of instruction:	☐ lectures ☒ seminars ☒ exercises ☐ *online in entirety* ☐ partial e-learning ☒ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ practice on a simulator
Student responsibilities	**Obligations of full-time students** Exercise attendance is mandatory and attendance records are kept. Minimum 80 % exercise attendance is required to meet student obligations, pass the course and earn 1 ECTS. Students who are prevented from attending classes for justified reasons will be allowed to write a term paper. Students who fail to meet attendance requirements will have failed to meet their obligations and will be required to re-enrol in the course next year. **Obligations of part-time students** Total attendance requirements for part-time students may not be less than 50 % of what is prescribed for full-time students. Students who are prevented from attending classes for justified reasons will be allowed to write a term paper.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	0.75	Research		Practical training	0.25
	Experimental work		Report		(other)	
	Essay		Seminar		(other)	
	Mid-term exams		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading** There is no grade in Physical Education I. Students who meet their course obligations, i.e. attendance requirements, will be considered to have met their obligations, passed the course, and earned 1 ECTS.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. Lozovina V.: Sportovi na vodi, university textbook, Split 2001	25	YES

	2. Zec, D.: "Sigurnost na moru", Faculty of Maritime Studies in Rijeka, Rijeka, 2001		
	3. Lozovina V., Lozovina M. (2012): THEORY AND MATHEMATICAL MODULATION OF SPORTS TRAINING, Paradigm Of Methodological Theory And Mathematical Modulation Of Sports Training, LAP LAMBERT Academic Publishing, Saarbrücken, Germany, ISBN: 978-3-659-24998-3		
	4. Bompa, T., Buzzichelli, C. (2015): PERIODIZATION TRAINING FOR SPORTS, Human Kinetics Publishers, Champaign, United States, ISBN10: 1450469434, ISBN13: 9781450469432		
Optional literature (at the time of submission of study program proposal)			
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	MARITIME ENGLISH II					
Code	PFP172	Year of study	1			
Course teacher	Mira Pavlinović, PhD, Assoc. Prof.	Credits (ECTS)	4			
Associate teachers	Jelena Žanić-Mikuličić, PhD, senior lecturer	Type of instruction (number of hours)	L	S	E	F
			15	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Acquisition of basic and specialist language knowledge and skills for students to be able to obtain certificates and authorizations for a deck officer on vessels of 500 GT and more, the first deck officer on vessels of 500 gross tonnage and more, the first deck officer on ships of 3000 GT and more, and a master of a vessel of 3000 GT and more (according to STCW Convention 1995 requirements and amendments) - English as the language of official communication in the global maritime industry. Improving the level of knowledge of “maritime English”, and “general English language”. Acquisition of student communication skills in English language in order to ensure safe navigation and protect the marine environment. Encouraging and developing the cognitive abilities of students, as well as developing four basic language skills: reading, listening, writing and speaking. Developing skills, ability to collect, organize and critically evaluate information.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Classify and distinguish between different types of ships and cargo; correctly describe parts of a ship; properly define basic terms related to cargo, basic concepts of navigation and meteorology. Correctly group specialized terminology in accordance with given topics, translate specialized maritime terms from English into Croatian and from Croatian into English. Use English language fluently and effectively to participate in discussions on certain general/specialized topics.					
Course content broken down in detail by weekly class schedule (syllabus)	The content of the course is in accordance with the requirements of the STCW Convention. **Lectures:** 1. Ports and harbours, Port structure, The port of Rijeka. 2. Cargo handling equipment 3. Loading a vessel 4. Leaving the Dock. 5. Under Way. 6. Meeting Heavy Weather. 7. Arriving at a port 8. At anchor 9. Navigation: Berthing. Mooring incidents. 10. An Introduction to Navigation. 11. Electronic Aids to Navigation. Integrated navigation system. Conditional clauses (Part 1). 12. Sea charts. Conditional clauses (Part 2). 13. Obtaining a Ship’s position. 14. Astronomical navigation. Reported speech. 15. Revision					

	Exercises: 1. Ports and harbours, Port structure, The port of Rijeka. 2. The Passive. Colocations. Loading a Vessel. 3. Word building: nouns – prefixes & suffixes. Leaving the Dock. 4. Narrative tenses; Under Way. 5. Modal verbs and expressions. Meeting Heavy Weather. 6. Collocations. Arriving at a port 7. Modal verbs. At anchor 8. Articles, Collocations. Navigation: Berthing. 9. Phrasal verbs; Gerunds and Participles. An Introduction to Navigation. 10. Mid-term test. 11. Pronouns. Determiners. The Navigating Bridge. Obtaining a Ship's position. 12. Conditional clauses. Electronic Aids to Navigation. Integrated navigation system. 13. Conditional clauses. Sea charts 14. Reported speech. Astronomical navigation. 15. End-term test.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online in entirety* X partial e-learning ☐ field work X independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lecture and exercise attendance is mandatory and attendance records are kept. Minimum 80 % lecture and auditory exercise attendance is required to be eligible for the exam and earn ECTS. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. The exam consists of a written and oral part. Students can pass the written part of the exam through continuous evaluation throughout the semester by taking mid-term exams or the final exam (written). Students who do not pass the mid-term exams, and are eligible for the exam, are required to take the written exam during the exam period. After passing the written part of the exam, all students are required to take the oral part of the exam. Students who successfully earn a sufficient number of points during classes are required to apply for the final exam at Studomat during the first exam period after the end of the lecture period. The final grade will be entered in the ISVU system. **Obligations of part-time students:** Lectures and exercises are mandatory for part-time students and attendance records are kept. To be eligible for the exam, part-time student are required to attend minimum 50 % of lectures and auditory exercises. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1,125	Research		Practical training	
	Experimental work		Report		Homework (other)	
	Essay		Term paper		(other)	
	Mid-term exams	1	Oral exam	0,875	(other)	
	Written exam	1	Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of students:** The exam consists of two parts: written and oral. Students can take the written part of the exam in the form of mid-term exams. Exam topics will have been covered by teaching materials and include professional

vocabulary and grammar. Students may pass the written part of the exam and professional terminology prior to the beginning of exam periods. In that event, only oral part of the exam (lessons) is taken during the exam period.

Students who fail to take or pass the written part of the exam in the form of mid-term exams, but meet the minimum requirements in the course of the semester, will take the final exam by completing a written assignment and taking the oral part of the exam in the regular exam periods.

To pass the mid-term/final exam, and take the oral part of the exam, students have to achieve a minimum of 50 % of the total number of points.

To take the exam during an exam period, and have the grade entered in the system, students have to apply for the exam in their target exam period.

Exam applications and cancellations are made online, using Studomat.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Mid-term exams	50	30
Continuous assessment during lectures		10
Total		50 (in this case, students are exempt from the written exam)

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	40
Theoretical part of the exam (written and/or oral)	50	60
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Kluijven, P. van (2003) International Maritime English Program, Alk & Heinen, Alkmaar		
	2. Pritchard, B. 1995, *Maritime English 1*, Školska knjiga, Zagreb		

Optional literature (at the time of submission of study program proposal)	1. Blakey,TN. English for Maritime Studies. Prentice Hall International English Language Teaching, University Press, Cambridge 2. Pritchard B. Hrvatsko-engleski rječnik pomorskog nazivlja, Školska knjiga, Zagreb, 1989. 3. Plančić, B., Skračić, T., Englesko - hrvatski pomorski rječnik, Kartular, Split, 2013
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	MATHEMATICS II					
Code	PFP 312	Year of study	1			
Course teacher	Prof. Tatjana Stanivuk, PhD	Credits (ECTS)	6			
Associate teachers	Matko Maleš, PhD	Type of instruction (number of hours)	L	S	E	F
			30	-	30	-
Status of the course	Mandatory	Percentage of application of e-learning	10			

COURSE DESCRIPTION	
Course objectives	Acquire knowledge and skills in those areas of mathematics which are necessary to follow the curricula of other courses envisaged in the curriculum (basic algebra, mathematical analysis and appropriate mathematical methods), and are expected to be implemented in practice.
Course enrolment requirements and entry competences required for the course	No requirements.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Defining primitive functions and calculating indefinite integrals. 2. Interpreting integration methods and applying the Newton - Leibniz formula to calculate definite integrals. 3. Recognizing and calculating improper integrals. 4. Applying definite integrals to calculate surfaces, arc length, volumes and surfaces of rotating bodies. 5. Analysing and calculating functions of two or more variables. 6. Interpreting and explaining the results of first and second order differential equations.
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures**: 1. Introduction. Indefinite integral and its properties. Basic integrals. 2. Method of substitution and partial integration. 3. Integrating rational functions. Definite integrals and their properties. The Newton-Leibniz formula. Substitution and partial integration in definite integrals. 4. Improper integrals. Numerical integration. 5. The application of the definite integral: Calculating the surfaces of two-dimensional figures. Calculating the arc length of a curve. 6. Calculating the volumes and surfaces of rotating bodies. 7. Multivariable functions: The scope of definition and graphical representation of the function. Partial derivations. 8. Partial derivations of complex functions. 9. The extrema of function of two variables: Regular extrema. Conditional extrema. 10. Double integrals. 11. Differential equations: First order differential equations: Separation of variables. 12. Homogenous, linear, Bernoulli and exact differential equations. 13. Second order differential equations reduced to first order differential equations. 14. Homogeneous and heterogeneous linear second order differential equations with constant coefficients. 15. Overview and revision. **Exercises:** 1. Introduction. Basic integrals. 2. Substitution and partial integration methods.

	3. Integrating rational functions. Definite integrals and their properties. The Newton-Leibniz formula. Substitution and partial integration in definite integrals. 4. Improper integrals. Numerical integration. 5. The application of the definite integral: Calculating the surfaces of two-dimensional figures. Calculating the arc length of a curve. 6. Calculating the volumes and surfaces of rotating bodies. 7. First mid-term exam. Multivariable functions: The scope of definition and graphical representation. 8. Partial derivations. Partial deviations of complex functions. 9. The extrema of function of two variables: Regular extrema. Conditional extrema. 10. Double integrals. 11. Differential equations: First order differential equations: Separation of variables. 12. Homogenous, linear, Bernoulli and exact differential equations. 13. Second order differential equations reduced to first order differential equations. 14. Homogeneous and heterogeneous linear second order differential equations with constant coefficients. 15. Second mid-term exam
Format of instruction:	☒ lectures ☐ seminars ☒ exercises ☐ *online in entirety* ☐ field work ☐ individual work on assignments ☒ multimedia ☐ laboratory ☐ work with mentor ☒ consultations
Student responsibilities	**Obligations of full-time students** Minimum 80 % lecture and exercise attendance is required. Active participation in classes and regularly taking mid-term exams (two mid-term exams) during the lecture period. Students who pass both mid-term exams will be exempt from the final written part of the exam, held in the exam period. Students are required to formally apply for the final exam using Studomat. Students who fail to meet attendance requirements have to re-enrol the course in the next academic year. **Obligations of part-time students** Obligations of part-time students differ from the obligation of full-time students only in the following: 1. Minimum 50 % lecture and exercise attendance. 2. Mid-term exams can be rescheduled with the course teacher if a student is prevented from taking the exam at the scheduled time for duly justified reasons.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.5	Research	-	(other)	-
	Experimental work	-	Report	-	(other)	-
	Essay	-	Term paper	-	(other)	-
	Mid-term exam or written exam	4.5	Oral exam	-	(other)	-
	Practical training		Project	-	(other)	-

Grading and evaluating student work in class and at the final exam	**1. Grading and evaluation of full-time students:** All students are required to take the written part of the exam. The written part consists of two mid-term exams held during the lecture period (week 7 and 15), or the final written exam held during the exam period.

Minimum 50 % of the total number of points are required to pass mid-term exams. Students who pass both mid-term exams are exempt from taking the final written part of the exam. Students who pass only one mid-term exam will not be required to pass topics covered by that mid-term exam. They will only have to pass the topics covered by the mid-term exam they failed.

The grade is the mean value of points earned in mid-term exams or the grade for the final written part of the exam (if a student fails to pass the two mid-term exams).

Class attendance and activity of each student are monitored and assessed during classes, and also count towards the final grade for the course.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Mid-term exam 1	50	45
Mid-term exam 2	50	45
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Written exam	50	90
Previous activities (all elements of continuous monitoring are included)	80	10

Grading:

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

2. Grading and assessment is the same as for full-time students:

Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. Merlin; https://moodle.srce.hr/2021-2022/	-	YES
2. MareMathics; https://maremathics.pfst.hr/	-	YES
3. Bradić. T. et al.: Matematika za tehnološke fakultete, Element, 2006	5	-
4. Rivier K.: Matematika 3, Polytechnic in Split, Split, 2003	39	
5. I. Slapničar, Matematika 2, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, the University of Split, Split, 2008	-	YES
6. Hughes-Hallet, D. et al.: Applied Calculus, Wiley, 2013	-	YES

Optional literature (at the time of submission of study program proposal)	1. Group of authors: Matematika II dio, Faculty of Maritime Studies in Rijeka, 1993 2. Apsen, B.: Riješeni zadaci više matematike 2, Zagreb: Tehnička knjiga, 1991 3. Demidovič, B.P.: Zadaci i riješeni primjeri iz matematičke analize za tehnički fakultete, Zagreb, 1995
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	SHIP CONSTRUCTION AND STABILITY II					
Code	PFS123	Year of study	1			
Course teacher	Marko Katalinić, PhD, Assoc. Prof.	Credits (ECTS)	5			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	no application of e-learning			
COURSE DESCRIPTION						
Course objectives	The course objective is to introduce students to the stability of a ship in undamaged and damaged conditions, and to the static and dynamic stability of a ship.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Establish initial transverse stability of a ship and know the elements of transverse stability. 2. Divide influences of different shifts in weight on transverse stability of a ship. 3. Define the impact of cargo weight during loading/unloading on the transverse stability of the ship. 4. Recognize the effect of free surfaces and know its influence on the elements of transverse stability. 5. Analyse ship stability according to different criteria. 6. Explain and elaborate longitudinal stability of a ship and know the elements of longitudinal stability. 7. Examine the effect of loading/unloading of weight on elements of ship longitudinal stability. 8. Define elements of dynamic stability of a ship and analyse ship stability in damaged conditions.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures** 1. Distribution of ship stability according to different criteria, main characteristics, buoyancy conditions. 2. Initial transverse stability of a ship. 3. Influence on initial transverse stability of the ship as a result of vertical shift of weight, horizontal shift of weight, combined horizontal and vertical shift of weight. 4. Influence on initial transverse stability of the ship as a result of weight loading or unloading. 5. Loading or unloading of cargo with a derrick. 6. Influence of free surfaces on initial transverse stability of a ship. 7. Transverse stability at larger angles of heel, an indicator of stability at larger angles of heel. 8. Constructing static stability lever curves and analysis of curve features. 9. Determining initial transverse stability of a ship, calculating centration. 10. Longitudinal stability of a ship. 11. Influences on the longitudinal stability of a ship, the influence of shifting weight on longitudinal stability, the effect of loading/unloading on the elements of ship longitudinal stability. 12. Determining longitudinal stability of a ship, calculating centration. 13. Dynamic stability of a ship, the influence of dimension and technology on ship stability. 14. Ship stability in a damaged condition and in special cases of ship stability. 15. Trim and stability book. **Exercises**					

	1. Ship's stability documents (hydrostatic tables, hydrostatic sheets). 2. Using hydrostatic tables and hydrostatic sheets. 3. Numerical tasks involving shifting weight on a ship. 4. Numerical tasks involving the loading and unloading of cargo. 5. Numerical tasks involving the loading of cargo with a ship's crane. 6. Calculating the impact of free surfaces. 7. Stability at larger heel angles. 8. Longitudinal stability of a ship - elements. First mid-term exam. 9. Numerical task involving the influence of shifting weight on longitudinal stability 10. Longitudinal stability. Numerical tasks involving cargo loading. 11. Longitudinal stability. Numerical tasks involving cargo unloading. 12. Calculating the stability of a damaged vessel. 13. Calculating stability during docking. 14. Using a computer to analyse ship stability. 15. Revision and second mid-term exam.
Format of instruction:	☒lectures ☐ seminars and workshops ☒exercises ☐ *online in entirety* ☐ partial e-learning ☐field work ☒independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory. Lecture and practical training (exercise) attendance records are kept continuously throughout the semester. To be eligible for the exam, students have to attend minimum 80 % of classes (lectures and auditory exercises) and 100 % of practical training sessions. A written excuse (medical certificate) cannot be a replacement for lecture or practical training session attendance. **Obligations of part-time students:** Lecture and practical training sessions attendance records will be kept continuously throughout the semester. To be eligible for the exam, students have to attend minimum 50 % of classes (lectures and auditory exercises) and 100 % of practical training sessions. A written excuse (medical certificate) cannot be a replacement for lecture or practical training session attendance.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.5	Research		Practical training	
	Experimental work		Report		(other)	
	Essay		Term paper	0.5	(other)	
	Mid-term exams	3	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of full-time students** Class attendance is mandatory for full-time students, i.e. to be eligible for the exam, students have to attend minimum 80 % of lectures and auditory exercises (12 sessions) and 100 % practical training sessions. During a semester, students can take two mid-term exams. The first mid-term exam will be held in week 8 and covers lectures 1-7. The second mid-term exam will be held in week 15 and covers lectures 8-14. The examples of mid-term exam questions will be made available to students.

Minimum 60 % score is required to pass each mid-term exam. Students who fail to take one mid-term exam for objective reasons or do not achieve a minimum percentage of points may retake the exam.
The retake will be organized for such students in week 9.
Students who fail mid-term exam 1 will not be allowed to take mid-term exam 2.
Class attendance, mid-term exam results and independent work all contribute to the final grade.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	15
I Mid-term exam	60	40
II Mid-term exam	60	40
Individual assignments	100	5

Grading:

Percentage (%)	Criteria	Grade
0-59	does not meet the minimum criteria	insufficient (1)
60-69	meets the minimum criteria	sufficient (2)
70-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

Students who do not pass the mid-term exams during the lecture period and are eligible for the exam, may take the written exam in the exam period. The same grading criteria and continuous evaluation criteria are applied during the exam period.

Grading and evaluation of part-time students

To be eligible for the exam, students have to attend minimum 50 % of lectures and auditory exercises, and 100 % of practical training sessions.
Grading and evaluation criteria are the same as for full-time students.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. Uršić J.: Stabilitet broda I, Faculty of Mechanical Engineering and Naval Architecture, Zagreb 2. Uršić J.: Stabilitet broda II, Faculty of Mechanical Engineering and Naval Architecture, Zagreb 3. Hrvatski registar brodova: DIO 4 Stabilitet	3 3 2	www.crs.hr
Optional literature (at the time of submission of study program proposal)	1. C.S.Moore: Intact Stability, SNAME 2. Derrett & Barrass: Ship Stability for Masters and Mates 3. SNAME: Ship Design and Construction I & II,2003		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.		

COURSE NAME	MARITIME PUBLIC LAW					
Code	PFP128	Year of study	1			
Course teacher	Ranka Petrinović, PhD, Full Prof.	Credits (ECTS)	3			
Associate teachers	-	Type of instruction (number of hours)	L	S	E	F
			30	0	0	0
Status of the course	Mandatory	Percentage of application of e-learning	-			
COURSE DESCRIPTION						
Course objectives	The objective of the course is to familiarize the students with international and national regulations governing borders at sea, the rights and obligations of states and other subjects of international law at sea, their mutual relations in connection with the exploitation of sea resources and the seabed, and their protection; complying with (international) maritime safety regulations in general, regulations on the protection of human life at sea and the protection of the marine environment in particular; Maritime Administration Office of the Republic of Croatia; controlling the state flag and state port; keeping order in ports; regime of sea ports and the maritime domain; procedures for completing marine administrative formalities upon arrival at a port, calling into a port and departing from a port; legal status of a ship; working conditions of mariners and the rights and obligations of the shipmaster and other crew members.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Analyse the basic institutions of the international law of the sea, maritime administrative law and maritime labour law. 2. Categorize types of vessels. 3. Identify, differentiate and compare marine zones in accordance with the international law of the sea. 4. Analyse organizing the safety of navigation and inspection. 5. Analyse the structure, activities and functions of the Maritime Administration Office of the Republic of Croatia and legal regulations on the maritime domain and seaports in the Republic of Croatia. 6. Distinguish the legal aspects of the responsibilities of the crew and the captain and explain their rights and obligations under international and national regulations.					
Course content broken down in detail by weekly class schedule (syllabus)	1. Definition, classification, meaning and origins of maritime law and the international Law of the Sea; The methods for harmonizing maritime law and the Law of the Sea at the international level; The Maritime Code of the Republic of Croatia; The International Maritime Organization; The European Maritime Safety Agency. 2. Legal concept of a ship (and other marine facilities), types of ships, individualization and registration of ships. 3. Sources of the international Law of the Sea; The UN Convention on the Law of the Sea (1982); Marine and submarine areas of Croatia; Internal waters; Territorial sea; Economic zone; Continental shelf. 4. The right of hot pursuit; Archipelago sea; International straits; Marine tunnels; The right of landlocked countries to access sea and from the sea and freedom of transit; Open sea; Scientific research of the sea. 5. Categorization of regulations on the protection of the marine environment; International regulations on the protection of the marine environment - global and regional conventions; International law of war at sea. 6. Organization of navigation safety services in the Republic of Croatia; Port Authority; Coast Guard; The maritime domain; The legal status of seaports, port types and order in ports; Port Authority.					

	7. Pilotage; Inspection; The Paris Memorandum on port state control; Categories of navigation in the Republic of Croatia. 8. International conventions for the safety of navigation; Liability according to the SOLAS Convention. 9. Protection of the marine environment; Liability according to the MARPOL Convention (1973/78). 10. Ship's documents and books such as the matriculation certificate, the International Certificate on Load Lines (1966), the International Tonnage Certificate, the Certificate of passenger ship safety, the Certificate of safety equipment of a cargo ship, the Certificate of structural safety of a cargo ship, the Certificate of safety of cargo ship radio equipment, the Certificate of capability for transportation of hazardous chemicals, the International Oil Pollution Prevention Certificate, the International pollution prevention certificate of transportation of hazardous liquid spills, Logbook, Engine room logbook, Medical logbook, Radio logbook, Cargo logbook, Crew list, Passenger list, the Certificate of deratization or the Certificate of exemption from pest control. 11. Rules on the classification of ships and classification documents (Certificates of hull, engines and cooling devices classes); Liability under the International Convention on Load Lines (1966/88); Regulations on the medical examinations of seafarers and the requirements according to international regulations on health care; International Sanitary Ordinance. 12. Report on ship arrival to the port and necessary documentation; Procedure upon a ship's arrival at a port; The Convention on Facilitation of International Maritime Traffic (1965). 13. Maritime labour law; The crew - in general; allocating responsibilities on board; rights and obligations of the crew; Maritime Labour Convention, 2006 (MLC, no. 186). 14. Certificates and declarations to the Convention MLC, financial guarantees, repatriation, responsibility for personal injury. 15. Ordinance on Vocations and Certificates of Competencies for Seafarers; The legal position of the ship master; Administrative functions (public mandate) - title - ship master; Ship master's duties with respect to the safety of ship and navigation; Responsibilities of a ship master in the event of an accident.	
Format of instruction:	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *online in entirety* ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	**Obligations of full-time students:** Lectures are mandatory and attendance records are kept. To be eligible for the exam, students are required to attend minimum 80 % of lectures. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. Students can pass the exam through continuous evaluation during the semester by successful passing two mid-term exams during the lecture period, or by taking the final exam (written and/or oral). Students who fail to pass the mid-term exams, but are eligible for the exam, are required to take a written and/or oral exam in the exam period. Students who successfully earn a sufficient number of points have to formally apply for the final exam using Studomat for the first exam period. The final grade will be entered in the ISVU system, or students can take an oral exam if they want a better grade. **Obligations of part-time students:** To be eligible for the exam, students have to attend minimum 95 % of lectures. Exam taking methods are the same as for full-time students.	

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	0.75	Research		Practical training	
	Experimental work		Report		(other)	
	Essay		Term paper		(other)	
	Mid-term exams	2.25	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluation of full-time students

During a semester, students can take three mid-term exams. The first mid-term exam will be held in week 6 and covers lectures 1-5. The second mid-term exam will be held in week 11 and covers lectures 6-10. The third mid-term exam will be held in week 15 and covers lectures 11-15. The examples of exam questions will be made available to students at the end of each lecture. Minimum 50 % score is required to pass each mid-term exam.

Students who do not take one of the mid-term exams for duly justified reasons or do not achieve the minimum score on any mid-term exam will be allowed to retake that mid-term exam.

Class attendance, class activity and continuous knowledge assessment all contribute to the final grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Points (%)
Class attendance and activity	80 %	10
Mid-term exam 1	50 %	30
Mid-term exam 2	50 %	30
Mid-term exam 3	50 %	30

Grading:

Percentage (%)	Criteria	Grade
0 – 49.9	does not meet the minimum criteria	insufficient (1)
50 – 61.9	meets the minimum criteria	sufficient (2)
62 – 74.9	average achievement with noticeable insufficiencies	good (3)
75 – 87.9	above average achievement with few mistakes	very good (4)
88 - 100	extraordinary achievement	excellent (5)

Students who do not pass the mid-term exams during the lecture period and are eligible for the exam, are required to take a written and/or oral exam in the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Grading and evaluation of part-time students

Grading and evaluation criteria are the same as for full-time students.

Grading and evaluating student work in class and at the final exam

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	1. R. Petrinović, N. Mandić: Pomorsko pravo za zapovjednika broda, Split, 2025	10	-

Optional literature (at the time of

1. V. Barić Punda, D. Rudolf ml., Pravo mora, Split, 2007
2. D. Bolanča, Hrvatsko plovidbeno upravno pravo, Split, 2015

submission of study program proposal)	3. D. Bolanča, Pravni status morskih luka kao pomorskog dobra u Republici Hrvatskoj, Split, 2003 4. I. Grabovac, Suvremeno hrvatsko pomorsko pravo i Pomorski zakonik, Split, 2005 5. I. Grabovac – R. Petrinović: Pomorsko pravo – pomorsko javno, upravno i radno pravo, Split, 2006 6. A. Luttenberger, Osnove međunarodnog prava mora, Rijeka, 2006 7. A. Luttenberger, Pomorsko upravno pravo, Rijeka, 2005 8. B. Milošević Pujo, R. Petrinović, Pomorsko pravo za jahte i brodice, Split, 2008 9. Pomorski zakonik, Official Gazette No. 181/04, 76/07, 146/08, 61/11, 56/13, 26/15 i 17/19 10. Teaching materials (MareLaw project) – https://marelaw.pfst.hr/lessons
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	-

COURSE NAME	MARINE POWER SYSTEMS					
Code	PFS208	Year of study	1			
Course teacher	Nikola Račić, PhD, Full Prof.	Credits (ECTS)	5			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			45	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	Introduce students to the processes and procedures in connection with the ship's propulsion system and auxiliary power systems. Explain their features, operation and handling – what is directly or indirectly under the responsibility of a deck officer. Familiarizing students with the ability to control and supervise the main engine remotely from the bridge, and the system of alarm and automatic protection of the main engine.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Distinguish and describe the processes, components and performance of ship's propulsion systems. 2. Distinguish and describe the function and performance of the ship's auxiliary power system designed to secure energy flow to marine propulsion systems, safety and security of the ship, and comfort of life on board. 3. Differentiate and present methods for preparing and managing systems that allow direct or indirect operation of the main engine. 4. Analyse and describe the function of pipeline systems and devices necessary for safe navigation. 5. Use basic knowledge of marine engineering technical terms and physical units to establish a causal dependence between physical units and alarm system units and automatic alarm protection of the main engine.					
Course content broken down in detail by weekly class schedule (syllabus)	Lectures: 1. Ship propulsion systems. Introduction. Ship propulsion systems in general, types, advantages and disadvantages. Basic features and applicability to different types of merchant ships. 2. Shaft bushings and types of propellers. Bolt propulsor. Characteristics and usage of blade shaft, rotor shaft and bolt shaft. Types of clutches and reducers. Description and performance of bearing and stern tube seal. Ways of securing propellers on the axle. Presentation of propellers and their basic dimensions. Definitions of climb, slip and efficiency of the propeller. Calculation of an apparent slip based on boat speed, engine speed and ascent. Design and working principle of the propeller with rotary wings. Jet propulsion systems. 3. Marine diesel engines. Description of working principle of two-stroke and four-stroke diesel engines and description of their cycles (p-v diagram). Description of low-speed diesel engines. Description of two-stroke engine drain. Compression performance. Description of medium-diesel engines. 4. Fuel system. Lubrication system. Cooling system. Types of clutches and reducers. Ignition of engine using air. Preparation of engine for ignition. Reversing of the propulsion engine. Maintenance. 5. Steam turbine propulsion system. Working principle of impulse and reaction turbines. Description of steam turbine system. Types of steam generators. Description and advantages of water-tube steam generator. Description of increasing the steam-readiness of a boiler. Method of steam turbine system manoeuvring. Maintenance.					

	6. Auxiliary boilers. Description of auxiliary boilers with furnaces and exhaust gases boilers. Boiler fuel supply system and its activation. Preparation of feed water. Maintenance. 7. General purpose pumps and piping systems. General information on ship pumps, their division (piston pumps and plunger pumps, rotary pumps: centrifugal, gear and propeller), application and principle of work. Illustration of loss at the pressure end of a pipeline. Suction height and its effect on pump operation. 8. Description of bilge and ballast systems on ships for the transportation of dry and liquid bulk cargo. General fresh water production and supply system. Working principle of an evaporator. Treatment of fresh water intended for drinking. Description of water supply system of drinking water (water pump device). Maintenance. 9. Ship waste water. Device for sanitary wastewater. Working principle of biochemical wastewater treatment system and rules concerning the discharge of wastewater. Devices for the separation of oil from bilge water. Execution and working principle of the separator-filter plant for bilge water purification. Working principle of equipment for oil content measurement and for control of purified bilge water. Waste, trash and scrap incinerators. Description and working principle of incinerators. 10. Air-conditioning devices, conditioning and ventilation. Steam compression refrigeration system. Refrigerants and their properties. Air conditioning plant. Ventilation system of the cargo holds, accommodation and engine room. Maintenance. 11. Deck machinery. Design and principle of operation of various winches. Design and principle of operation of clamps and anchor windlasses. Maintenance. Hydraulic systems. Execution and working principle of individual elements of hydraulic system; tanks, pumps, pipes, control valves, hydraulic motors and piping. Open and closed hydraulic system. Maintenance. 12. Steering apparatus. General information on the steering apparatus. Hydraulic steering gear with two and four cylinders. Steering gear with hinged hydraulic cylinder. Management system for steering gear. IMO requirements for steering gear management in an emergency. Method of transferring from ship's remote control steering to steering in local steering gear facilities. IMO requirements for inspection of steering gear. 13. Generators, alternators and distribution of electricity. Alternating current generators, alternating current and direct current. Parallel operation of two or more generators. Working principle of a direct current engine. Working principle of induction engines. Description of alternating and direct current schemes. Their advantages and disadvantages. Design and use of switches, fuses; description and application of adapters. Description of navigation lights power supply and auxiliary supply system schemes. Usage of adapters. Description and characteristics of lead-acid and alkaline batteries. Maintenance of batteries. Security measures for battery storage. Designing a procedure for start of a generator in case of an emergency. Devices for supply of generator in case of an emergency. Description of auxiliary lighting in case of an emergency on Ro-Ro passenger ships. Maintenance - ISM. 14. Management and control of ship power system. Design and description of work of automatic remote-control system of a propulsion engine. Bridge management. Management system of propulsion gear from the bridge. Bridge management of propeller variable ascent. Devices for control, warning and alarms on the bridge. Implementation, management and control of lateral propulsion from the bridge. 15. Maritime engineering terms. Definition and units of measurement for mass, force, work, power, energy, pressure, load, heat, volume, temperature, flow. Indicated engine diagram, indicated power, effective power and efficiency. Consumption and calculation of fuel consumption. Impact of propeller and hull fouling. External impact of wind on fuel consumption. Exercises:

	1. An analysis of ship propulsion systems (steam turbine, gas turbine, diesel engine). 2. An analysis of the diesel engine propulsion system on the engine room simulator. 3. An analysis and handling of seawater and fresh cooling water systems. 4. An analysis and handling of fuel and lubricating oil systems. 5. An analysis and operation of the compressed air system. Preparation and commissioning of the main and auxiliary machines. 6. Steam generator preparation and commissioning. An analysis of fuel, air, condensate and feed water systems. 7. Preparing for steam turbine operation and commissioning. 8. An analysis of volumetric and dynamic pumps and pipeline elements. 9. An analysis and functionality of the bilge and ballast system. 10. Preparation and operation of the fresh water generator. 11. Steering device control system, control methods and emergency steering. 12. Steam compression refrigeration plant, analysis and operation. 13. Commissioning of aggregates - parallel operation of synchronous generators. 14. Automated operation of the ship's mechanical system, functioning in case of failure and incidents. 15. Calculating fuel consumption.
Format of instruction:	x lectures ☐ seminars and workshops x exercises ☐ *online* ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	**Obligations of full-time students:** Lectures are mandatory and attendance records are kept. To be eligible for the exam, students are required to attend minimum 80 % of lectures. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. Students can pass the exam through continuous evaluation during the semester by successful passing two mid-term exams during the lecture period, or by taking the final exam (written and/or oral). Students who fail to pass the mid-term exams, but are eligible for the exam, are required to take a written and/or oral exam in the exam period. Students who successfully earn a sufficient number of points have to formally apply for the final exam in the first exam period using Studomat. The final grade will be entered in the ISVU system, or students can take an oral exam if they want a better grade. **Obligations of part-time students:** To be eligible for the exam, students have to attend minimum 95 % of lectures. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is	Class attendance	1.5	Research		Practical training	
	Experimental work		Report		(other)	
	Essay		Term paper		(other)	
	Mid-term exams	3.5	Oral exam		(other)	

equal to the ECTS value of the course)	Written exam		Project		(other)	

Grading and evaluation of students:

Lecture attendance is mandatory, i.e. a precondition for the exam.
Two mid-term exams will be organized in the course of the semester. The first mid-term exam covers lectures 1-6 and will be held in week 7, while the second mid-term exam covers lectures 7-14 and will be held in week 15. The examples of exam questions will be made available to students at the end of each lecture. Minimum 50 % score is required to pass each mid-term exam.

Lecture attendance and mid-term exam results count towards the final grade.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Attendance/active participation at lectures	80 %	10 %
Mid-term exam I	50 %	45 %
Mid-term exam II	50 %	45 %

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 61	meets the minimum criteria	sufficient (2)
62 – 74	average achievement with noticeable insufficiencies	good (3)
75 – 87	above average achievement with few mistakes	very good (4)
88 – 100	extraordinary achievement	excellent (5)

Students who fail mid-term exams during the semester, but who have regularly attended lectures, are required to take the written exam in the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. D. Martinović, Strojarski priručnik za časnike palube, Faculty of Maritime Studies in Rijeka, 2000		YES

Optional literature (at the time of submission of study program proposal)

1. V.Ozretić, Brodski pomoćni strojevi i uređaji, SSM-Split, 1996
2. H.D.McGeorge, Marine Auxiliary Machinery seventh edition, Butteworth Heinemann, London, 1995
3. S. Šneller: Pogon broda I, University of Rijeka, Faculty of Mechanical Engineering and Naval Architecture, 1996
4. S. Šneller, Ž.Oarat: Pogon broda II, University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Zagreb, 1996
5. Z. Prelec: Brodski generatori pare, Školska knjiga, Zagreb, 1996
6. E. Tireli, D. Martinović: Brodske toplinske turbine, Faculty of maritime Studies in Rijeka, 2001

Quality assurance methods that ensure the acquisition of exit competences

University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.

Other (as the proposer wishes to add)	

COURSE NAME	TECHNICAL MECHANICS					
Code	PFS 100	Year of study	1			
Course teacher	Tina Perić, PhD, associate professor	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning	/			
COURSE DESCRIPTION						
Course objectives	Knowledge of the basic laws and methods of mechanics and the influence of forces and their impact on movement and condition of a body. Developing a simple and logical way of thinking when analysing and solving practical engineering tasks in maritime technology. Special attention is given to understanding the ship's mechanical problems under load, stress, movement, as well as to mechanical and energy systems during operation.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain the basic concepts, laws and methods of the mechanics of solids and liquids, and the importance of their application in the maritime technology. 2. Define basic statics of solid and elastic bodies (planar and spatial systems of forces and moments, balance, beam and lattice girders, friction, geometrical characteristics of cross section, stress and strain of elements of marine structures). 3. Analyse simple examples of supporting elements under various loads and determine stress and strain. 4. Define and understand basic features of kinematic motion (position, velocity and acceleration) of the body in different coordinate systems. 5. Analyse simple examples of kinematics, rotation and body movement in the plane. 6. Define and understand the basics of the dynamics of body movement in different coordinate systems. Explain the concepts of work, power, energy, impulse, momentum, moment of momentum and mass geometry. 7. Analyse dynamics on simple examples of translation, rotation and body movement in the plane. 8. Define and understand basic properties and statics of liquids. Explain the terms of hydrostatic and hydraulic pressure, buoyancy and stability of swimming. 9. Specify and elaborate correctly basic laws of dynamics of ideal and real fluids. Explain types of fluid flow using the equation of continuity and Bernoulli's Principle in leakage and flow without losses. 10. Create conditions for adoption and understanding of new knowledge in other courses of the study program.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures** 1. Introduction, task, elements and basic laws of mechanics. 2. Statics of rigid bodies. Basic concepts and axioms of statics. Particle statics. 3. Momentum. Coupling force. Force reduction. Force balance. 4. Sliding friction and rolling friction. 5. Girder and lattice girders. 6. Geometric features of bodies and their surfaces. Statics of elastic bodies (strength). 7. Stress and strain. Hooke's law. Axial load. 8. Shearing. Twist. Bending. 9. Buckling. Kinematics. Kinematics of a particle.					

	10. Rectilinear and curvilinear motion. Kinematics of rigid body. Translation. 11. Rotation about a fixed axis. Planar motion. 12. Dynamics. Dynamics of particle. Equations of motion. D Alembert's principle. Work and power. Kinetic and potential energy. 13. Impulse and momentum. Angular momentum. Dynamics of rigid body. Geometry of mass. Translation. 14. Rotation about a fixed axis. Planar motion. Fluid mechanics. Hydrostatics. 15. Pressure and hydrostatic lift. Hydrodynamics. Basic equations. Leakage and flow. **Exercises** 1. Statics of rigid bodies. Basic concepts. Reactions to connections. 2. Statics of a particle. Coupling force. Force reduction. Force balance. 3. Statics of a body. Force reduction. Force balance. 4. Friction. Sliding friction. Rolling friction. 5. Carriers. Beam carriers. 6. Girders. Lattice girders 7. Statics of elastic bodies. Stress and strain. Axial load. 8. Shearing. Twist. Bending. 9. Buckling. Kinematics of a particle. Rectilinear motion. 10. Curvilinear motion. Kinematics of rigid body. Translation. 11. Rotation about a fixed axis. Planar motion. 12. Dynamics of particle. Equations of motion. D Alembert's principle. Work and power. Kinetic and potential energy. 13. Impulse and momentum. Angular momentum. Dynamics of rigid body. Translation. 14. Rotation about a fixed axis. Planar motion. 15. Hydrostatics. Hydrodynamics.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	**Obligations of full-time students:** Minimum 80 % lecture and exercise attendance. Students who fail to meet the attendance requirement (up to 20 % of justified absences) may become eligible for the exam by completing additional assignments at extra classes. Students who are prevented from attending classes due to illness are required to submit a valid medical certificate. Students who attend less than 50 % of classes will not be eligible for the exam and will have to re-enrol in the course next year. **Obligations of part-time students:** Total obligations are minimum 50 % of attendance requirements prescribed for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.125	Research		Practical training	
	Experimental work		Report		Homework (other)	
	Essay		Term paper		(other)	
	Mid-term exams	1	Oral exam	0.875	(other)	
	Written exam	1	Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of full-time students:** The written part of the exam consists of two mid-term exams held in the course of the semester (weeks 8 and 15 of lectures) or the final exam (written and oral), held in the exam period.

Students who pass both mid-term exams will be considered to have passed the final exam. Students may retake one mid-term exam they failed only once. Students who fail to pass both mid-term exams will be required to take the final exam (written and oral).

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
1. Mid-term exam	50	45
2. Mid-term exam	50	45
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Written exam	50	60
Oral exam	50	30
Prior activity (including all indicators of continuous assessment)	100	10
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

Grading and evaluation of part-time students:

Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. Z. Kulenović: Tehnička mehanika za pomorce, Split: Faculty of Maritime Studies, University of Split, 2013		YES
2. Z. Kulenović: Mehanika krutih tijela, Split: University Department of Marine Studies, University of Split, 2002		YES
3. Z. Kulenović: Čvrstoća materijala, Split: Faculty of Maritime Studies, University of Split, 2010	40	

Optional literature (at the time of submission of study program proposal)	1. O. Muftić, Mehanika I, Zagreb: Tehnička knjiga, 1991 2. S. Jecić, Mehanika II, Zagreb: Tehnička knjiga, 1989 3. M. Pečornik, Tehnička mehanika fluida, Zagreb: Školska knjiga, 1989
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	SEA AND MARINE ENVIRONMENT PROTECTION					
Code	PFN205	Year of study				
Course teacher	Merica Slišković, PhD, Full Prof.	Credits (ECTS)	2			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			15	0	0	0
Status of the course	Mandatory	Percentage of application of e-learning	10 %			

COURSE DESCRIPTION		
Course objectives	Defining potential sources of contamination and pollution of the marine environment from vessels. Prevention of pollution from ships and taking appropriate measures if contamination is detected.	
Course enrolment requirements and entry competences required for the course	No requirements.	
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Identify types and characteristics of pollutants and assess the effects of pollution on the marine environment and human life. 2. Categorize the most common sources of pollution from ships. 3. Interpret basic contents of the International Convention for the Prevention of Pollution from Ships 73/78 and its annexes, as well as other important international regulations on prevention of pollution from ships (AFS Convention and BW Convention) in terms of pollutants. 4. Connect various pollutants from the ship with preventive and operational procedures in order to prevent contamination. 5. Elaborate on the importance of regional cooperation on pollution prevention, alertness and appropriate response to a pollution incident– Sub-regional Plan.	
Course content broken down in detail by weekly class schedule (syllabus)	1. Introduction. Contamination/pollution of sea. 2. Contamination/pollution as a result of human activities. 3. Ship as a source of marine environment pollution. Harmful effects of ships on marine environment. 4. Prevention of Pollution from Ships - MARPOL 73/78. 5. Appendix I - Prevention of Sea Pollution by Oil 6. SOPEP - Ship Oil Pollution Emergency Plan: Mandatory and optional requirements. 7. Appendix II - Control of Pollution by Noxious Liquid Substances 8. Appendix III - Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form 9. Appendix IV - Prevention of Pollution by Sewage from Ships 10. Appendix V - Prevention of Pollution by Waste from Ships. 11. Marine waste. 12. Appendix VI - Prevention of Air Pollution from Ships. 13. Prevention of Marine Pollution (Ballast Water Control) 14. International Convention for the Control and Management of Ships' Ballast Water and Sediments. 15. Contingency Plan for Accidental Marine Pollution in the Republic of Croatia.	
Format of instruction:	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *online* ☒ partial e-learning ☐ field work	☐ independent assignments ☒ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students**	

Lectures are mandatory and attendance records are kept. To be eligible for the exam, students are required to attend minimum 80 % of lectures. Students who fail to meet the attendance requirement will not be eligible for the exam and will be required to re-enrol in the course next year.
Students may pass the exam through continuous evaluation in the course of the semester by taking two mid-term exams. Students are required to take all mid-term exams.
Students who fail to pass mid-term exams in the course of the semester, but are eligible for the exam, are required to take the written exam during the exam period.
Students are required to cover their assigned topics using e-learning materials individually or as part of a team.
Students who earn the sufficient number of points in the lecture period are required to apply for the exam at Studomat in the first exam period after lectures and their final grade will be entered in the ISVU system or they may take an oral exam if they want a higher grade.

Obligations of part-time students:
Total attendance requirements for part-time students may not be less than 50 % of those prescribed for full-time students. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)

Class attendance	0.375	Research		Practical training	
Experimental work		Report		Homework (other)	
Essay		Term paper		e-learning	0.625
Mid-term exams	1	Oral exam		(other)	
Written exam		*Project*		*(other)*	

Grading and evaluating student work in class and at the final exam

Grading and evaluation of full-time students
Lecture attendance is mandatory for full-time students, i.e. to be eligible for the exam they must attend minimum 80 % of lectures (12 lectures).
Two mid-term exams will be organized in the course of the semester. The first mid-term exam covers lectures 1-6, while the second mid-term exam covers lectures 7-13. The examples of exam questions will be made available to students at the end of each lecture. Minimum 50 % score is required to pass each mid-term exam. Students who do not take one of the mid-term exams for duly justified reasons or do not achieve the minimum score on the mid-term exam will be allowed to retake that mid-term exam. Students who fail to pass the first mid-term exam may not take the second mid-term exam.
Students are required to cover their assigned topics using e-learning materials individually or as part of a team.
Class attendance, mid-term exam results and individual/team assignments count towards the final grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Points (%)
Class attendance	80	7.5
Individual/team work	50	2.5
Mid-term exam I	50	45
Mid-term exam II	50	45

Grading

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

Students who fail to pass mid-term exams in the course of the semester, but are eligible for the exam, are required to take the written exam during the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Grading and evaluation of part-time students

To be eligible for the exam, students need to attend minimum 50 % of lectures. Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. MARPOL international convention, 1973/78	5	YES
2. The SOLAS convention, 1974 (chapter VII)	3	YES
3. M. Slišković: Zaštita mora i morskog okoliša, teaching materials, Split: Faculty of Maritime Studies, 2018		YES

Optional literature (at the time of submission of study program proposal)

1. K. Andersson et al., Shipping and environment, Springer-Verlag Berlin Heidelberg, 2016
2. S. Karim, Prevention of pollution of the Marine Environment form the Vessels, Springer International Publishing Switzerland, 2015
3. Z. Bićanić, Zaštita mora i morskog okoliša, Split, 2003

Quality assurance methods that ensure the acquisition of exit competences

University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.

Other (as the proposer wishes to add)

Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	PHYSICAL EDUCATION II					
Code	PFP147B	Year of study	1			
Course teacher	Mislav Lozovina, PhD, Assoc. Prof.	Credits (ECTS)	1			
Associate teachers		Type of instruction (lessons in semester)	L	S	E	F
					30	
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	Preparing students for individual training at a workplace or adequate training facility on a vessel where he/she lives and works. Enabling students to select and determine the volume of workout, especially for muscle groups that are affected by the workplace. Familiarize students with the importance of continuous health maintenance of sailors through physical exercises, basic, general and specific motor skills: climbing rope and sailor ladder, rescuing a drowning person, swimming, sailor rowing. Appropriate kinesiological activities to meet the needs of students for movement as a way of meeting general needs that increase adaptive and creative abilities in the modern world of life and study. In addition, the aim of Physical Education course is to convey to students basic information on health, work and defence abilities necessary for life.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Gain general and specific motor knowledge, skills, abilities and habits. 2. Solve motor skills tasks to be used in perilous situations. 3. Acquire knowledge about the factors that cause occurrences of injuries and development of illnesses. 4. Adapt exercises and usage of techniques to student's abilities. 5. Apply acquired knowledge and motor skill habits to individual training at the workplace.					
Course content broken down in detail by weekly class schedule (syllabus)	Classes of Physical Education II are carried out at different locations: the pool, the gym and at sea. Weather conditions at sea determine the number of hours of rowing. The possibility of coordinating teaching timetable with pool availability determines the number of hours of swimming. Good weather conditions determine the number of teaching hours at sea. Classes in the gym are organised to maintain good health of seafarers and students through physical exercise. Part-time students are allowed to write a term paper to meet the course requirements. The course is designed to enable students to achieve psychophysical fitness sufficient for the proper performance of their professional duties and tasks. The following activities are applied: natural body movements, shaping exercises, swimming, rowing and diving. 1. Free diving, time and length. Checking and testing both motor skills and functional abilities. 2. Swimming exercises: gliding, floating, breathing technique, handwork, footwork, correcting typical breathing, stroke and leg mistakes. 3. Swimming exercises for neck, sacral and coccyx pain. 4. The method of jumping off the ship, diving under the imaginary burning sea set on fire by fuel pollution from the ship, the method of surfacing in case of a shipwreck. 5. Rescue of a drowning person. Approaching a drowning person with caution. Gripping a drowning person. Method of suffocation in sea and water. 6. Take-off, rebound, landing when running on board and potential injuries.					

	7. Running to the place of alarm. Measuring resting heart rate, heart rate after exertion (running) and after recovery (2 min. after activity). 8. Going up and down the ship's stairs. Work, fatigue, rest. 9. Climbing up and down the rope and sailor's ladder. 10. General and specific physical training of seafarers. 11. The explosive strength of seafarers and reactions in case of an accident on board. 12. Flexibility, balance of the organism. Precision. Movement speed. 13. Lifting loads. Typical regular and irregular movements. 14. Breathing exercises. Chest breathing. Belly breathing. Checking and testing motor knowledge and functional abilities of the organism. 15. Sailor rowing in a lifeboat depending on knowledge and ability. The basics of kinesiology transformation (BKT) – Classes are held in the gym, where students achieve psychophysical fitness sufficient for the proper performance of their professional duties and tasks. The sailor's rowing stroke technique. Pulling out and carrying oars. Proper cutter load: bow, centre, stern, port and starboard. Basic stoke harmonization. Basic starting position: position of arms, torso, legs and oars. Active and passive phases of a stroke. Rowing of rowers at the bow, mid and stern. Basic sailor's rowing strokes. Short, medium, long and strong, powerful strokes. Rowing start, turn, finish. **ROWING- a special remark** Rowing classes are offered to part-time students to meet course requirements, depending on boat availability. Full-time students can also take part in rowing classes. Rowing is carried out in a cutter and/or boat. Part-time students may write a term paper.
Format of instruction:	☐ lectures ☒ seminars ☒ exercises ☐ *online* ☐ partial e-learning ☒ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ practice on a simulator
Student responsibilities	**Obligations of full-time students** Exercise attendance is mandatory and attendance records are kept. Minimum 80 % exercise attendance is required to meet student obligations, pass the course and earn 1 ECTS. Students who are prevented from attending classes for justified reasons will be allowed to write a term paper. Students who fail to meet attendance requirements will have failed to meet their obligation and will be required to re-enrol in the course next year. **Obligations of part-time students** Total attendance requirements for part-time students may not be less than 50 % of what is prescribed for full-time students. Students who are prevented from attending classes for justified reasons will be allowed to write a term paper.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	0.75	Research		Practical training	0.25
	Experimental work		Report		(other)	
	Essay		Seminar		(other)	
	Mid-term exams		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student	**Grading**					

work in class and at the final exam	There is no grade in Physical Education II. Students who meet their course obligations, i.e. attendance requirements, will be considered to have met their obligations, passed the course, and earned 1 ECTS.		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Lozovina V.: Sportovi na vodi, Sveučilišni udžbenik, Split 2001.	25	YES
	2. Zec, D.: "*Sigurnost na moru*", Faculty of Maritime Studies in Rijeka, Rijeka, 2001.		
	3. Lozovina V., Lozovina M. (2012): THEORY AND MATHEMATICAL MODULATION OF SPORTS TRAINING, Paradigm Of Methodological Theory And Mathematical Modulation Of Sports Training, LAP LAMBERT Academic Publishing, Saarbrücken, Germany, ISBN: 978-3-659-24998-3.		
	4. Bompa, T., Buzzichelli, C. (2015): PERIODIZATION TRAINING FOR SPORTS, Human Kinetics Publishers, Champaign, United States, ISBN10: 1450469434, ISBN13: 9781450469432.		
Optional literature (at the time of submission of study program proposal)			
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	MARITIME ENGLISH III					
Code	PFP177	Year of study	2			
Course teacher	Mira Pavlinović, PhD, Assoc. Prof.	Credits (ECTS)	4			
Associate teachers	Jelena Žanić-Mikuličić, PhD, senior lecturer	Type of instruction (number of hours)	L	S	E	F
			15	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Raising the level of knowledge of “maritime English”, and general English language. Acquisition of basic and specialist language knowledge and skills for students to be able to obtain certificates and authorizations for a deck officer on vessels of 500 GT and more, the first deck officer on vessels of 500 gross tonnage and more, the first deck officer on ships of 3000 GT and more, and a master of a vessel of 3000 GT and more (according to STCW Convention 1995 requirements and amendments). English as the language of official communication in the global maritime industry: acquisition of student communication skills of English language in order to ensure safe navigation and protect the marine environment. Acquisition of language skills and preparing students for learning, acquiring knowledge and following technological developments of world maritime industry, maritime law and economics of shipping industry and ports. Training students to give a presentation of maritime topics in English language and developing the four main language skills: reading, listening, writing and speech. Encouraging and developing cognitive abilities of students, ability to collect, organize and critically evaluate information, and ability to work in a team.					
Course enrolment requirements and entry competences required for the course	Successfully completed Maritime English I and Maritime English II courses.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Acquisition of basic and specialist language knowledge and skills for students to be able to obtain certificates and authorizations for a deck officer on vessels of 500 GT and more, the first deck officer on vessels of 500 gross tonnage and more, the first deck officer on ships of 3000 GT and more, and a master of a vessel of 3000 GT and more (according to STCW Convention 1995 requirements and amendments). Compare parts of messages related to safety of navigation (danger, urgency, emergency, search and rescue), and in accordance with the IMO STCW 1995 Convention (OOW 500 GT and more), interpret, translate and write such messages. Distinguish and define the terms and communication on topics of safety of navigation, and compare English and Croatian translations of the terms; interpret, write and orally present phrases from "Standard Marine Communication Phrases" IMO manual.					
Course content broken down in detail by weekly class schedule (syllabus)	The content of the course is in accordance with the requirements of STCW Convention. The course connects specialised vocabulary important for maritime industry and general English. **Lectures:** 1. Buoyage system. 2. Communications at sea. 3. Communication: Distress Messages. 4. Communication: Urgency and Safety Messages. 5. Modern Shipping Technology. 6. International Regulations for Preventing Collisions at Sea. (Part 1) 7. International Regulations for Preventing Collisions at Sea. (part 2) 8. Casualty report: The stranding of the "Tifoso". 9. Case study - Reasons why ships sink. 10. Conditional clauses.					

	11. Break Bulk Cargo. 12. Timber. 13. Cargo Damage and Claims 14. Shipping Procedure **15.** Revision **Exercises:** 1. Buoyage system 2. Alphabet. Communications 3. Compounds. Communication: Messages (Distress) 4. Imperative. Communication: Messages (Urgency, Safety) 5. Word building. Modern Shipping Technology 6. The perfect aspect. International Regulations for Preventing Collisions at Sea. 7. Expressing modality. International Regulations for Preventing Collisions at Sea. 8. Mid-term test. 9. Tenses. Report writing. The stranding of the "Tifoso". 10. Collocations. Report writing. Case study - Reasons why ships sink. 11. Conditional clauses. 12. Position of adverbs, Break Bulk Cargo. 13. Relative Clauses, Cargo Damage and Claims. 14. Collocations. Word building. Timber. 15. End-term test.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* X partial e-learning ☐ field work X independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lecture and exercise attendance is mandatory and attendance records are kept. Minimum 80 % lecture and auditory exercise attendance is required to be eligible for the exam and earn ECTS. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. The exam consists of a written and oral part. Students can pass the written part of the exam through continuous evaluation throughout the semester by taking mid-term exams or the final exam (written).Students who do not pass the mid-term exams, and are eligible for the exam, are required to take the written exam during the exam period. After passing the written part of the exam, all students are required to take the oral part of the exam. Students who successfully earn a sufficient number of points during classes are required to apply for the final exam at Studomat during the first exam period after the end of the lecture period. The final grade will be entered in the ISVU system. **Obligations of part-time students:** Lectures and exercises are mandatory for part-time students and attendance records are kept. To be eligible for the exam, part-time student are required to attend minimum 50 % of lectures and auditory exercises.Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is	Class attendance	1.125	Research		Practical training	
	Experimental work		Report		Homework	
	Essay		Term paper		Independent work during classes	0.375
	Mid-term exams	1	Oral exam	1.5	(other)	

equal to the ECTS value of the course)	Mid-term exams/written exam	1	Project		(other)	

Grading and evaluation of students:

The exam consists of two parts: written and oral.

Students can take the written part of the exam in the form of mid-term exams. Exam topics will have been covered by teaching materials and include professional vocabulary and grammar. Students may pass the written part of the exam and professional terminology prior to the beginning of exam periods. In that event, only oral part of the exam (lessons) is taken during the exam period.

Students who fail to take or pass the written part of the exam in the form of mid-term exams, but meet the minimum requirements in the course of the semester, he/she will take the final exam by writing a written assignment and taking the oral part of the exam in the regular exam periods.

In order for a student to pass the mid-terms/final exam, and take the oral part of the exam, he/she has to achieve a minimum of 50 % of the total number of points.

To take the exam during an exam period, and have the grade entered in the system, students have to apply for the exam in their target exam period.

Exam applications and cancellations are made online, using Studomat.

Grading and evaluating student work in class and at the final exam

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Mid-term exams	50	30
Continuous assessment during lectures		10
Total		50 (in this case, the student is exempt from the written exam)

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	40
Theoretical part of the exam (written and/or oral)	50	60
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)

	90 – 100	extraordinary achievement	excellent (5)

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. B. Pritchard: Ship's Business in English, Faculty of Maritime Studies, Rijeka, 1994		
	2. Kluijven, P. Van: International Maritime English Program, Alk & Heinen, Alkmaar, 2003		
	3. Standard Marine Communication Phrases, Školska knjiga, Zagreb		
Optional literature (at the time of submission of study program proposal)	1. Blakey,TN. English for Maritime Studies. Prentice Hall International English Language Teaching, University Press, Cambridge 2. Eastwood J.: Oxford Practice Grammar, Oxford University Press, 2000 3. Pritchard B.: Hrvatsko-engleski rječnik pomorskog nazivlja, Školska knjiga, Zagreb, 1989 4. Plančić Skračić Englesko - hrvatski pomorski rječnik, Kartular, Split, 2013 5. Selected texts, professional publications and magazines such as Notices to Mariners, Maritime Reporter, Marine Technology etc.		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	SAFETY AT SEA					
Code	PFN201	Year of study	2			
Course teacher	Ivica Pavić, PhD, Assoc. Prof.	Credits (ECTS)	5			
Associate teachers	Toni Meštrović, MEng	Type of instruction (number of hours)	L	S	E	F
			45	0	3	12
Status of the course	Mandatory	Percentage of application of e-learning	20 %			
COURSE DESCRIPTION						
Course objectives	Train students to perform search and rescue procedures, communication in distress, survival at sea, fire-fighting, operating a boat and a rescue boat, basic level of safety/security protection.					
Course enrolment requirements and entry competences required for the course	Successfully completed and passed *Basic Safety and First Aid* course under the Introductory differential program (or having a D2 certificate – *Basic Safety Training* or completed marine secondary school - nautical division).					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Discuss the legal framework of the international system of safe navigation. 2. Analyse and understand underlying actions and procedures for search and rescue at sea. 3. Describe functional characteristics, technical features, use and maintenance of lifesaving apparatus on ships. 4. Know how to use means of communication in distress. 5. Explain reasons, actions and ways of leaving the ship and the possibility of survival at sea. 6. Describe functional characteristics, technical features use and maintenance of firefighting equipment and systems on ships. 7. Describe emergency procedures for firefighting on board. 8. Understand importance, organization and procedures of crew at the basic level of safety/security protection.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Introduction. International navigation safety information system. 2. Search and rescue at sea I - Organization and management. 3. Search and rescue at sea II - Organization and management. 4. Rescue equipment management I. 5. Rescue equipment management II. 6. Means of communication in distress. 7. Abandoning a ship I. 8. Abandoning a ship II. 9. Survival at sea. Fire-fighting emergency procedure I. 10. Fire-fighting emergency procedure II. 11. Fire-fighting emergency procedure III. 12. Fire-fighting emergency procedure IV. 13. Fire-fighting emergency procedure V. 14. Ship security I. 15. Ship security II. **Exercises:** 1. Management of lifeboat or rescue boat operations during and after lowering I - equipment used to lower lifeboats and rescue boats. 2. Management of lifeboat or rescue boat operations during and after lowering II - equipment used to lower lifeboats and rescue boats. 3. Management of lifeboat or rescue boat operations during and after lowering III – boat maintenance. 4. Management of lifeboat or rescue boat operations during and after lowering IV – boat maintenance. 5. Organization and training of a firefighting team I – ship fire-fighting plans.					

	6. Organization and training of a firefighting team II – fire-fighting training and drills. 7. Organization and training of a firefighting team III – fire-fighting training and drills. 8. Organization and training of a firefighting team IV – planning and implementing fire drills and ship abandoning drill with a realistic scenario, analysing firefighting experience. 9. Supervision and the danger of firefighting operations on board - fire on a ship's propulsion systems (fire on boilers, exhaust gas fire on propulsion and auxiliary engines). 10. Supervision of firefighting operations on board I – fire safety procedures at sea with an emphasis on organization, tactics and management. 11. Supervision of firefighting operations on board II – fire safety procedures at sea with an emphasis on organization, tactics and management. 12. Supervision of firefighting operations on board III – fire safety procedures at sea with an emphasis on organization, tactics and management. 13. Inspecting and maintaining fire detection and extinguishing systems and equipment I - fire suits and other personal protective equipment. 14. Inspecting and maintaining fire detection and extinguishing systems and equipment II – rescue and salvage equipment and life support. 15. Inspecting and maintaining fire detection and extinguishing systems and equipment III – rescue and salvage equipment and life support.
Format of instruction:	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *online* ☐ partial e-learning ☒ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To qualify for the issuance of certificates of competence, students must attend minimum 95 % of lectures and 100 % of exercises. To be eligible for the exam, students must attend minimum 80 % of lectures and 80 % of exercises. Students who fail to meet lecture and exercise attendance requirements will not be eligible for the exam and will be required to re-enrol in the course next year. Written excuse notes (medical certificates) can not substitute attendance. Students who fail to meet the requirements for taking the exam due to illness or another justified reason, and have under 20 % of absences, will be allowed (with a written excuse note) to compensate the missed part of the lectures by taking extra classes in the course of or after the semester, but no later than one month after the end of the lecture period. **Obligations of part-time students:** To be eligible for the exam, part-time students are required to attend minimum 50 % of lectures and 50 % of exercises. **Should they wish to obtain certificates, the same rules that apply to full-time students apply to part-time students.**

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is	Class attendance	1.5	Research		Practical training	
	Experimental work		Report		(other)	
	Essay		Term paper		(other)	
	Mid-term exams	3.5	Oral exam		(other)	

equal to the ECTS value of the course)	Written exam		Project		(other)	

Grading and evaluation of full-time students

Two mid-term exams will be organized in the course of the semester. The first mid-term exam, which covers lectures 1-7, will be held in week 8, while the second mid-term exam, which covers lectures 8-15, will be held in week 15. Minimum 50 % score is required to pass each mid-term exam. Students who fail the first mid-term exam may take the second mid-term exam.

Students who fail one of the mid-term exams but are eligible for the final exam, may write only the part they failed, at the written exam. The exam may be taken in this manner by the end of the exam period in the current academic year.

Students who fail to pass mid-term exams, but are eligible for the exam, may take the written exam in the exam period.

Students who passed both mid-term exams are required to apply for the exam at Studomat and their grade will be entered in the ISVU system in the exam period, or they may take the final exam if they want a higher grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Points (%)
Class attendance	80	10
Practical training	100	10
Mid-term exam I	50	40
Mid-term exam II	50	40

Grading

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

The same criteria for evaluation and for continuous evaluation are applied during exam period.

Grading and evaluation of part-time students:

The grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	1. Zec, D.: *Sigurnost na moru*, Faculty of Maritime Studies in Rijeka, Rijeka, 2001	12	
	2. IMO: *SOLAS, Consolidated Edition 2020*, IMO Publishing, London, United Kingdom, 2020	1	
	3. IMO: *Guide to Maritime Security and the ISPS Code, 2012 Edition*, IMO Publishing, 2012	1	
	4. Pavić, I.: Sigurnost na moru, lectures, teaching materials in the PPT format, topics in keeping with the Implementation Program, Faculty of Maritime Studies in Split, 2022		YES
Optional literature (at the time of	1. House, D. J.: Marine Survival, 3rd Edition, Witherby Seamanship, Edinburgh, Scotland, 2011		

submission of study program proposal)	2. IMO: IAMSAR MANUAL, International Aeronautical and Maritime Search and Rescue Manual, 2022 Edition, Vol. 1 Organization and Management", IMO Publishing, 2016 3. IMO: IAMSAR MANUAL, International Aeronautical and Maritime Search and Rescue Manual, 2022 Edition, Vol. 2 Mission Co-ordination", IMO Publishing, 2016 4. IMO: IAMSAR MANUAL, International Aeronautical and Maritime Search and Rescue Manual, 2022 Edition, Vol. 3 Mobile Facilities, IMO Publishing, 2016 5. The Naval Handbook for Ship Firefighters, 8th Edition, The Nautical Institute, London, 2006 6. The Naval Handbook for Survivors, 3rd Edition, The Nautical Institute, London, 2007 7. IMO: Life-Saving Appliances including LSA Code, 2017 Edition, IMO Publishing, 2017 8. IMO: FSS Code, International Code for Fire Safety Systems, 2015 Edition, IMO Publishing, 2015 9. Pike, D.: Launch and Recovery of Boats from Ships, The Nautical Institute, London, 2018 10. Ritchie, G.: Onboard Safety, Witherby Seamanship, Edinburgh, Scotland, 2011 11. Pravila za statutarnu certifikaciju pomorskih brodova, Dio 31. – Sigurnosna zaštita broda, Hrvatski registar brodova 12. Mojaš, N., et.al.: Sigurnosna zaštita na brodu, Naše more 60(3-4)/2013. - Supplement, pp. 39-45
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	TERRESTRIAL NAVIGATION I					
Code		Year of study	2			
Course teacher	Zvonimir Lušić, PhD, Full Prof.	Credits (ECTS)	4			
Associate teachers	Stipe Galić	Type of instruction (number of hours)	L	S	E	F
			30	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning	10 %			
COURSE DESCRIPTION						
Course objectives	Master basic concepts in navigation, orientation in space, conventional navigation instruments and navigation of a ship at sea. Learn how to use magnetic compass. Calculate elements of loxodromic and orthodromic navigation, determine the elements of tides, elements of Mercator navigational chart.					
Course enrolment requirements and entry competences required for the course	A precondition for enrolment is completed course *Knowledge of ships and navigation* from the Introductory Differential Program (or completed marine secondary school - nautical division). A precondition for taking the exam: passed course *Knowledge of ships and navigation* from the Introductory Differential Program (or completed marine secondary school - nautical division).					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain and interpret basic terms in maritime navigation. 2. Describe and analyse the basics of orientation at sea, course triangle and summed navigation. 3. Know basic map projections used in maritime navigation, numerical and graphical methods of Mercator navigational (white) chart construction, gnomon and stereographic projections. 4. Calculation of elements of tides using Croatian and English tables, comparison of different ways of solving problems, including determining of tidal currents. 5. Describe and explain elements of terrestrial and marine magnetism, and confirm the total approximate standard deviation formula. 6. Interpret the method for determining magnetic compass deviations, compensation methods and demagnetization methods.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures** 1. Basic terms in maritime navigation, basic elements of the Earth as a spheroid and an ellipsoid. 2. Absolute coordinates and relative coordinates, basic units and their conversion, azimuth angle and bow angle. 3. Navigation at sea, navigation instruments. 4. Terms and definitions loxodromic and orthodromic. Course triangle, triangle of mid latitudes, Mercator triangle. Loxodromic tasks 1 and 2. Summation of courses. 5. Ship compasses, ship magnetic compass, variation and deviation. Earth's magnetism. Controlling deviation. 6. Ship's iron. Fixed and variable ship magnetism. Division of ship magnetism and terrestrial magnetism on ship coordinate system. Total deviation, directional force at compass position, deviation force. 7. Division of deviations. Tilt error. Total approximate standard deviation formula. 8. Determining the deviation coefficient. The directional force coefficient. Methods to determine deviation, creating tables and curves of deviation. 9. Compensating for ship magnetism and demagnetization. 10. Map projections; conic, cylindrical, and azimuthal. Mercator navigational (white) chart construction, construction of gnomonic and azimuthal projection maps. UTM projection. 11. Construction of gnomonic and azimuthal projection maps. UTM projection. 12. Theory of tides - static, dynamic. Harmonic analysis. The effect of meteorological elements on sea level.					

13. Using tides tables. Calculation of high and low water times, calculation of water level. Tidal currents.
14. Charts and guides in navigation. Notices to Mariners. Electronic navigational charts and ECDIS.
15. Manuals in navigation. Ship's books (logbooks), the main logbook.

Exercises

1. Geographic coordinates: absolute and relative. Conversion of units. Determination of the mean latitude, differences in geographical latitude and longitude. Determination of speed, travel time, travel distance.
2. Course, azimuth, bow angle. Distance: graphical representation, calculation, table.
3. Course triangle, determining course and distance, determining coordinates of arrival position based on coordinates of departure position and relative coordinates.
4. Addition of courses (calculation and tables).
5. Determining distance and depression to the horizon. Conversion of angles: circular scale, semi-circular scale, quadrant scale, wind mark and direction.
6. Reading variations from charts. Reducing variation to the year of usage. Reading tables of deviations. Changing azimuth courses into compass courses and vice versa.
7. Controlling magnetic and gyro compasses deviation. Keeping records of control of deviations. Making curves and tables of deviations.
8. Determining magnetic compass deviation for various courses of movement. Determining the approximate standard deviation formula, determining A, B, C, D, E, Kn coefficients. Determining the directional force coefficient λ.
9. Compensating for ship magnetism.
10. Drawing a Mercator navigational chart, calculation and graphical representation.
11. Drawing a Mercator navigational chart, calculation and graphical representation. Gnomonic map.
12. Calculating high and low water for the main port and secondary port. Using Croatian and English tide tables.
13. Reducing the measured depth to map level. Calculating time for specific depth and vice versa.
14. Calculating safe passage through shallows. Determining tidal currents.
15. Calculating safe passage through shallows. Determining tidal currents.

Format of instruction:

☒ lectures	☒ independent assignments
☐ seminars	☐ multimedia
☒ exercises	☐ laboratory
☐ *online*	☐ work with mentor
☐ field work	

Student responsibilities

Type of activity	Criteria	Specific activity
Class attendance - lectures	Min 80 %	Class attendance
Class attendance - auditory exercises	Min 80 %	Class attendance
Taking notes (diary) during exercises	100 %	Presentation of diary is obligatory to be eligible for signature
Individual assignments	100 %	Presentation is obligatory to be eligible for signature

Obligations of full-time students:
Lectures and exercises are mandatory and attendance records are kept. Students are required to attend minimum 80 % of classes (lectures and auditory exercises). Students who fail to meet the minimum attendance requirement will not be eligible for exam. A written excuse can neither serve as a justification, nor as substitute for attendance.

Obligations of part-time students:
Minimum 50 % attendance, providing that students can compensate the remainder of their obligations to 80 % attendance subsequently, at extra classes, during and after the semester, but no later then one month after the end of the lecture period.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)

Class attendance	1.125	Research		Practical training	
Experimental work		Report		Individual assignments	0.075
Essay		Term paper		(other)	
Mid-term exams	1.8	Oral exam	1.0	(other)	
Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Points (%)
Class attendance	80	15
I Mid-term exam	75	25
II Mid-term exam	75	25
III Mid-term exam - theory (basic definitions)	51 (95)	30
Individual assignments	100	5

Final evaluation

Elements of evaluation	Success (min. %)	Points (%)
Previous activities (including elements of continuous evaluation)	80	20
Written part	75	40
Theoretical exam (written and/or oral) (one part includes basic definitions)	51 (95)	40

Mid-term exam schedule:
Mid-term exam I - exercises (various easy problems, course triangle) week 8
Mid-term exam II - exercises (magnetism, Mercator navigational chart, tides) week 15
Mid-term exam III - theory and basic definitions week 14

Grading
Minimum 51 % to pass

Percentage (%)	Criteria	Grade
0-50	does not meet the minimum criteria	insufficient (1)

51-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

A student has to achieve a minimum of 75 % of total points to pass the exam.

Percentage (%)	Criteria	Grade
0-74	does not meet the minimum criteria	insufficient (1)
75-84	meets the minimum criteria	sufficient (2)
85-89	average achievement with noticeable insufficiencies	good (3)
90-94	above average achievement with few mistakes	very good (4)
95-100	extraordinary achievement	excellent (5)

Students who pass two mid-term exams (exercises) and meet all course requirements, can take the oral part of the exam. Students who pass two theoretical mid-term exams during the lecture period will be exempt from the oral part of the exam.
Students who fail mid-term exams are required to take the final written exam, providing they are eligible for the exam.
Mid-term exams can be taken only during the lecture period, while the final exam can only be taken during the official exam period. Students who fail mid-term exam 1, can not take mid-term exam 2. Any mid-terms exams passed are valid until the end of the respective academic year. The second mid-term exam can be replaced with corresponding independent assignments, but only in the course of the semester. The same does not apply to the first mid-term exam, which must be passed.

Written mid-term exams from exercises will be recognized until the end of the academic year, i.e. the end of applicable exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year.

Total duration of written exam (exercises) – 1-2 school hours.
Total duration of mid-term exams (exercises) – only during the lecture period – 1-2 school hours.
Total duration of the mid-term exam (theory) – up to 1 school hour.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. Z. Lušić: Terestrička navigacija – teaching material, Split, Faculty of Maritime Studies in Split 2012		YES
	2. N. Bowditch: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002	1	YES
	3. Nautičke tablice, HHI, Split	10	
Optional literature (at the time of submission of study program proposal)	1. F. Benković et al: Terestrička i elektronska navigacija, Hidrografski institut ratne mornarice, Split, 1986 2. S. Kos; D. Zorović; D. Vranić: Terestrička i elektronska navigacija, Pomorski fakultet u Rijeci, Rijeka, 2010 3. A. Simović: Terestrička navigacija, Školska knjiga, Zagreb, 2000 4. A. Simović: Electronic Navigation, Školska knjiga, Zagreb, 2000		

Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	CARGO HANDLING I					
Code	PFN302	Year of study	2			
Course teacher	Rino Bošnjak, PhD, associate professor	Credits (ECTS)	5			
Associate teachers	Zlatko Boko, MEng	Type of instruction (number of hours)	L	S	E	F
			30	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	The objective of the course is to familiarize students with international rules, regulations, recommendations and standards related to the safe handling, stacking, securing and transportation of freight, and characteristics of cargo in maritime transport.					
Course enrolment requirements and entry competences required for the course	A precondition for enrolment are completed courses *Ship Stability and Construction II* and *Knowledge of Ships and Navigation* and *Knowledge of Ships and Navigation* from the Introductory Differential Program (or completed marine secondary school - nautical division).					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain and interpret the concept of ship transport capacity taking into consideration different types of ships and different types of cargo. 2. Define deadweight tonnage and influencing factors. 3. Use ship's tables and diagrams. 4. Analyse and interpret influence of different types of cargo on strain and stability of ship construction. 5. Explain and define the characteristics of loading equipment and means of cargo stowage and securing. 6. Know methods of cargo hold preparation for receipt of different types of cargo. 7. Determine quantities of loaded/unloaded cargo based on ship's draft and factors affecting the accuracy of calculation. 8. Make a cargo stowage plan, calculate stability, calculate ship's mean draft and calculate cargo weight based on ship's draft. 9. Analyse principles and procedures of transportation of dangerous goods by sea. 10. Know safety and security measures of cargo transportation by sea, hazardous IMDG cargo and IMBSC cargo, and procedures in case of leakage, turning over, falling, spoilage, etc.					
Course content broken down in detail by weekly class schedule (syllabus)	**1. Introduction to the course, and international regulations** Introduction, international regulations, recommendation ordinances and standards related to safe cargo handling, stowage, securing and transportation. ISM procedures. **2. Displacement, deadweight tonnage and tables, cargo capacity and tables. Ship loading in salty, brackish and fresh waters.** Draft. Displacement. Total deadweight. Determining indirect deadweight and payload when planning cargo loading. Weight analysis. Light and heavy loads. Stability and trim diagrams. Deadweight table. Hydrostatic curves. Hydrostatic data table. Table of draft level change. Warehouse, tween deck, special cargo holds. Analysis of ship's capacity plan. Storage factor and wasted space. Cargo space in relation to deadweight per ton and storage factor. Ship loading in salty, brackish and fresh waters. Change of draft and displacement. Intact stability and International Code on Intact Stability. **3. Stability criteria,** special conditions of stability for different types of ships. Procedures to avoid ship capsizing, accumulation of ice on decks - icing. Procedures for carrying out heel testing.					

	The influence of external wind and water forces on ship stability and angle of inclination. Ship roll taking into consideration the weather criterion and drawing curves of stability**.** **4. Damage stability:** Two main categories of regulatory concepts and methodologies for assessing the stability of a ship in a damaged condition, i.e. deterministic and probabilistic concept, leading to appropriate endurance requirements (criteria). **5. Strain on the ship structure during exploitation.** Strain on the ship structure during exploitation. Transverse forces and bending moments. Loading the ship with cargo/ballast. Paying special attention to load during the transportation of bulk cargo by sea (ores, minerals, cement, etc.) and in accordance with the instructions and IMSBC Code rules. **6. Strain on the ship structure during exploitation.** Hull deformation (hogging and sagging). Methods for analysing and calculating strain on the ship structure. Equipment for calculating strain. **7. The characteristics of cargo loading and unloading equipment, strain and operations** Analysis of cargo loading and unloading equipment. Strain on cargo handling equipment. **8. The characteristics of cargo loading and unloading equipment, strain and operations** Calculation of load on cranes and other hoisting equipment, permitted loads. Modes of operation of ship's hoisting equipment. **9. The influence of cargo types and cargo operations on ship's transverse and longitudinal stability** An analysis of influence of cargo types and cargo operations on ship's transverse and longitudinal stability. Planning cargo loading taking into account the ship's transverse and longitudinal stability. Desired metacentric height. Angle of heel. Planning the distribution of vertical and transverse load. Ship trimming. Bringing the ship to the desired draft. Sufficient stability criteria for various ship types. Paying special attention while loading and during the transportation of solid bulk cargo, and high moisture cargo (ores, minerals, cement, etc.) in accordance with IMSBC Code rules and requirements. **10. The characteristics of equipment for stowage, fastening and securing of cargo and making cargo fastening operation calculations** Analysis of equipment for stowage, fastening and securing of cargo. Stacking, stowing and securing cargo. Provisions of the Regulation on Stowage and Securing of Cargo. Ship's manual on cargo fastening. Making fastening operation calculations. **11. Cargo damage in maritime transport** The influence of cargo types and cargo operations on ship's transverse and longitudinal stability. The most common types of cargo damage in maritime transport. Water damage: the process of condensation in the hold, ventilation of ship holds, cargo ventilation devices. Damage caused by friction: materials for stowage and separation. Damage caused by heat, pressure, dust, noxious gases and other negative effects of transportation, damage caused by mixing different types of goods, pilferage damage, damage caused by rodents, insects, etc. **12. Preparation of cargo holds for loading** Preparing cargo holds for loading, cargo damage in maritime transport. The basic principles of preparing the cargo hold for cargo loading. Preparing holds for the transportation of general cargo. Preparing deep tanks for loading liquids. Loading, stacking, securing and transporting load depending on types of packages and containers. Loading heavy packages, sacks, barrels, bales, boxes, crates, pipes, stowage of cargo on board a ship.

	13. Determining quantities of loaded/unloaded cargo, verification procedures Determining quantities of loaded/unloaded cargo based on ship's draft. Procedures and analysis of a method. Restrictions of a method regarding precision. ISM. **14. Transporting dangerous and hazardous cargo** Transportation of dangerous and hazardous bulk cargo pursuant to the IMBSC Code. Planning the loading of packaged dangerous goods and bulk goods, controlling cargo during the voyage and unloading dangerous goods, application of the IMBSC Code, the principle of agreement and segregation of dangerous goods on different types of ships, analysis of procedures, safety precautions when handling and transporting dangerous goods. **15. Transportation of dangerous and hazardous cargo** IMDG Code and IMSBC Code with a particular attention to radioactive cargo (Class 7) and explosive cargo (Class 1).
Format of instruction:	☒ lectures ☒ seminars and workshops ☒ exercises ☐ *online* ☒ partial e-learning ☐ field work ☒ independent assignments ☒ multimedia ☐ laboratory ☐ work with mentor ☒ practice on a simulator
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To be eligible for the exam, students must attend minimum 80 % of classes (lectures and auditory exercises) and 100 % (95 %) of lectures which include training. Students who fail to meet minimum attendance requirements will not be eligible for the exam. Written excuse notes can neither justify nor replace attendance. Students who fail to meet the requirements due to illness or another justified reason, and have 80 % or higher lecture attendance, will be allowed to compensate the remainder up to 100 % (95 %) by taking additional classes during the lecture period, but no later than one month after the end of the lecture period. All other students, i.e. students with attendance levels lower than 80 %, will not be eligible for the exam and will be required to re-enrol in the course next year. **Obligations of part-time students:** The criteria for training are the same as for full-time students. For the remaining part of classes minimum 50 %, providing that they may compensate for the remaining part of obligations up to 80 % subsequently, by taking additional classes during and after the lecture period, but no later than one month after the end of the lecture period.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.5	Research		Practical training on simulator	1.0
	Experimental work		Report		Homework	0.5
	Essay		Term paper		(other)	
	Mid-term exams – lectures (2) + exercises (2)	1	Oral exam	1	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Examination procedure:** Students who pass mid-term exams from exercises, i.e. meet all course requirements, may take the oral part of the exam. Students who successfully pass the mid-term exam (theory) during the lecture period are exempt from the oral part of the exam. Students who fail mid-term exams have to take the final written exam consisting of two parts. The first part consists of solving problems pertaining to stability and ship structure strain, cargo handling and securing equipment, determining the quantity of

cargo depending on the ship's draft. The second part of the exam covers theory and work on a cargo handling simulator. The requirement is being eligible for the exam.

Mid-term exams can be taken only during the lecture period, and the final exam only during the official exam period. Students who fail to pass all (but only some) mid-term exams from exercises, but are eligible for the exam, they may be credited for work on the cargo handling simulator (as one part), i.e. successfully passed two mid-term exams (exercises) (as the second part).

In that event, students only take that part of the final written exam which they had not previously passed, and their cargo handling skills are tested on a simulator (first part) or other (second part).

The first and second mid-term exams may be replaced with corresponding independent assignments, and that only in the course of the semester. That does not apply to work on the simulator which must be passed.

The passed final written exam from exercises or any of its two main parts will be recognized until the end of the respective academic year, i.e. the end of the respective exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year. The exception is if a student passes the overall exam from exercises, provided that s/he takes the oral part of the exam within one year of taking the written exam from exercises.

- Total duration of the written exam (exercises) – maximum 100 minutes.
- Total duration of one of the two main parts of the written exam (exercises) – maximum 100 minutes.
- Total duration of mid-term exam (exercises) – only during the lecture period – maximum 100 minutes.
- Total duration of mid-term exam (theory) – maximum 100 minutes.

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	10
Mid-term exam I (MERLIN) L x 1+ E x 1	75	30
Mid-term exam II (MERLIN) L x 1+ E x 1	75	30
Practice on a simulator for cargo loading	75	15
Individual assignments	100	15
		100

Final evaluation
(for students who do not meet the requirements of continuous evaluation)

Elements of evaluation – Final exam	Success (min. %)	Percentage (%)
Previous activities (including elements of continuous evaluation)	**100**	**15**
Numerical problems - written	**75**	**30**
*Basic definitions (written and/or oral)	**100**	**5**
Demonstration of work on a simulator	**75**	**20**
Theoretical exam (written and/or oral)	**75**	**20**
Individual assignments	**100**	**10**

*Basic terms and definitions relating to ship stability and load are a precondition for taking the Cargo Handling course. Revision of knowledge and skills acquired in the marine secondary school - nautical division or at the course *Knowledge of Ship and Cargo*. The questions are available in the teaching materials from the course *Cargo Handling I*.

Grading
Minimum score required to pass: 75 %.

Percentage (%)	Criteria	Grade
00-74	does not meet the minimum criteria	insufficient (1)
75-84	meets the minimum criteria	sufficient (2)
85-89	average achievement with noticeable insufficiencies	good (3)
90-94	above average achievement with few mistakes	very good (4)
95-100	extraordinary achievement	excellent (5)

***On-line MERLIN SYSTEM + Ocean going training platform and testing in accordance with the agreement between the Faculty of Maritime Studies in Split and the Ocean going platform on the usage of all student training modules.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. G. Belamarić: Rukovanje teretom I – authorised lectures, handbook x 5 parts, Faculty of Maritime Studies in Split, Split, October 2018		YES
	2. Martin A. Rhodes (BSc. Hons), Ship Stability for Mates/Masters, Glasgow College of Nautical Studies, Witherbys Seamanship International Ltd. 2008		YES
	3. Capt. D. R.Derrett, Ship Stability for Masters and Mates, Butterworth-Heinemann Ltd., Oxford, Sixth edition 2006		YES
	4. C. B. Barras: Ship Stability Notes & Examples,3rd eddition, Butterworth-Heinemann, Oxford, 2006		YES
	5. D. J. House: Cargo Work, Butterworth-Heinemann, Oxford, 1998		YES
	6. IMBSC CODE 2022		YES
	7. International Code on Intact Stability, IMO 2009 Edition		YES
	8. IMDG Kodeks - authorised lectures, handbook Faculty of Maritime Studies in Split, Split, October 2018		YES
Optional literature (at the time of submission of study program proposal)	1. IMDG Code, 2022 Edition (inc. Amdt 41-22) 2 volumes 2. DRAFT SURVEY - A Guide to Good Practice, Second Edition, The North of England P&I Association Ltd., UK, 2012		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		

Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	MARITIME PROPERTY LAW					
Code	PFP130	Year of study	2			
Course teacher	Ranka Petrinović, PhD, Full Prof. Nikola Mandić, PhD, Associate Prof.	Credits (ECTS)	3			
Associate teachers	-	Type of instruction (number of hours)	L	S	E	F
			45	0	0	0
Status of the course	Mandatory	Percentage of application of e-learning	-			
COURSE DESCRIPTION						
Course objectives	The objective of the course is to gain a thorough knowledge of maritime law institutes and to learn the contents of international and Croatian maritime law. Acquisition of knowledge which is necessary for the performance of management positions in shipping, as well as for continuation of professional and scientific work in the field of maritime science. This especially refers to maritime transport with a focus on transport of goods by sea and typical maritime disaster. Special emphasis is placed on the provisions on liabilities.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Identify, categorize and compare the legal transactions related to ship exploitation. 2. Analyse different stages of legal transactions for all types of maritime transport. 3. Differentiate and distinguish between maritime transport documents. 4. Distinguish and compare maritime disasters. 5. Categorize and analyse types of liabilities of ship owners and shipping companies. 6. Analyse provisions related to maritime transport and maritime disasters.					
Course content broken down in detail by weekly class schedule (syllabus)	1. Legal sources of maritime property law; Ship in property law; Characteristics of property ownership of a ship; Rights in rem on the ship (ship ownership, liens on a ship); Persons in maritime trade business. Maritime agent services. 2. Contractual and non-contractual liability of ship owners and shipping companies in marine business; Limitation of liability of ship owners (shippers); Convention on Limitation of Liability for Maritime Claims, 1976 (LLMC). 3. Legal aspect of ship exploitation – definition of term and contract layout; International regulations on transport of goods by sea; International Convention for the Unification of Certain Rules of Law relating to Bills of Lading, 1924 (Hague Rules) with Protocol 1968 (Hague-Visby Rules) and the Protocol, 1979 (SDR Protocol); United Nations Convention on the Carriage of Goods by Sea, 1978 (Hamburg Rules); UN Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea, 2009 (Rotterdam Rules). 4. Transport of goods by sea; Definition, elements and contractual parties; Time charter; Voyage charter. 5. Legal affairs on transportation of goods by sea; Bills of lading; Sea Waybills; Electronic transport document. Legal affairs of transportation of goods by sea. 6. Carrier's liability for cargo damage and delays; Limitation of liability; Special cases of carrier's exclusion of liability.					

	7. Legal affairs on transportation of passengers and luggage by sea; Athens Convention relating to the Carriage of Passengers and their Luggage by Sea; Legal status of stowaways; Legal affairs on towing. 8. Multi-carrier transportation; Bareboat charter. 9. Definition of maritime accidents; Legal sources; General average - definition, liquidation; York Antwerp Rules; Role of the master in the case of General average. 10. Marine salvage - legal sources, definition of salvage, types of salvage; Salvage Award; Removal of sunken wrecks; Removal of wrecks. 11. Modern Salvage Law; International Convention on Salvage, 1989 (London); Forms - LOF 1995, 2000 and 2011; Role of the master in salvage. 12. Legal aspects of pollution of marine environment; Dual Convention on compensation for oil pollution damage: International Convention on Civil Liability for Oil Pollution Damage, 1992 and International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992; The International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS); International Convention on Civil Liability for Bunker Oil Pollution Damage (BUNKER); Responsibility of ship owner for damage; Responsibility under the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM); Role of the master in prevention of pollution of marine environment. 13. Ship collision; Legal sources; Convention for the Unification of Certain Rules of Law with respect to Collisions between Vessels, 1910; Definition and types of collisions; Compensation from ship collision; Role of a master in the event of ship collision. 14. Definition of maritime insurance; Institute clauses; Premium insurance and mutual insurance. 15. Role of insurance in maritime disasters; Liability insurance of shipping companies; P & I clubs.
Format of instruction:	☒ lectures ☐ seminars and workshops ☐ exercises ☐ *online* ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	**Obligations of full-time students:** Lectures are mandatory and attendance records are kept. To be eligible for the exam, students are required to attend minimum 80 % of lectures. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. Students can pass the exam through continuous evaluation during the semester by successful passing two mid-term exams during the lecture period, or by taking the final exam (written and/or oral). Students who fail to pass the mid-term exams, but are eligible for the exam, are required to take a written and/or oral exam in the exam period. Students who successfully earn a sufficient number of points have to formally apply for the final exam using Studomat for the first exam period. The final grade will be entered in the ISVU system, providing that students who want a higher grade may take an oral exam. **Obligations of part-time students:** To be eligible for the exam, students have to attend minimum 95 % of lectures. Exam taking methods are the same as for full-time students.

Screening student work (name the	Class attendance	1.125	Research		Practical training	

proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Experimental work		Report		(other)	
	Essay		Term paper		(other)	
	Mid-term exams	1.875	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluation of full-time students

Students can take four mid-term exams in the course of a semester. The first mid-term exam will be held in week 5 and covers lectures 1-4. The second mid-term exam will be held in week 9 and covers lectures 5-8. The third mid-term exam will be held in week 13 and covers lectures 9-12. The fourth mid-term exam will be held in week 15 and covers lectures 13-15.

The examples of exam questions will be made available to students at the end of each lecture. Minimum 50 % score is required to pass each mid-term exam. Students who do not take one of the mid-term exams for duly justified reasons or do not achieve the minimum score on the mid-term exam will be allowed to retake that mid-term exam. A retake of the mid-term exam will be organized specifically for such students. Class attendance, class activity and continuous knowledge assessment all contribute to the final grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80 %	10
Mid-term exam 1	50 %	22.5
Mid-term exam 2	50 %	22.5
Mid-term exam 3	50 %	22.5
Mid-term exam 4	50 %	22.5

Grading:

Percentage (%)	Criteria	Grade
0 – 49.9	does not meet the minimum criteria	insufficient (1)
50 – 61.9	meets the minimum criteria	sufficient (2)
62 – 74.9	average achievement with noticeable insufficiencies	good (3)
75 – 87.9	above average achievement with few mistakes	very good (4)
88 – 100	extraordinary achievement	excellent (5)

Students who do not pass the mid-term exams during the lecture period and are eligible for the exam, are required to take a written and/or oral exam in the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Grading and evaluation of part-time students

Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	1. R. Petrinović, N. Mandić: Pomorsko pravo za zapovjednika broda, Split, 2025	10	-

Optional literature (at the time of submission of study program proposal)	1. D. Bolanča: Odgovornost brodara za izuzete slučajeve, Split, 1996 2. D. Bolanča: Prometno pravo, Split, 2016 3. I. Grabovac,: Odgovornost prijevoznika u prijevozu stvari u Pomorskom zakoniku Republike Hrvatske i u međunarodnim konvencijama, Split, 2010 4. I. Grabovac: Suvremeno hrvatsko pomorsko pravo i Pomorski zakonik, Split, 2005 4. J. Marin: Ugovori o prijevozu putnika i prtljage morem, Zagreb, 2005 5. D. Pavić: Pomorsko imovinsko pravo, Split, 2006 6. D. Pavić: Pomorsko osiguranje – pravo i praksa, Split, 2012 7. Maritime Code, Official gazette, No. 181/04, 76/07, 146/08, 61/11, 56/13, 26/15 and 17/19 8. Teaching materials (MareLaw project) – https://marelaw.pfst.hr/lessons
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	MARITIME COMMUNICATIONS					
Code	PFE301	Year of study	2			
Course teacher	Dean Sumić, PhD, Assistant Prof.	Credits (ECTS)	4			
Associate teachers	Paško Ivančić, MSc	Type of instruction (number of hours)	L	S	E	F
			30		45	
Status of the course	Mandatory	Percentage of application of e-learning	10 %			
COURSE DESCRIPTION						
Course objectives	Detailed and comprehensive knowledge of the prescribed STCW and IMO Model Course for communication services on board. Special attention is given to the Global Maritime Distress and Safety System (GMDSS) and the handling and usage of radio equipment in different situations.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Independently perform all tasks from the domain of maritime communication facilitated by the GMDSS system in all categories of navigation. 2. Acquire competences from the STCW and IMO Model Course 1.25 Radio Operators with the General Operator's Certificate (GOC). 3. Use GMDSS radio equipment. 4. Use equipment in keeping with the prescribed rules while doing practical training on the Transas 5000 GMDSS simulator. 5. Describe the physical features of electromagnetic wave propagation depending on the frequency band (MF, HF or VHF). 6. Define and describe the parts of the GMDSS system. 7. Demonstrate how GMDSS system works in the event of distress, urgency, safety or in routine communications. 8. Use mandatory and additional literature on the ship's radio station and keep a radio log and other documentation in the prescribed manner. 9. Obtain the D11 general radio operator licence at the Ministry of Maritime Affairs, Transport and Infrastructure.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Introduction, the basic characteristics of GMDSS 2. The principles and basic features of maritime communication 3. Global Maritime Distress and Security System - DSC communications 4. List of categories and priorities 5. General NBDP principles 6. MSI purpose and use 7. IAMSAR 8. Terrestrial services and procedures 9. Operational procedures for general communications 10. Recapitulation of terrestrial procedures, mid-term exam 11. Principles of satellite communications 12. Visit to coast radio station 13. The principles of the INMARSAT system 14. Satellite tracking system **Exercises:** 1. Familiarization with radio stations and simulators 2. Introduction to the Digital Selective Call - DSC 3. DSC operational procedures 4. General NBDP principles 5. VHF marine radio station					

	6. MF/HF marine radio station 7. MSI receivers 8. DSC distress 9. Urgency alert procedure in terrestrial system 10. Analysis of behaviour on the simulator, Mid-term exam 11. Inmarsat terminals and the Iridium system 12. Visit to Coast Radio Station 13. Distress Alerting Satellite System 14. General communications via satellite 15. COSPAS - SARSAT, SART, VHF - AIR
Format of instruction:	☒ lectures ☐ seminars and workshops ☒ exercises ☐ *online* ☐ partial e-learning ☒ field work ☐ independent assignments ☒ multimedia ☒ laboratory ☐ work with mentor ☒ practice on a simulator
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To be eligible for the exam, students have to attend minimum 95 % of the lectures and exercises. Students who fail to meet the minimum attendance requirements will not be eligible for the exam and will be required to re-enrol in the course next year. Students can pass the oral exam through continuous evaluation in the course of the semester by taking two mid-term exams. Students are not required to take mid-term exams. Students who fail mid-term exams, but are eligible for the final exam, are required to take the oral exam during the exam period. Students are allowed to cover their assigned topics using e-learning materials, either individually or as part of a team. Students who successfully pass both mid-term exams, are required to apply for the final exam at Studomat in the first exam period and their final grade will be entered in the ISVU system in that exam period or they can take an oral exam if they want a better grade. **Obligations of part-time students:** The total attendance obligations of part-time students are the same as for full-time students in keeping with STCW recommendations. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.875	Research		Practical training	
	Experimental work		Report		Individual work and homework	
	Essay		Term paper			
	Mid-term exams	1.125	Oral exam			
	Written exam	1	Project			

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of full-time students** Lecture attendance is mandatory for full-time students, i.e. a precondition for the final exam is minimum 95 % lecture (14) and 100 % exercise attendance. During a semester, students take one mid-term exam. The first mid-term exam will be held in week 10 and covers lectures 1-9. The examples of mid-term exam questions are available to students online. The mid-term exam is successfully passed if a student achieves minimum 50 % of total points. Students who do not take the mid-term exams for duly justified reasons or do not achieve the minimum score, may take the oral exam.

Students are allowed to cover their assigned topics using e-learning materials, either individually or as part of a team.
Class attendance, mid-term exam /oral exam results and written exam results all count towards the final grade.
Students who do not pass the mid-term exams, but are eligible for the exam, are required to take the oral exam during the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	min. class attendance 95 % lectures and 100 % exercises	20
Mid-term exam	50	30
Total		50 – in this case a student is exempt from the oral part of the exam

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Exam or mid-term exam (oral)	50	30
Theoretical part of the exam (written)	50	50
Previous activities (all elements of continuous assessment are included)	100	20
Total		100

Grading

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

Grading and evaluation of part-time students
To be eligible for the exam students have to attend minimum 95 % of lectures and 100 % of exercises. Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. M. Bilić: Komunikacije u GMDSS, Split: Faculty of Maritime Studies, 1995	5	YES
2. Kasum, J.; Radioslužba za pomorce, drugo izmijenjeno i popravljeno izdanje, Split: Hydrographic Institute of the Republic of Croatia, 2008	20	

	3. Group of authors: Priručnik za obuku radiooperatera s ograničenom ovlasti, Split: Hydrographic Institute of the Republic of Croatia, 1999	7	
Optional literature (at the time of submission of study program proposal)	1. Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services (Maritime Manual) Edition of 2020, ITU, Geneva, 2020, volume I & II 2. GMDSS Manual, 2019 Edition, IMO London, 2019 3. Radio Regulations Edition of 2016, ITU, Geneva, September 2016 4. IMO Model course 1.25 plus compendium (2015 Edition), IMO, 2015 5. IAMSAR Manual International Aeronautical And Maritime Search And Rescue Manual (2016 Edition), IMO, 2016 6. G. D. Lees, W. G. Williamson,: Handbook for Marine Radio Communications, London: Lloyds of London Press, 1999 7. I. Waugh:The Mariners Guide to Marine Communications, The Nautical Institute, 2nd edition, London, 2007 8. D. Calcutt, L. Tetley: Understanding GMDSS 1st Edition, Kindle Edition, 2012 9. Inmarsat Maritime Communications Handbook, 2nd Issue, Inmarsat, London 10. S. D. Ilčev, Global Mobile Satellite Communications: For Maritime, Land and Aeronautical Applications, Springer, 2005		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.		

COURSE NAME	SEAMANSHIP					
Code	PFN004	Year of study	2			
Course teacher	Luka Pezelj, PhD, Assoc. Prof.	Credits (ECTS)	2			
Associate teachers	Paško Ivančić, MSc	Type of instruction (number of hours)	L	S	E	F
			0	0	0	15
Status of the course	Mandatory	Percentage of application of e-learning	0 %			

COURSE DESCRIPTION	
Course objectives	Acquiring smaller boat, and sailboat navigation and maintenance skills, and learning operating procedures in extraordinary situations.
Course enrolment requirements and entry competences required for the course	No requirements.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Independently operate boats, motorboats and rowboats. 2. Demonstrate sailing techniques. 3. Apply Rules for Preventing Collisions at Sea. 4. Know procedures in case of small boat accidents at sea.
Course content broken down in detail by weekly class schedule (syllabus)	**FIELD WORK** Field work is carried out on 4-14 meters long boats in groups of maximum 8 students. 1. Become familiar with the basic characteristics of boats, their construction and manoeuvring characteristics. 2. Basic knots and their usage on smaller boats. The impact of propeller and rudder usage on yacht manoeuvring. 3. Avoiding danger by applying Collision Avoidance Rules. Salvage procedures. 4. Rowing techniques, manoeuvring with oars. 5. The basics of smaller boat engines - systems. Manoeuvring a yacht, sailing forward and backwards. 6. Stopping and changing direction in a limited manoeuvring area. Practicing approaching the shore with a boat, bow and stern. 7. Boat docking and mooring in limited manoeuvring area in hydro meteorological conditions which do not influence yacht manoeuvrability. 8. Sailing out and unmooring a boat. Rules in ports. 9. Understanding and manoeuvring sailing boats. Sail raising and lowering techniques. 10. The basic principles of sail adjustment. 11. The characteristics and practice of sailing against the wind. 12. The characteristics and practice of sailing downwind. 13. The characteristics and practice of tacking or gybing manoeuvres. 14. Spotting dangers and mitigating risk factors during sailing or navigation using a motor engine. 15. Boat maintenance.
Format of instruction:	☐ lectures ☐ seminars (compilation of cargo plan) ☐ exercises ☐ *online* ☐ partial e-learning ☒ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ practice on a simulator

Student responsibilities	**Obligations of full-time students:** Students have to attend minimum 80 % of classes. **Obligations of part-time students:** Students have to attend minimum 80 % of classes. Students who fail to meet the 80 % attendance requirement will be considered not to have met their obligations and will be required to re-enrol in the course in the next academic year.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	0.375	Research		Practical training	1.625
	Experimental work		Report		(other)	
	Essay		Seminar		(other)	
	Mid-term exams		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation:** There is no final exam for this course.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. 1. E. Tomašević, Jedrenje i mornarske vještine, Split: Pajet d.o.o. 2007	1	NO
	2. 2. S. Vitaljić Biti brži, Zagreb: vlast. nakl., 2005	0	YES
	3. 3. Hrvatski jedriličarski savez, (2017). Pravila jedriličarskih natjecanja, HJS, Split	0	YES
	4. 4. T. Whidden,, M. Levitt, The Art and Science of Sails, Seapoint Books and Media LCC, Brooklyn, 2017	1	NO
	5. 5. R. Radulić, Stručna praksa, Zadar: Zadar University, 2009	0	YES
	6. 6. A. I. Simović, Mornarske vještine, Zagreb: Školska knjiga, 2004	1	NO

Optional literature (at the time of submission of study program proposal)	B. Biewenga, Weather for Sailors, North U., Madison. 2005 2. B. Gladstone, Trim, North U., Madison, 2013 3. B. Gladstone, J. Rousmaniere, Cruising&Seamanship, North U., Madison, 2003 4. B. Gladstone, 2017-2020 Racing Rules & Tactics, North U., Madison, 2016 5. D. Perry, Understanding the Racing Rules of Sailing, United States Sailing Federation, 2016 6. J. Rousmaniere, The Annapolis Book of Seamanship, Simon & Chuster, New York, 1999 7. B. D. Anderson, The Physics of Sailing Explained, Sheridan House, New York, 2003
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	MEDICINE FOR SEAFARERS					
Code	PFP142	Year of study	2			
Course teacher	Zlatko Kljajić, PhD, Asst. Prof.	Credits (ECTS)	3			
Associate teachers	Iris Jerončić Tomić, PhD, Assoc. Prof.	Type of instruction (number of hours)	P	S	V	T
			30	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning	/			

COURSE DESCRIPTION

Course objectives	Learn to administer first aid and provide medical care. Learning not to cause more harm while administering first aid and providing medical care. Check and ensure place of an accident. Do a check-up of an injured or ill person and make a diagnosis. Apply immediate first aid procedures. Identify the condition of confirmed and apparent death. Apply resuscitation in case of apparent death. Define aid priorities if there is more than one injured person. Check-up injured and sick persons and make a working diagnosis. Organize and implement the medical care of injured persons. Recognize symptoms of common diseases. Evaluate when and how to administer medication and when to change therapy. Identify the side effects of medication, the method of their use, and the most common side effects of medications in the onboard pharmacy. Treat minor wounds.
Course enrolment requirements and entry competences required for the course	The precondition is the completed course Basic Safety and First Aid from the Introductory Differential Program (or completed marine secondary school - nautical division).
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Assess the medical condition of an injured or sick person. 2. Administer first aid in life-threatening situations. 3. Use basic medical equipment on board. 4. Explain how to seek and implement radio - medical advice. 5. Identify life-threatening conditions and injuries and administer first aid and medical care. 6. Identify different medical conditions on board and implement appropriate procedures using basic medical equipment and medicines on board. 7. Evaluate when and how to give medication and change therapy. 8. Assess the necessity to transport an injured person by a helicopter. Identify signs of death (early and late signs of death, apparent death, causes of death) and organize handling the body of the deceased (check-up of the body, procedure with the body, burial at sea).
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Introduction to Medicine for Seafarers. The basic concepts of Medicine for Seafarers. The importance of the obligation to provide first aid on board. The difference in procedures and attitudes between first aid and medical care procedures at sea and on shore. 2. First aid. Conditions that require immediate intervention (respiratory arrest and cardiac arrest, severe bleeding, shock and unconsciousness). Control of vital functions. Resuscitation. 3. Familiarisation with the resuscitation mask and the oxygen breathing apparatus. Familiarisation with means for stopping external bleeding. 4. Taking care of injured persons: the general principles of patient care; nursing care; spinal and head injuries; ear, nose, throat and eye injuries; internal and external bleeding; nasal tamponade, burns, scalding and frostbite; fractures, sprains and strains; types of wounds, healing, wound treatment; suppression of pain; procedure in case of an acute abdomen; small surgical procedures; bandages and treatment; blood pressure; heart rate. 5. Taking care of sick persons: the treatment of infectious patients on board; procedure with a psychiatric patient on board; measuring body temperature;

	urine volume measurement test; procedure with infected wounds; rescue procedure for a drowned person. 6. Diseases: ways to acquire and transmit infections. Sexually transmitted diseases, tropical and infectious diseases including intestinal infectious diseases. 7. Clinical picture and therapy. AIDS, hepatitis A, B and C. Angina pectoris and heart attack. Acute abdomen. Measures for preventing and controlling infectious diseases. General and special infectious disease prevention methods, immunization, administering medication to prevent the development of a disease (chemoprophylaxis). 8. Abuse of alcohol and drugs. Factors that lead to addiction. Damage to the organism caused by addictive substances. Prevention. Signs of overdose and first aid procedures. 9. Dental care. Procedure for bleeding wounds after tooth extraction, procedure if a filling falls out, procedure for toothache, toothache with swelling, irritation of gums with denture. 10. Medical care of rescued persons including danger, hypothermia and pregnancy. Polytraumatized patient management. Hypothermia and frostbite. Hypothermia and body defence against hypothermia. Procedure and taking care of a hypothermic unconscious person. 11. Death at sea. Signs of death, early and late signs of death, apparent death, causes of death, procedure with the body, inspection of the body of the deceased, procedure with the body, burial at sea. ISM navigation procedures. 12. Third-party help: radio medical advice; transportation of injured and diseased persons including helicopter transportation; care for sick and injured seafarers, including cooperation with port authorities or health institutions. ISM navigation procedures. 13. Inspection of on-board environment. Galley, cleanliness inspection, supplying the ship with drinking water, controlling drinking water quality, waste management on board, measures against rodents - deratisation, insects - disinsection - harmful microorganisms - disinfection. Prevention of infectious diseases. ISM navigation procedures. 14. Regulations and logbooks: keeping the health logbook; keeping the register of narcotics; knowledge of international maritime health legislation. Medicines and medical equipment. Types of medicines - analgesics, antibiotics, antipyretics, antispasmodics, etc. Type and dosage. Potential side effects and procedure in case of side effects. Anaphylactic shock (penicillin), and the procedure. ISM navigation procedures. 15. Surgical equipment, instruments and supplies. Introduction to surgical instruments. Small surgical procedures – wound treatment, incision. Procedure in case of asepsis and antisepsis. Instrument maintenance. Using different types of health advice services. Introduction to potential ways of seeking medical advice. ISM navigation procedures. **Exercises** 1. Controlling vital functions. Method for checking heart rate. Determining the sport for external heart massage. Performing chest compressions on a manikin. Resuscitation on a resuscitation manikin. 2. Help with suffocation. Demonstration of artificial respiration methods. 3. Familiarisation with the resuscitation mask and the application of the oxygen breathing apparatus. 4. Familiarisation with means for stopping external bleeding. Determining the digital compression spot to stop the bleeding. 5. Immobilizing fractured limbs, immobilization in the event of a suspected spinal cord injury. 6. Open head injury treatment, treating open and closed burns. 7. Wound treatment and stitching, disinfection of the wound and surrounding area and abscess incision.

	8. Determining the spot for measuring pulse. Testing urine with testing strips. 9. Blood pressure measurement. 10. Simulation of administration of intramuscular injection. Determining the spot. 11. Taking medical record history. Examining a patient. 12. Inspecting the on-board environment. Familiarization with disinsection and deratisation measures. ISM navigation procedures. 13. Simulation of bleeding after tooth extraction, procedure if a filling falls out, procedure for toothache. 14. Familiarization with types and dosage of medicines. Introduction to the Regulations on Maritime Medicine Requirements on Merchant Vessels. The procedure. 15. Seeking radio-medical advice, the procedure, filling out forms. ISM navigation procedures.
	☒ lectures ☒ seminars and workshops ☒ exercises ☐ *online* ☐ partial e-learning ☐ field work ☒ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students** Lectures and exercises are mandatory and attendance records are kept. To meet attendance requirements, students must attend minimum 95 % of lectures and 100 % of exercises. Students who fail to meet the minimum attendance requirements will be required to re-enrol in the course next year. Students may pass the exam through continuous evaluation in the course of the semester by taking two mid-term exams. Students are required to take all mid-term exams. Students who fail to pass mid-term exams in the course of the semester, but meet minimum attendance requirements, are required to take the written exam during the exam period. Students who meet the minimum attendance critera and pass the exam (mid-term exams) are required to apply for the final exam at Studomat for the first exam period for their final grade to be entered in the ISVU system or they can take an oral exam if they want a better grade. **Obligations of part-time students:** Total attendance requirements for part-time students are the same as for full-time students. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.125	Research		Practical training	
	Experimental work		Report		Homework (other)	
	Essay		Term paper	0.375	(other)	
	Mid-term exams*	1.5 (alternatively written and oral exam)	Oral exam	0.5*	(other)	
	Written exam	1*	Project		(other)	

Grading and evaluation of full-time students

Lecture attendance is mandatory for full-time students, i.e. they have to meet attendance requirements: minimum 95 % of lectures and 100 % of exercises. In order to obtain the D20 (Medical Care) Certificate, students have to attend minimum 95 % of lectures and 100 % of exercises.
Two mid-term exams will be organized in the course of the semester. The first mid-term exam covers lectures 1-6 and is held in week 7, and the second mid-term exam covers lectures 7-15 and is held in week 15. The examples of mid-term exam questions are available to students during and at the end of each lecture. Minimum 60 % score is required to pass each mid-term exam. Students who fail to take one mid-term exam for objective reasons or do not achieve a minimum percentage of points may retake the exam. Such students may retake the mid-term exam one more time in week 7 or in week 15. Students who fail to pass the first mid-term exam may not take the second mid-term exam.
Class attendance, mid-term exam results and term paper results all count towards the final grade.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	points (%)
Class attendance	95	7.5
Term paper	100	2.5
Mid-term exam I	60	45
Mid-term exam II	60	45

Grading

Percentage (%)	Criteria	Grade
0 – 59	does not meet the minimum criteria	insufficient (1)
60 – 69	meets the minimum criteria	sufficient (2)
70 – 80	average achievement with noticeable insufficiencies	good (3)
81 – 90	above average achievement with few mistakes	very good (4)
91 – 100	extraordinary achievement	excellent (5)

Students who fail to pass mid-term exams in the course of the semester, but meet the attendance criteria, are required to take the written exam during the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Grading and evaluation of part-time students

Grading and evaluation criteria are the same as for full-time students.

Grading and evaluating student work in class and at the final exam

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. R. Mulić, Medicinska skrb na brodovima trgovačke i ratne mornarice. Faculty of maritime studies in Split, 2020	20	YES
2. International Medical Guide for Ships, 3rd edition, World Health Organization, Geneva 2007	-	YES

Optional literature (at the time of submission of study program proposal)

1. International maritime law embodied in international conventions
2. International Health Regulations, World Health Organization Geneva, 2005

Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	MARITIME ENGLISH IV					
Code	PFP178	Year of study	2			
Course teacher	Mira Pavlinović, PhD, Assoc. Prof.	Credits (ECTS)	4			
Associate teachers	Jelena Žanić-Mikuličić, PhD, senior lecturer	Type of instruction (number of hours)	L	S	E	F
			15	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Raising the level of knowledge of “maritime English”, and “general English” language. Acquisition of basic and specialist language knowledge and skills for students to be able to obtain certificates and authorizations for a deck officer on vessels of 500 GT and more, the first deck officer on ships of 3000 GT and more, and a master of a vessel of 3000 GT and more (according to STCW Convention 1995 requirements and amendments). English as the language of official communication in the global maritime industry: acquisition of student communication skills of English language in order to ensure safe navigation and protect the marine environment. Acquiring language skills and preparing students for learning, acquiring knowledge and following technological development of the global maritime industry, maritime law and economics of shipping industry and ports. Training students to give a presentation of maritime topics in English language and developing the four main language skills: reading, listening, writing and speech. Encouraging and developing cognitive abilities of students, as well as developing skills, ability to collect, organize and critically evaluate information, and ability to work in a team.					
Course enrolment requirements and entry competences required for the course	Completed *Maritime English III* course.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Acquire basic and specialist language knowledge and skills for students to be able to obtain certificates and authorizations for a deck officer on vessels of 500 GT and more, the first deck officer on ships of 3000 GT and more, and a master of a vessel of 3000 GT and more (according to STCW Convention 1995 requirements and amendments). Understand, compose and send messages in English language via radio in order to ensure safety of navigation, to perform commercial operations of a vessel, protect the marine environment while manoeuvring (during the process of departure, arrival, anchorage, pilotage, towage), avoid collisions, interpret signs and navigation aids, use modern navigation equipment. Interpret and know phrases from the "Standard Marine Communication Phrases" IMO manual; interpret, write and present information on maritime accidents and maritime law.					
Course content broken down in detail by weekly class schedule (syllabus)	The content of the course meets the requirements of the STCW Convention IMO 1995. **Lectures**: 1. Shipping Procedure. 2. Receiving Cargo. 3. Delivering Cargo. 4. Bill of Lading. 5. Types of Bill of Lading. (Part 1) 6. Types of Bill of Lading. (Part 2) 7. Passive Voice. 8. Charter Parties I.					

	9. Charter Parties II. 10. Notice of Readiness. 11. Sea Protest. 12. Procedures on arrival at a port. 13. Procedures on departure. 14. Port of Bakar - Shipmaster's Report. 15. Revision **Exercises:** 1. Expressing obligation. Shipping Procedure. 2. Conditional clauses. Receiving Cargo. 3. Conditional clauses. Delivering Cargo. 4. Time Clauses. Functions of the Bill of Lading. 5. Participle Clauses. Types of the Bill of Lading. 6. Word building. Types of Bill of Lading 7. Passive. Charter Parties I. 8. Word building. Collocations. Charter Parties II. 9. Mid-term test. 10. Continuous aspect. Notice of Readiness 11. Negative prefixes. Sea Protest 12. Prepositions. Conjunctions. Collocations. Procedures on arrival at a port. 13. Collocations. Synonyms. Expressing Concession. Procedures on departure. 14. Word building. Narrative tenses. Shipmaster's Report. 15. End-term test.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* X partial e-learning ☐ field work X independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lecture and exercise attendance is mandatory and attendance records are kept. Minimum 80 % lecture and auditory exercise attendance is required to be eligible for the exam and earn ECTS. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. The exam consists of a written and oral part. Students can pass the written part of the exam through continuous evaluation throughout the semester by taking mid-term exams or the final exam (written).Students who do not pass the mid-term exams, and are eligible for the exam, are required to take the written exam during the exam period.After passing the written part of the exam, all students are required to take the oral part of the exam. Students who successfully earn a sufficient number of points during classes are required to apply for the final exam at Studomat during the first exam period after the end of the lecture period. The final grade will be entered in the ISVU system. **Obligations of part-time students:** Lectures and exercises are mandatory for part-time students and attendance records are kept. To be eligible for the exam, part-time student are required to attend minimum 50 % of lectures and auditory exercises.Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of	Class attendance	1.125	Research		Practical training	
	Experimental work		Report		Homework	
	Essay		Term paper		Independent work	0.375

ECTS credits is equal to the ECTS value of the course)	Mid-term exams	1	Oral exam	1.5	(other)	
	Written exam	1	Project		(other)	

Grading and evaluation of students:

The exam consists of two parts: written and oral.

Students can take the written part of the exam in the form of mid-term exams. Exam topics will have been covered by teaching materials and include professional vocabulary and grammar. Students may pass the written part of the exam and professional terminology prior to the beginning of exam periods. In that event, only oral part of the exam (lessons) is taken during the exam period.

Students who fail to take or pass the written part of the exam in the form of mid-term exams, but meet the minimum requirements in the course of the semester, he/she will take the final exam by writing a written assignment and taking the oral part of the exam in the regular exam periods.

In order for a student to pass the mid-terms/final exam, and take the oral part of the exam, he/she has to achieve a minimum of 50 % of the total number of points.

To take the exam during an exam period, and have the grade entered in the system, students have to apply for the exam in their target exam period.

Exam applications and cancellations are made online, using Studomat.

Grading and evaluating student work in class and at the final exam

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Tests	50	30
Continuous assessment during lectures		10
Total		50 (in this case, the student is exempt from the written exam)

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	40
Theoretical part of the exam (written and/or oral)	50	60
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)

	80 – 89	above average achievement with few mistakes	very good (4)
	90 – 100	extraordinary achievement	excellent (5)

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. B. Pritchard: Ship's Business in English, Pomorski fakultet, Rijeka, 1994		
	2. Kluijven, P. Van: International Maritime English Program, Alk & Heinen, Alkmaar, 2003		
	3.Standard Marine Communication Phrases, Školska knjiga, Zagreb		
Optional literature (at the time of submission of study program proposal)	1. Blakey,TN. *English for Maritime Studies*. Prentice Hall International English Language Teaching, University Press, Cambridge 2. Eastwood J.: Oxford Practice Grammar, Oxford University Press, 2000 3. Pritchard B.: Hrvatsko-engleski rječnik pomorskog nazivlja, Školska knjiga, Zagreb, 1989 4. Plančić Skračić Englesko - hrvatski pomorski rječnik, Kartular, Split, 2013 5. Selected texts from publications and magazines such as Notices to Mariners, Maritime Reporter, Marine Technology etc.		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	ELECTRONIC NAVIGATION					
Code	PFN102	Year of study	2			
Course teacher	Lea Vojković, PhD, Assoc. Prof.	Credits (ECTS)	5			
Associate teachers	Filip Bojić Mislav Maljković	Type of instruction (number of hours)	L	S	E	F
			45		30	
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	Master various methods of using different electronic navigation devices. Recognize equipment and evaluate risks using knowledge on maritime safety information.					
Course enrolment requirements and entry competences required for the course	A precondition for enrolment is the completed course *Electronic Navigation Devices* from the Introductory Differential Program (or certificate for Radar Monitoring and Plotting and the use of the ARPA device (operating level)); and completed courses *Terrestrial Navigation I* and *Terrestrial Navigation II.*					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Correctly explain and interpret the important elements of ship manoeuvring using electromagnetic waves. 2. Explain the working principle of the electronic echo sounder, speed indicator and other electronic navigation devices. 3. Describe and elaborate the working principle of a magnetic compass, usage of radar in navigation, usage of electronic charts and ECDIS. 4. Independently use ARPA and ECDIS systems in all conditions. 5. Describe and explain the principle of hyperbolic navigation systems, inertial systems, satellite navigation systems, and other electronic high precision navigation systems. 6. Describe and explain the usage of VDR, AIS, TV in maritime navigation, and the usage of integrated navigation systems. 7. Recognize and analyse electronic navigation system errors and critically assess their usability.					
Course content broken down in detail by weekly class schedule (syllabus)	1. Operating principles and measurement errors of a gyro, electronic, laser and satellite compasses. 2. Operating principles and measurement errors of echo sounders and speed indicators. 3. The technological development of electronic navigation systems. 4. Satellite navigation systems - GPS, DGP, Glonass, Galileo and future development. 5. Hyperbolic navigation systems. 6. Electronic charts. Raster and vector electronic charts. 7. Usage and accuracy of ECDIS. 8. Procedures for correcting charts and nautical publications. 9. Inertial navigation, operating principles, accuracy and errors. 10. ARPA navigation radar, operating principles, errors, connecting with other systems. 11. Automatic Identification System - AIS. 12. Vehicle Traveling Data Recorder - VDR. Television in navigation. 13. Integrated navigation systems. 14. High precision navigation systems. 15. Integrated navigation systems. VDR. Alarms on the bridge.					
Format of instruction:	x lectures ☐ seminars and workshops x exercises ☐ *online* ☐ partial e-learning ☐ field work	x independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor x naut.sim (other)				

Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To qualify for the issuance of certificates of competence, students must attend minimum 95 % of lectures and 100 % of exercises. To be eligible for the exam, students must attend minimum 80 % of lectures and 80 % of exercises. Students who fail to meet lecture and exercise attendance requirements will not be eligible for the exam and will be required to re-enrol in the course next year. Written excuse notes (medical certificates) can not substitute attendance. Students who fail to meet the requirements for taking the exam due to illness or another justified reason, and have under 20 % of absences, will be allowed (with a written medical certificate) to compensate that part of the lectures through extra classes held in the course or after the semester, but no later than one month after the end of the lecture period. **Obligations of part-time students:** To be eligible for the exam, part-time students are required to attend minimum 50 % of lectures and 50 % of exercises. **Should they wish to obtain certificates, the same rules that apply to full-time students apply to part-time students.**

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.875	Research		Practical training	0.625
	Experimental work		Report		Independent work	0.25
	Essay		Term paper		(other)	
	Mid-term exams	0.5	Oral exam	1.25	(other)	
	Written exam	0.5	Project		(other)	

Grading and evaluation of full-time students:

Every student must take the written and oral exam. To be eligible for the exam students must have passed the course *Terrestrial Navigation I*.
The written part of the exam consists of one mid-term exam, taken during the lecture period (week 15) and the final written exam, held in the exam period.
To pass the written exam, students have to score minimum 75 % of the maximum points.

Student attendance and activity at lectures are monitored and count towards the final grade for the course.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity, independent work	80	20
1. Mid-term exam	75	80
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Written exam	75	20
Oral exam	50	60
Prior activity (including all indicators of continuous assessment)	80	20
Total		100

Grading:
Minimum 50 %

Percentage (%)	**Criteria**	**Grade**
0 – 49	Does not meet the minimum criteria	insufficient (1)
50 – 64	Meets the minimum criteria	sufficient (2)
65 – 79	Average achievement with noticeable insufficiencies	good (3)
80 – 89	Above average achievement with few mistakes	very good (4)
90 – 100	Extraordinary achievement	excellent (5)

Minimum 75 %

Percentage (%)	Criteria	Grade
0-74	Does not meet the minimum criteria	Insufficient (1)
75-84	Meets the minimum criteria	Sufficient (2)
85-89	Average achievement with noticeable insufficiencies	Good (3)
90-94	Above average achievement with few mistakes	Very good (4)
95-100	Extraordinary achievement	Excellent (5)

Grading and evaluation of part-time students:
Grading and evaluation criteria are the same as for full-time students.

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	S. Kos, D. Zorović, D. Vranić: Terestrička i elektronička navigacija, Rijeka: Pomorski fakultet u Rijeci, 2010	5	
	N. Bowditch: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2017	2	YES
	Radar Navigation and Manoeuvring Board Manual, NIMA, USA, 2005		YES
	P.P. predavanja i skripta vježbe - Merlin		YES

Optional literature (at the time of submission of study program proposal)	• A. Simović: Elektronička navigacija, Zagreb: Školska knjiga, 2000 • F. Benković et al., Terestrička i elektronska navigacija, Split: HHI, 1986 • L. Tetley and D. Calcutt : Electronic Navigation Systems, 2001 • N. Kjerstad: Electronic and Acoustic Navigation systems for Maritime Studies, 2016
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	TERRESTRIAL NAVIGATION II					
Code		Year of study	2			
Course teacher	Zvonimir Lušić, PhD, Full Prof.	Credits (ECTS)	4			
Associate teachers	Stipe Galić, Master of Nautical Engineering	Type of instruction (number of hours)	L	S	E	F
			15	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	Max 10 %			
COURSE DESCRIPTION						
Course objectives	Master different methods of determining a ship's position and steering a ship in coastal navigation, determine the reliability of different types of position lines. Recognize signs and marks on nautical charts (Croatian and English), evaluate risks based on nautical charts and guides, and calculate the elements of loxodromic and orthodromic navigation.					
Course enrolment requirements and entry competences required for the course	Preconditions for enrolment are completed course *Terrestrial Navigation I* and passed course *Mathematics I*. Precondition for the exam: passed courses *Terrestrial Navigation I* and *Mathematics I*.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Independently lay courses and safely manoeuvre a ship using various positioning and marine kinematics methods. 2. Plot courses and routes using essential features of charts, tags and abbreviations on nautical charts (paper and electronic, Croatian and English) and information from nautical guides. 3. Analyse position errors and critically assess the usability of optical and electronic navigation aids. 4. Resolve problems in loxodromic, orthodromic and combined navigation using plane and spherical trigonometry.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures** 1. Introduction – loxodrome, orthodrome, determining the elements of loxodromic navigation. 2. Determining the elements of orthodromic navigation using spherical trigonometry. 3. Determining elements of combined (mixed) navigation. 4. Nautical charts and guides. 5. Hydrographic and topographic signs and markings on charts. Waterway marking. 6. Marine lights, sound signals, electronic means of waterway marking. 7. Notices to mariners. Correcting nautical charts and guides. 8. Methods for determining line of position/position. Using traditional navigation aids (compass, ganiometer/ instrument, sextant, radar). 9. Methods for determining position at sea: observation, dead reckoning, time interval. 10. Determining elements of drift. 11. Position errors: systematic, random and overlooked. Central quadrant error, vector error, error ellipses, navigation error. 12. Position errors with more than one line of position, motion error, errors of horizontal and vertical angles. 13. Dead reckoning errors. Recommendations for determining position. 14. Recommendations for choosing a course. Other methods of safe navigation. 15. Passage planning and voyage plan. Voyage in difficult navigation conditions, the importance of ECDIS in passage planning. **Exercises** 1. Numerical problem-solving tasks on loxodromic and orthodromic navigation. Calculation of estimated time of arrival (ETA).					

2. Numerical problem-solving tasks on loxodromic and orthodromic navigation. Numerical problem-solving tasks on orthodromic navigation using gnomonic projection map. Calculation of estimated time of arrival (ETA). Crossing the Date Line.
3. Combined sailing - combination of orthodromic and mid-latitude sailing. Method of changing the course by 1 degree. Method of latitude for mid-longitude. Calculation of estimated time of arrival (ETA). Crossing the Date Line.
4. Usage of ECDIS and specialized programs for solving problems of loxodromic orthodromic navigation.
5. Equipment for work on charts. Stacking and storing charts. Catalogue of nautical charts. Navigation manuals.
6. Reading and plotting coordinates. Drawing/reading azimuth and distance. Drawing/reading of course. Working with goniometer, diopter.
7. Chart reading: general signs and markings, hydrographic and topographic markings, IALA. Comparing signs and markings on paper and on electronic charts.
8. Correcting nautical charts and guides.
9. Determining travelled distance. Calculating speed and estimated time of arrival (ETA). Determining position using dead reckoning. Drawing of lines of position.
10. Determining spotted position using azimuth, distance, their combination (one, two, three or more objects). Plotting line of position from horizontal and vertical angles.
11. Plotting positions at intervals of time (transfer of direction as a line of position, transposing a circle as a position line), positions from two bow angles. Position at intervals of time with a change of vessel's course and speed.
12. Determining the elements of drift; drift angle, speed and course over seabed, speed and direction of drift, separation of drift, setting a course through the water on a certain point using drift. Determining a position at an interval of time by known and unknown currents (total drift).
13. Other methods of safe navigation: choosing turning points, controlling a safe distance from the coast, border azimuth/distance, parallel index, passing capes.
14. Choosing coursed from departure to arrival ports (drawing routes), preparing a voyage plan - ISM procedures.
15. Using ECDIS in passage planning.

Format of instruction:

☒ lectures	☒ independent assignments
☐ seminars	☐ multimedia
☒ exercises	☐ laboratory
☐ *online*	☐ work with mentor
☐ field work	

Student responsibilities

Type of activity	Criteria	Specific activity
Class attendance-lectures	Min 80 %	Class attendance
Class attendance - auditory exercises	Min 80 %	Class attendance
Taking notes (diary) during exercises	100 %	Presentation of diary is obligatory to be eligible for signature
Individual assignments	100 %	Presentation is obligatory to be eligible for signature

Obligations of full-time students:
Lectures and exercises are mandatory and attendance records are kept. Students are required to attend minimum 80 % of classes (lectures and auditory exercises). Students who fail to meet the minimum attendance requirement will not be eligible for exam .

A written excuse can neither serve as a justification, nor as substitute for attendance.

Obligations of part-time students:
Minimum 50 % attendance , providing that students can compensate the remainder of their obligations to 80 % attendance subsequently, at extra classes, during and after the semester, but no later then one month after the end of the lecture period.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)

Class attendance	1.125	Research		Practical training	
Experimental work		Report		Individual assignments	0.075
Essay		Term paper		(other)	
Mid-term exams	1.8	Oral exam	1.0	(other)	
Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	15
I Mid-term exam	75	20
II Mid-term exam	75	30
III Mid-term exam - theory (basic definitions and work with a chart)	51 (95 %)	30
Individual assignments	100 %	5

Final evaluation

Elements of evaluation	Success (min. %)	Percentage (%)
Previous activities (including elements of continuous evaluation)	80	20
Work with a chart - written	75	30
Other numerical tasks - written	75	20
Basic terms and definitions and work with a chart (written and/or oral)	95	5
Theoretical exam (written and/or oral)	51	25

Mid-term exam timetable:
Mid-term exam I- exercises (loxodorme, orthodrome) week 6
Mid-term exam II - exercises (chart) week 15
Mid-term exam III – theory week 14

Grading
Minimum 51 % to pass the exam.

Percentage (%)	**Criteria**	**Grade**
0-50	does not meet the minimum criteria	insufficient (1)
51-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)

90-100	extraordinary achievement	excellent (5)

Minimum 75 % to pass the exam.

Percentage (%)	Criteria	Grade
0-74	does not meet the minimum criteria	insufficient (1)
75-84	meets the minimum criteria	sufficient (2)
85-89	average achievement with noticeable insufficiencies	good (3)
90-94	above average achievement with few mistakes	very good (4)
95-100	extraordinary achievement	excellent (5)

After passing the mid-term exams from exercises, i.e. meeting all their obligations, students may take the oral part of the exam. Students who pass the mid-term exam from theory in the course of the semester are exempt from the oral part of the exam. Students who fail to pass exercises through mid-term exam are required to take the final written exam, providing they have met all their course obligations.

Mid-term exams can be taken only during the lecture period, while the final exam can only be taken during the official exam period, and will be recognized until the end of the respective academic year. The final written exam covers wither the entire subject matter or only the part that was not passed. The first mid-term exam from exercises may be replaced by corresponding independent assignments, and that only in the course of the semester. The same does not apply to the second mid-term exam which must be passed .

The total written exam will be recognized without limitations until the end of the academic year, i.e. until the end of the respective exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year.

The duration of the final written exam from exercises is 2-3 school hours.
The duration of the mid-term exam from exercises (only during lectures): 1-2 school hours.
The duration of the mid-term exam from theory: up to 1 school hour.

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	1. Z.Lušić: Terestrička navigacija-teaching materials, Faculty of Maritime Studies in Split, Split, 2012		YES
	2. Bowditch, N.: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002	1	YES
	3. Nautical Charts, HHI, Split	10	
	4. Coastal Charts HHI: 200-20; 100-21	1	

Optional literature (at the time of submission of study program proposal)

1. Benković, F., at al: Terestrička i elektronska navigacija, Hidrografski institut ratne mornarice, Split, 1986
2. Kos, S.; Zorović, D.; Vranić, D.: Terestrička i elektronička navigacija, Faculty of Maritime Studies in Rijeka, Rijeka, 2010
3. Simović, A.: Terestrička navigacija, Školska knjiga, Zagreb, 2000
9. Simović, A.: Elektronička navigacija, Školska knjiga, Zagreb, 2000

Quality assurance methods that ensure the acquisition of exit competences

University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.

Other (as the proposer wishes to add)	

COURSE NAME	CARGO HANDLING II					
Code	PFN303	Year of study	2			
Course teacher	Zaloa Sanchez Varela, PhD, Asst. Prof.	Credits (ECTS)	5			
Associate teachers	Zlatko Boko	Type of instruction (number of hours)	L	S	E	F
			30	0	45	0
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	The objective of the course is to familiarize students with the characteristics of maritime cargo transport, the principles of cargo handling, planning of cargo loading on different types of ships, security measures in cargo transportation by sea.					
Course enrolment requirements and entry competences required for the course	A precondition for enrolment is completed course *Cargo Handling I*.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain and elaborate the principles of cargo distribution planning, as well as requirements for the transportation of various types of dry, liquid, hazardous, and other types of cargo. 2. Plan loading/unloading, stacking, securing of various types of cargo. 3. Recognize dangers during the transportation of special cargo (dry bulk, containers, liquid bulk, etc.). 4. Know safety and security measures in cargo transportation by sea, hazardous **IMDG** cargo and **IMBSC** cargo, and procedures in case of leakage, turning over, falling, spoilage, etc. 5. Using computer programs to plan **IMBSC** cargo loading, stacking and handling. Create and give a presentation (individually and/or in a team) on computer programs used for planning and transportation of various types of cargo by sea.					
Course content broken down in detail by weekly class schedule (syllabus)	1. **The principles of cargo distribution planning.** The principles of cargo distribution and an analysis of influencing factors. Cargo distribution plan. Cargo loading/unloading plan. The influence of transport technology on cargo distribution planning. 2. **Transportation of bulk cargo by sea.** Planning the loading of dangerous bulk cargo using the **IMBSC** Code. An analysis and application of **IMBSC** Code. Transportation of cargo that can become viscous, transportation of chemically hazardous solid bulk cargo, transportation of solid bulk cargo of large density, uncohesive cargo, etc. Make a cargo distribution plan for a bulk carrier. Cargo distribution plan. Planning cargo loading/unloading. Loading, control and unloading of cargo. ISM procedures. 3. **Transportation of containers by container ships**. Planning the loading of packaged hazardous goods in containers (IMDG – lesson 1). Transportation of general cargo by sea. Planning the loading of cargo on general cargo ships. Planning cargo distribution (preliminary, working and final plan). Cargo loading, stowage, securing, and monitoring during voyage and cargo unloading. Planning container loading on different types of ships. Planning cargo distribution on container ships. Control and inspection of containers. Loading, securing and securing containers on a ship. Controlling cargo during a voyage. Unloading containers. ISM procedures. 4. **Transportation of grains by sea**. Analysis and implementation of the International Code for the Safe Carriage of Grain in Bulk. An analysis of stability during the transportation of grain. Creating a cargo transport plan for grain. Cargo distribution plan.					

	5. **Transportation of grains by sea.** Loading, monitoring and unloading of cargo. Safety measures during the fumigation of holds, application of the IMBSC Code. ISM procedures. 6. **Transportation of other types of bulk cargo by sea** (ores, minerals, cement, etc.) applying the **IMBSC** Code and ISM procedures. 7. **Transportation of liquid cargo by sea -** inerting and tank washing – in general. Security measures, ISM procedures. The basics of liquid cargo transportation. Knowing and the ability to apply relevant international codes and standards regulating the safe handling and transportation of liquid cargo. Safety measures in liquid cargo transportation. Ship to Shore exchange of information. Preparation od ship for cargo loading. Ship to Shore Checklist. ISM procedures. 8. **Transportation of crude oil and products by sea.** Planning the loading of crude oil and products for the transportation of liquid cargo. Cargo distribution planning. Plan for loading and unloading. Cargo operations: preparing tanks, loading, monitoring cargo during voyage, unloading, inerting, washing tanks, etc. Determining the quantity of cargo on board. Analysing methods. 9. **Transportation of liquefied natural gas by sea.** An analysis and application of IGC provisions and GC Rules on cargo handling. Planning the liquefied gas loading on ships for the transport of liquefied gas. Planning cargo distribution. Loading and unloading plans. Cargo operations: preparing tanks, loading, controlling cargo during voyage, unloading, inerting, washing tanks, etc. Determining the quantity of cargo on board. Analysing methods. ISM procedures. 10. **Transportation of chemicals by sea.** An analysis and application of IBC provisions and BCH regulations on cargo handling. Planning the loading of chemical substances on ships for the transport of chemicals. Planning cargo distribution. Loading and unloading plans. Cargo operations: preparing tanks, loading, controlling cargo during voyage, unloading, inerting, washing tanks, etc. Determining the quantity of cargo on board. Analysing methods. ISM procedures. 11. **Transport of timber by sea.** An analysis and application of the provisions of the Regulation on the transportation of timber on deck. Planning the loading of timber. Planning cargo distribution. Loading, stacking and securing timber, controlling cargo during voyage and unloading. ISM procedures. 12. **Transportation of refrigerated cargo.** Planning the loading of refrigerated cargo and cargo plan. Loading and stacking of refrigerated cargo, controlling cargo during voyage and unloading. ISM procedures. 13. **Transportation of cargo by RO/RO ships,** specialized vessels for the transportation of pallets and barges. Transportation of cargo by RO/RO ships. Transportation of pallets by specialized vessels. Transportation of cargo by barges (LASH ships, SEA BEEs, BACATs, Capricorn vessels). Cargo loading and cargo distribution plan. Loading, stowage, securing, controlling cargo during voyage and unloading. ISM procedures. 14. **Transportation of heavy cargo by sea.** The principles and modes of heavy cargo transportation. Cargo loading and cargo distribution plan for the transportation of heavy cargo. An analysis of stability during all stages of transportation. Specialized equipment for the transportation of heavy cargo. Loading, stowage, securing, and controlling cargo during voyage and unloading. Cargo transportation on other types of vessels. ISM procedures. 15. **Transportation of various types of cargo by sea -** Bulk mineral cargo with high moisture content (30 % and more) - Cargo Liquefaction - Nickel and iron ores. Terms and methods of transportation of such cargo by sea, and calculating ship stability during the transportation of cargo in accordance with IMO requirements.	
Format of instruction:	☒ lectures ☒ seminars and workshops	☒ independent assignments ☒ multimedia

	☒ exercises ☐ *online* ☒ partial e-learning ☐ field work	☐ laboratory ☐ work with mentor ☒ practice on a simulator
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To be eligible for the exam, students are required to attend minimum 80 % of lectures and 80 % of auditory exercises . To qualify for the issuance of certificates of competence, students must attend minimum 95 % of lectures and 100 % of exercises. Students who fail to meet the minimum attendance requirements will not be permitted to take the exam. A written excuse can neither justify nor serve as a substitute for attendance. Students who fail to meet the requirements for the issuance of certificates of competence due to illness or other justified reasons, but have attended 80 % or more lectures, can take additional classes up to the required 100 % (95 %), in the course of the semester and later, but no later then one month after the end of the lecture period. All other students, i.e. students whose attendance is below 80 % will not be allowed to take the exam and will be required to re-enrol in the course next year. **Obligations of part-time students:** The criteria for training are the same as for full-time students. For the remaining part of classes minimum 50 %, providing that they may compensate for the remaining part of obligations up to 80 % subsequently, by taking additional classes during and after the lecture period, but no later than one month after the end of the lecture period.	

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.875	Research		Practical training	0.375
	Experimental work		Report		Homework	0.250
	Essay		Term paper	0,500	(other)	
	Mid-term exams – lectures (2) + exercises (2)	1.000	Oral exam	1,000	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Examination procedure:** A precondition for taking this exam is the passed exam from course *Cargo Handling I*. Students who pass mid-term exams from exercises, i.e. meet all course requirements, may take the oral part of the exam. Students who successfully pass the mid-term exam (theory) during the lecture period are exempt from the oral part of the exam. Students who fail to pass exercises at mid-term exams have to take the final written exam consisting of two parts. The first part consists of solving stability-related problems for different types of ships (bulk grains, minerals, ore, LNG, LPG, VLCC, Container). The second part of the exam covers theory and tests cargo handling skills on a simulator. Mid-term exams can be taken only during the lecture period, and the final exam only during the official exam period. In that event, students only take that part of the final written exam which they had not previously passed, and their cargo handling skills are tested on a simulator (first part) or other (second part). The first and second mid-term exam from exercises consist of successfully solving independent assignments, and that only in the course of the semester. That does not apply to work on the simulator which must be passed.

In the course of the semester, students are required to prepare a term paper in keeping with the instructions provided on the e-learning platform Merlin, and submit it on time. Students who fail to submit their term paper will not be allowed to take the exam and must re-enrol in the course.

The passed final written exam from exercises or any of its two main parts will be recognized until the end of the respective academic year, i.e. the end of the respective exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year. The exception is if a student passes the overall exam from exercises, however, the oral exam must be taken within one year from the exam from exercises.

Duration of the final exam from exercises (written): 2 school hours
Duration of each of the two written mid-term exams (exercises): 2 school hours
Duration of the mid-term exam from exercises (only during the lecture period): 2 school hours.
Duration of the mid-term exams from theory: 2 school hours.

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	10
Mid-term exam I	75	30
Mid-term exam II	75	30
Practice on a simulator for cargo loading	75	10
Individual assignments	100	10
Term paper	60	10
		100

Final evaluation
(for students who do not meet the requirements of continuous evaluation)

Elements of evaluation – Final exam	Success (min. %)	Percentage (%)
Previous activities (including elements of continuous evaluation)	**100**	**25**
Numerical problems - written	**75**	**30**
Demonstration of work on a simulator	**75**	**25**
Theoretical exam (written and/or oral)	**75**	**20**
		100

Grading
A student has to achieve a minimum of 60 % of total points to pass the exam.

Percentage (%)	Criteria	Grade
00 – 59	does not meet the minimum criteria	insufficient (1)
60 – 71	meets the minimum criteria	sufficient (2)
72 – 82	average achievement with noticeable insufficiencies	good (3)
83 – 94	above average achievement with few mistakes	very good (4)
95 – 100	extraordinary achievement	excellent (5)

A student has to achieve a minimum of 75

Percentage (%)	Criteria	Grade
00 – 74	does not meet the minimum criteria	insufficient (1)
75 – 84	meets the minimum criteria	sufficient (2)
85 – 89	average achievement with noticeable insufficiencies	good (3)
90 – 94	above average achievement with few mistakes	very good (4)
95 – 100	extraordinary achievement	excellent (5)

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. G. Belamari: Rukovanje teretom II – authorised lectures, teaching material x 13 volumes, Split: Faculty of Maritime Studies in Split, October 2018		YES
	2. D. Vranić, P. Komadina et al.: Prijevoz kemijskim tankerima: sigurnost i zaštita okoliša, Rijeka: Faculty of Maritime Studies, 1997		YES
	3. P. Komadina, D. Vranić, Prijevoz sirove nafte morem, Rijeka: Faculty of Maritime Studies		YES
	4. P. Komadina et al.: Prijevoz ukapljenih plinaova morem, Rijeka: Faculty of Maritime Studies, 1995		YES
	5. P. Komadina et al: Brodovi multimodalnog transportnog sustava, Rijeka: Faculty of Maritime Studies, 1998	6	YES
	6. D. Vranić, S. Kos: Prijevoz kontejnera brodom I II, Rijeka, Faculty of Maritime Studies, 2006 / 2008		YES
	7. D. Vranić, “Tereti u pomorskom prometu”, Rijeka, Faculty of Maritime Studies		YES
	8. IMBSC CODE 2022.		YES
	9. IMDG Code, 2022 Edition (inc. Amdt 41-22) 2 volumes		YES
	10. Authorised lectures, teaching material, Faculty of Maritime Studies in Split, Split, October 2018		YES
Optional literature (at the time of submission of study program proposal)	1. Cargo Work For Maritime Operations, D.J. House(formerly Kemp & Young’s Cargo Work), Elsevier Butterworth-Heinemann, Oxford, Seventh edition 2005.		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.		

COURSE NAME	SHIP MANOEUVRING					
Code	PFN 105	Year of study	2			
Course teacher	Ivica Skoko, PhD, Asst. Prof.	Credits (ECTS)	5			
Associate teachers	Marijan Zujić, MEng Filip Bojić, MEng	Type of instruction (number of hours)	L	S	E	F
			30	0	45	0
Status of the course	Mandatory	Percentage of application of e-learning	/			
COURSE DESCRIPTION						
Course objectives	Introduce students to the factors affecting ship manoeuvring, ship manoeuvring characteristics, manoeuvring of different types of ships in all conditions, including extraordinary circumstances, safety measures during manoeuvring and mooring. Detailed knowledge and analysis of the International Regulations for Preventing Collisions at Sea. Through practical work (exercises) and navigation (onboard internship) students acquire skills and competences in accordance with the STCW Convention.					
Course enrolment requirements and entry competences required for the course	A precondition for enrolment are completed courses *Terrestrial Navigation I* and *Terrestrial Navigation II*.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Know, analyse and apply the International Regulations for Preventing Collisions at Sea. 2. Describe and analyse factors affecting ship manoeuvring. 3. Know and interpret manoeuvring characteristics of a ship. 4. Explain the principles of manoeuvring different types of ships in all conditions including extraordinary circumstances. 5. Know safety measures during manoeuvring and mooring. 6. Being able to steer a ship on navigation simulators and during actual navigation. 7. Acquire ship manoeuvring skills and competences.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures**: 1. Introduction, definition and classification of ship manoeuvring techniques. International Regulations for Preventing Collisions at Sea - lights. 2. Loading/ unloading of a pilot. 3. Mooring and unmooring. 4. Mooring and unmooring. 5. Mooring and unmooring. 6. Manoeuvring in confined waters - the effect of shallow waters. 7. Navigation in adverse weather conditions - pitching, rocking and rolling. 8. Usage of manoeuvring systems. 9. International Regulations for Preventing Collisions at Sea - manoeuvring in reduced visibility and separation zones. 10. Anchoring. 11. Squat effect on trim. 12. The stopping manoeuvre and the impact of wind. 13. Navigation in adverse weather conditions – navigation through ice. 14. Manoeuvring techniques in different conditions. Manoeuvring in separation zones, narrow channels and emergency situations. VTS. **Exercises**: 1. International Regulations for Preventing Collisions at Sea - lights. 2. Loading/ unloading of a pilot. 3. Mooring and unmooring. 4. Mooring and unmooring.					

	5. International Regulations for Preventing Collisions at Sea - collision avoidance. 6. Manoeuvring techniques in different conditions. 7. Interaction of the ship and the environment. 8. Manoeuvring and propulsion characteristics. 9. International Regulations for Preventing Collisions at Sea - manoeuvring in reduced visibility and separation zones. 10. Anchoring. 11. Docking. 12. Navigation in adverse weather conditions: towing, change of course, launching a life raft, etc. 13. Full turning circle manoeuvre. 14. Navigation through ice or near ice. 15. Navigation through ice or near ice.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia X laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Students are required to regularly attend and actively participate in lectures, carry teaching materials, regularly do assignments and meet all their laboratory exercise obligations-LE (simulators). Lectures and exercises are mandatory and attendance records are kept. For full-time students to be eligible for the exam, apart from the aforementioned conditions, they must also attend minimum 80 % of classes (lectures / auditory exercises - AE) and 100 % of practical training (LE). Students who fail to meet the minimum attendance requirements and all simulator exercise obligations (LE) will not be eligible for the exam and will be required to re-enrol in the course. For part-time students to be eligible for the exam, apart from the aforementioned conditions, they must attend minimum 50 % of lectures, 80 % of AE and 100 % of practical training (LE). Students who fail to meet the minimum attendance requirements and all simulator exercise obligations (LE) will not be eligible for the exam and will be required to re-enrol in the course. Written excuses can neither justify nor substitute class attendance. Students who fail to meet the requirements for taking the exam (lectures and exercises) due to illness or another duly justified reason, but have 90 % or more of the minimum attendance requirement, may take additional classes up to 100 %, in the course of the semester, but no later then by the end of the lecture period. All other students, i.e. those who have not met the minimum attendance requirement and do not meet the above conditions for additional classes, are required to re-enrol in the course next year.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.875	Research		Practical training	0.75
	Experimental work		Report		Homework (other)	0.375
	Essay		Term paper		(other)	
	Mid-term exams	1	Oral exam	1	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Examination procedure:** After passing the mid-term exams from exercises, i.e. meeting all their obligations, students can take the final exam.

Students who do not pass exercises through mid-term exams are required to take the final exam. A precondition for the final exam is prescribed minimum lecture and exercise attendance .
Mid-term exams can only be taken during the lecture period, and the final exam only during the official exam period. Students who fail to pass all mid-term exams from exercises (but only some) will not have to pass the topics covered by the mid-term exams they passed. In that event, students only take that part of the final written exam which they had not previously passed.
If students pass the final written exam from exercises or one of its two constituent parts such exams will be recognized without restrictions until the end of the academic year, i.e. until the end of the respective exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year.
The duration of mid-term exams from exercises (only in the lecture period): 1-2 school hours.

Final evaluation

Elements of evaluation – Final exam	Success (min. %)	Percentage (%)
Previous activities (including elements of continuous evaluation)	100	25
Exercises	75	45
Theoretical exam (written and/or oral) (the Rules)	50 (100)	30

A student has to achieve a minimum of 50 % of total points to pass the exam.

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

A student has to achieve a minimum of 75 % of total points to pass the exam.

Percentage (%)	Criteria	Grade
75-79	does not meet the minimum criteria	insufficient (1)
80-84	meets the minimum criteria	sufficient (2)
85-89	average achievement with noticeable insufficiencies	good (3)
90-94	above average achievement with few mistakes	very good (4)
95-100	extraordinary achievement	excellent (5)

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. D. J. House: Seamanship Techniques, 3rd Edition, 2004, Elsevier Ltd. (https://anzaliport.pmo.ir/pso_content/media/digitallibrary/2013/1/book13/13.pdf)		YES
2. D. J. House: Ship Handling Theory and Practic", Elsevier, Oxford-GB, 2005		

	3. Bridge Procedures Guide, International Chamber of Shipping, Witherby& Co. Lt., London		YES
	4. D. Jašić, G. Belamarić, A. Gudić, Međunarodna pravila o izbjegavanju sudara na moru, Sveučilište u Zadru, pomorski odjel, Zadar, 2011	5	
Optional literature (at the time of submission of study program proposal)	1. R. Radulić, Manevriranje brodom, Zagreb: Profil International d.o.o., 2001 2. I. Buljan: Manevriranje brodom, Zagreb: Školska knjiga, 1982 3. Sijekavica, I., Kačić, H.: Pravila o izbjegavanju sudara na moru, ŠK Zagreb, Zagreb, 1982 4. Pomorska enciklopedija, JLZ, Zagreb, 1975 5. A Seamans Guide to the RULE OF THE ROAD, Morgans Tehnical Books Limited, Gloucestershire, 2003 6. D. J. House, Seamanship Techniques shipboard and marine operations, Elsevier, Oxford-GB, 2005 7. R. W. Rowe, The Shiphandler's Guide, The Nautical Institute, London, 2000 8. H. Hensen, Tug Use in Port, A practical guide, The Nautical Institute, London, 1997 9. Mooring Equipment Guidelines, Oil Companies International Marine Forum, OCIMF, Witherby and Co. Ltd., London, 1997 10. IMO Rezolucija A.601(15) Pribavljanje i prikaz informacija o manevarskim svojstvima broda na brodu, IMO, London 11. IMO Rezolucija A.751(18) Interim Standards for Ship Manoeuvrability, IMO, London 12. Squat, Interaction, Manoeuvering, The Nautical Institute, London, 1995 13. Bridge Procedures Guide, International Chamber of Shipping, Witherby & Co. Lt., London, 1998		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	SHIPPING ECONOMICS					
Code	PFP 202	Year of study	2			
Course teacher	Luka Vukić, PhD, Assoc. Prof.	Credits (ECTS)	3			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	0	0	0
Status of the course	Mandatory	Percentage of application of e-learning	10 %			
COURSE DESCRIPTION						
Course objectives	Understanding the basic concepts of maritime economics. Education and training for exams in keeping with the IMO programs.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Analysing the role of shipping in transportation and economy. 2. Identifying different types of freight rates and operating costs in shipping. 3. Differentiating between different employment methods, contracts, liabilities and expenses. 4. Identifying commercial risks, optimizing operations, optimizing a ship's transportation capabilities.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures**: 1. Marine transportation industry. 2. Definitions and meanings. 3. Volume and transportation routes of bulk carriers, tankers and liners. 4. Passenger transport by sea. 5. Organizing marine transport activities. 6. Organizing shipping companies and transportation by bulk carriers, tankers and liners. 7. Organizing passenger liners. 8. Maritime shipping markets. 9. Demand and supply of maritime transportation, the division of shipping markets, determining freight rates on bulk, tanker and liner market, freight rate fluctuations and shipping indices. 10. Costs of ship exploitation. 11. Cost sharing and cost analysis. 12. Optimization of ship utilization. 13. Employment methods, contracts, liabilities and expenses. 14. Optimizing operations, commercial risks. 15. Optimizing a ship's transportation capabilities.					
Format of instruction:	X lectures ☐ seminars and workshops ☐ exercises ☐ *online* ☐ partial e-learning ☐ field work	☐independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor				
Student responsibilities	**Obligations of full-time students:** Lectures are mandatory, and attendance records are kept. To be eligible for the exam, students must attend minimum 80 % of lectures. Students who fail to meet the minimum attendance requirements will not be eligible for the exam, and have to re-enrol in the course next year.					

Students may pass a part of the exam (70 %) in the form of continuous assessment in the course of the semester by writing two mid-term exams in weeks 8 and 15, while the remaining 30 % will be covered by the final (oral) exam. Students are required to take all mid-term exams.
Students who fail to pass mid-term exams in the course of the semester, but are eligible for the exam, must take the complete final exam, written and oral, at one of the exam periods. Students who earn the sufficient number of points in the lecture period (at the written exam), are required to register for the exam at Studomat – for the first exam period after lectures and take the oral exam in the same exam period, after which their grade, depending on their results, will be entered in the ISVU system or they can take an oral exam if they want a better grade.

Obligations of part-time students:
Total attendance obligations of part-time students may not be less than 50 % of attendance obligations of full-time students. The examination system is the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)

Class attendance	0.75	Research		Practical training	
Experimental work		Report		Homework (other)	
Essay		Term paper		(other)	
Mid-term exams	1.35	Oral exam	0.9	(other)	
Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

Grading and evaluation of full-time students:
Students may pass a part of the exam (70 %) in the form of continuous assessment in the course of the semester by writing two mid-term exams, in weeks 8 and 15, while the remaining 30 % will be covered by the final (oral) exam. Minimum 50 % of all points are required to pass each mid-term exam. The final exam consists of an oral part which tests the overall theoretical knowledge of shipping economics. Minimum 50 % of theoretical knowledge is required to pass.
Students are required to take all mid-term exams. Students who do not pass mid-term exams in the course of the semester, but are eligible for the exam, are required to take both written and oral exam in one of the available exam periods.

The final grade for the course is the sum of student's results realized during the lecture period (mid-term exams - 70 % of the grade) and their results at the final exam (30 % of the grade).

Continuous assessment:
- two (2) mid-term exams – minimum 50 % of correct answers required,
- lecture attendance.

Final exam:
The final exam (written and oral) tests the overall theoretical knowledge of shipping economics. Minimum 50 % of theoretical knowledge is required to pass.

Continuous assessment (maximum 70 % of the grade)

Elements of evaluation	Success (min. %)	Percentage (%)
Attendance	80	5
I. Mid-term exam	50	32,5
II. Mid-term exam	50	32,5

Final assessment

Elements of evaluation	Success (min. %)	Percentage (%)
Prior activities (attendance and mid-term exams)	50	70
Final exam (written and oral)	50	30

Grading

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average success with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

Grading and assessment of part-time students:
To be eligible for the exam students have to attend minimum 50 % of lectures. Grading and assessment of part-time students are the same as for full-time students.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Domijan Arneri, I. (2014). Poslovanje u morskom brodarstvu, Redak, Split	10	

Optional literature (at the time of submission of study program proposal)

1. Stopford, M. (2009). Maritime Economics, Routledge, New York
2. Mitrović, F., Sumić, D., Plazibat, V. (2013). Ekonomika brodarstva, Faculty of Maritime Studies, Split
3. Ma, S. (2021). Economics of Maritime Business, Routledge, New York
4. Breskin, I. (2018). The Business of Shipping, Cornell Maritime Press; 9th edition, Maryland, USA
5. Karakitsos E. and Varnavides, L. (2014). Maritime Economics: A Macroeconomic Approach, Palgrave Macmillan, London
6. Jugović, A., Zanne, M., Bukša, J. (2024) Ekonomika brodarstva, Redak, Split

Quality assurance methods that ensure the acquisition of exit competences

University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.

Other (as the proposer wishes to add)

Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	SHIP MAINTENANCE					
Code	PFS217	Year of study	2			
Course teacher	Gorana Jelić Mrčelić, PhD, Full Prof. Branko Lalić, PhD, Asst. Prof.	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30		15	
Status of the course	Mandatory	Percentage of application of e-learning	0			

COURSE DESCRIPTION	
Course objectives	Education of students in ship maintenance.
Course enrolment requirements and entry competences required for the course	No requirements.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Define the degradation of materials. 2. Define and classify corrosion and anti-corrosion measures. 3. Explain the mechanisms of corrosion. 4. Analyse anti-corrosion measures in the ship design stage. 5. Compare the advantages and disadvantages of different anti-corrosion measures. 6. Analyse procedures during ship inspection and dry-docking. 7. Analyse procedures during routine maintenance and repair.
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Definitions of abrasion, erosion and cavitation. The destruction of organic and inorganic non-metallic materials. Weather impact and effect. 2. The division of corrosion by corrosion mechanisms. The division of chemical corrosion: gas, in nonelectrolytes. The kinetics of chemical corrosion. 3. Corrosion due to free energy change, pressure of decomposition, the equilibrium constant. 4. Special forms of chemical corrosion. The decarbonisation of steel. Hydrogen corrosion. High temperature oxidation of pure metals. 5. Electrochemical corrosion of metals. Electrode potential. Measurement electrodes. 6. Depolarization: hydrogen, oxygen. Controlling corrosion processes. The thermodynamics of corrosive processes. 7. Distribution. Corrosion in sea, land and air. Corrosion of alloys. Corrosion: general, local, dotted, pitting. 8. Stress corrosion. Corrosion under the influence of pressure. Corrosion under vibrations. Mechanical fatigue and corrosion fatigue. 9. Corrosion properties of technical metals. Choosing optimum material. Iron, steel, stainless steel, copper, brass, ... 10. Corrosion protection. The economic justification of protection. Technological and structural conditions for suitable protection. 11. Pre-treatment of material. Preparing the surface. Mechanical pre-treatment. Chemical and electrochemical surface treatment. 12. Protection with metal coating. Alloy coating. Inorganic coatings on metals. 13. Protection against corrosion with organic coatings. Choosing an appropriate system. Thickness, application and quality testing of coating. 14. Cathodic and anodic protection. Impressed current cathodic protection. The attenuation curve. Efficiency testing.

	15. Temporary protection. Inhibitors. Corrosion testing. Testing the efficiency of protection. **Exercises:** 1. Gas corrosion of copper. 2. Corrosion of zinc in electrolytes. 3. Determining the potentials of metals in seawater. 4. Determining the potentials of metals in soil. 5. The Evans diagram. 6. Pre-treating material before protection. 7. Galvanisation. 8. Protection with organic coatings. 9. Silica gel absorption capability. 10. Cathodic protection efficiency testing. 11. Testing cathodic protection efficiency in soil. 12. Ship inspection and dry-docking. 13. Maintenance of cargo equipment. 14. Maintenance of hatch coamings. 15. Maintenance and repairs.
Format of instruction:	☒ lectures ☐ seminars ☒ exercises ☐ *online* ☐ field work ☒ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lecture attendance is mandatory for full-time students, i.e. to be eligible for exam, they must attend minimum 80 % of lectures and 100 % of exercises. Students who fail to meet the minimum attendance requirements will not be eligible for the exam and will be required to re-enrol in the course next year. Students may pass the exam in the form of continuous assessment in the course of the semester by taking mid-term exams. Students are not required to take mid-term exams. Students who fail mid-term exams, but are eligible for the final exam, are required to take the exam in the exam period. Students who successfully pass both mid-term exams, are required to apply for the final exam at Studomat for the first exam period and their final grade will be entered in the ISVU system in that exam period or they can take an oral exam if they want a better grade. **Obligations of part-time students:** Total attendance obligations of part-time students are the same as obligations of full-time students in keeping with STCW recommendations. Examination methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.125	Research		Practical training	
	Experimental work		Report		Individual work and homework (other)	
	Essay		Term paper		(other)	
	Mid-term exams	2.875	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student	**Grading and evaluation of full-time students:** Lecture attendance is mandatory for full-time students, i.e. to be eligible for exam, they must attend minimum 80 % of lectures and 100 % of exercises. There will be

work in class and at the final exam	two mid-term exams in the course of the semester (in weeks seven and fourteen). Minimum 50 % of points are required to pass each mid-term exam. Students who do not take the mid-term exams for objective reasons or do not achieve the minimum score, may take the written exam. Mid-term exam or written exam results count towards the grade. Students who fail to pass the mid-term exams in the course of the semester, but are eligible for the exam, are required to take the exam in the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Lecture attendance and activity during exercises	80/100	0
Continuous evaluation during exercises - mid-term exams	50	50
Continuous evaluation during lectures - mid-term exams	50	50
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	50
Theoretical part of the exam (written and/or oral)	50	50
Total		100

Grading:

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

3. Grading and evaluation of part-time students

The grading and evaluation criteria are the same as for full-time students.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. G. Jelić Mrčelić: Odražavanje broda 2014./15. - e-lectures on Faculty's web		YES
Optional literature (at the time of submission of study program proposal)	1. B. Jarić, A. Rešetić: Korozija, elektrokemijske osnove i katodna zaštita, Zagreb, 2004 2. D. R. Palmer: Planning and control of maintaining systems, John Wiley and Sons, 1998 3. MCA: Code of safe working practices for working seamen, London, 1998 4. OLP e-learning materials		

Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	MARITIME ENGLISH V					
Code	PFP103	Year of study	3			
Course teacher	Mira Pavlinović, PhD, Assoc. Prof.	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			15	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Acquisition of basic and specialist language knowledge and skills required for the performance of management-level jobs at sea and on land. English as the language of communication in the maritime industry: acquisition of communication skills in English to ensure the safety of navigation and protection of the marine environment. Acquisition of language skills and preparing students for learning, acquiring knowledge and following technological developments in the global maritime industry, maritime law and economics of the shipping industry and ports. Training students to give a presentation of maritime topics in English language: developing four basic language skills: reading, listening, writing and speech. Encouraging and developing the cognitive abilities of students, developing critical thinking, and creativity in the analysis, interpretation and evaluation of information, and ability to work in a team.					
Course enrolment requirements and entry competences required for the course	The precondition for enrolment are completed courses *Maritime English III* and *Maritime English IV*.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Give clear, detailed descriptions on a range of topics related to students' interests and profession (maritime law, safety of navigation, marine environment protection, law of the sea, marine insurance, bills of lading, etc.). Distinguish, define and apply terminology in the fields of maritime law, law of the sea, insurance, economy of shipping industry and ports, and compare English and Croatian translation of the terms. Use the language in an eloquent and spontaneous manner that enables participation in discussions on familiar topics, argumenting personal, as well as professional opinions (maritime economy, navigation safety, modern transport technologies, protection of the marine environment, etc.). Efficiently participate in team work on the project of the preparation and oral presentation on one of the maritime topics covered by the program.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Owner, master and the vessel. 2. Managing teams and planning. 3. Communicating and negotiating. 4. Budgets and management information systems. 5. Shipper's and consignee's checklists. 6. Bills of Lading and sea waybills. 7. Division of risk and cost. 8. Straight bills; marine bill of lading. 9. Trading budgets and voyage calculation. 10. The sales contract; contracts of carriage. Incoterms rules. 11. Report writing. 12. Case study - Reasons why ships sink. 13. Laytime and demurrage. 14. Understanding Basics of Shipping Market Supply and Demand Model. 15. Revision.					

	Exercises: 1. Collocations. Owner, master and the vessel. 2. Questions. Word building. Managing teams and planning. 3. Report writing. Adjectives and quantifiers. Communicating and negotiating. 4. Collocations. Descriptions. Budgets and management information systems. 5. Articles. Shipper's and consignee's checklists. 6. Reporting. Reported speech. Bills of Lading and sea waybills 7. Mid-term test. 8. Expressing modality. Straight bills; marine bill of lading. 9. Verb forms. Reporting. Trading budgets and voyage calculation. 10. Expressing modality.The sales contract. Contracts of carriage. Incoterms rules. 11. Report writing. Structures in correspondence (letters and reports). 12. Reporting verbs. Business correspondence. Case study - Reasons why ships sink. 13. Questions. Verb forms. Understanding Basics of Shipping Market Supply and Demand Model. 14. Laytime and demurrage. Revision for the test. 15. End-term test.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* X partial e-learning ☐ field work X independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lecture and exercise attendance is mandatory and attendance records are kept. Minimum 80 % lecture and auditory exercise attendance is required to be eligible for the exam and earn ECTS. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. The exam consists of a written and oral part. Students can pass the written part of the exam through continuous evaluation throughout the semester by taking mid-term exams or the final exam (written).Students who do not pass the mid-term exams, and are eligible for the exam, are required to take the written exam during the exam period. After passing the written part of the exam, all students are required to take the oral part of the exam. Students who successfully earn a sufficient number of points during classes are required to apply for the final exam at Studomat during the first exam period after the end of the lecture period. The final grade will be entered in the ISVU system **Obligations of part-time students:** Lectures and exercises are mandatory for part-time students and attendance records are kept. To be eligible for the exam, part-time student are required to attend minimum 50 % of lectures and auditory exercises. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	0.75	Research		Practical training	
	Experimental work		Report		Homework (other)	
	Essay		Term paper		Independent work during lectures	0.5
	Mid-term exams/written exam	1.25	Oral exam	1.5	(other)	
			Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of students:** The exam consists of two parts: written and oral. Students can take the written part of the exam in the form of mid-term exams. Exam topics will have been covered by teaching materials and include professional vocabulary and grammar. Students may pass the written part of the exam and professional terminology prior to the beginning of exam periods. In that event, only oral part of the exam (lessons) is taken during the exam period. Students who fail to take or pass the written part of the exam in the form of mid-term exams, but meet the minimum requirements in the course of the semester, he/she will take the final exam by writing a written assignment and taking the oral part of the exam in the regular exam periods. In order for a student to pass the mid-terms/final exam, and take the oral part of the exam, he/she has to achieve a minimum of 50 % of the total number of points. To take the exam during an exam period, and have the grade entered in the system, students have to apply for the exam in their target exam period. Exam applications and cancellations are made online, using Studomat.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Tests	50	30
Continuous assessment during lectures		10
Total		50 (in this case, the student is exempt from the written exam)

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	40
Theoretical part of the exam (written and/or oral)	50	60
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1.Tallac, R.L.: Commercial Management for Shipmasters, The Nautical Institute, London 1996		
	2.Norris R. French A., Ready for CAE, MacMillan Publishers, England, 2008		
	3.Standard Marine Communication Phrases, Školska knjiga, Zagreb		
Optional literature (at the time of submission of study program proposal)	1.McCarthy,M.,O'Dell,F,.English Vocabulary in Use, Cambridge University Press 2005 2.Eastwood J.: Oxford Practice Grammar, Oxford University Press, 2000 3.Pritchard B.: Hrvatsko-engleski rječnik pomorskog nazivlja, Školska knjiga, Zagreb, 1989 4.Plančić Skračić Englesko - hrvatski pomorski rječnik, Kartular, Split, 2013 5.Selected texts from books and professional publications such as Notices to Mariners, Maritime Reporter, Marine Technology etc.		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	PASSAGE PLANNING					
Code	PFN 110	Year of study	3			
Course teacher	Ivica Skoko, PhD, Asst. Prof.	Credits (ECTS)	5			
Associate teachers	Stipe Galić Vice Milin	Type of instruction (number of hours)	L	S	E	F
			30	0	30	0
Status of the course	Mandatory	Percentage of application of e-learning	/			
COURSE DESCRIPTION						
Course objectives	Familiarize students with the legal sources of passage planning, elements of passage planning, principles and analysis of factors influencing voyage route and navigation, division of maritime navigation, planning of oceanic, coastal and port segments of a voyage, navigation and steering in certain zones, work of the Vessel Traffic Service (VTS), the principles of international and national regulations on watchkeeping, and explain the principle of watchkeeping at sea, at anchorage and in port.					
Course enrolment requirements and entry competences required for the course	A precondition for enrolment are completed courses *Terrestrial Navigation I, Electronic Navigation* and *Ship Manoeuvring.*					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Describe and explain the elements of the voyage plan and apply the International Regulations for Preventing Collisions at Sea in practice. 2. Define and interpret factors influencing the choice of a voyage route. 3. Make a voyage plan using factors important for planning oceanic, coastal and port segments of a voyage. 4. Plan and implement navigation in polar regions, shallows and zones close to the shore, heavy traffic zones, high seas, war-affected and pirate attack zones etc. using guidance navigation systems. 5. Identify navigation and surveillance systems. 6. Knowing the principles and technological conditions of maritime travel optimization. 7. Describe and interpret principles of watchkeeping at sea, at anchorage and in port. 8. Applying the rules prescribed by international conventions and regulations (SOLAS, MARPOL, STCW, ISPS, ISM, PISM, etc.) 9. Understanding synoptic charts and plan the voyage on a given route depending on weather conditions.					
Course content broken down in detail by weekly class schedule (syllabus)	1. Definition of maritime voyage. International maritime navigation system. International sources. International governmental and non-governmental organizations. 2. International organizations in the safety of navigation. Ship owners' associations and non-governmental associations and organizations. 3. International and national regulations and rules on maritime safety. Basic maritime conventions on the safety of navigation. 4. Technological support to safe navigation. Navigation support. 5. Worldwide Navigational Warning Service. Characteristics and structure of maritime voyage. 6. Planning a maritime voyage. Waterway and navigation route marking system (the IALA marking system) 7. Planning oceanic, coastal and port segments of a voyage. 8. Passage planning using ECDIS. 9. Optimization of maritime voyage. Real-time vessel guidance. 10. Keeping watch at sea, at anchorage and in port. Training, certification and education of seafarers (STCW). 11. Rights and obligations of coastal states. 12. Domain rights (theory).					

	13. Collision risk coefficient. Maritime traffic routing. Vessel Traffic Service (VTS). 14. Organizational structure. Means of data control and acquisition. 15. Voyage management.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* ☐ partial e-learning ☐ field work X independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	Students are required to regularly attend and actively participate in lectures, carry teaching materials, regularly do assignments and meet all their laboratory exercise obligations - LE (simulators). Lectures and exercises are mandatory and attendance records are kept. For full-time students to be eligible for the exam, apart from the aforementioned conditions, they must also attend minimum 80 % of classes (lectures / auditory exercises - AE) and 100 % of practical training (LE). Students who fail to meet the minimum attendance requirements and all simulator exercise obligations (LE) will not be eligible for the exam and will be required to re-enrol in the course. For part-time students to be eligible for the exam, apart from the aforementioned conditions, they must attend minimum 50 % of lectures, 80 % of AE and 100 % of lectures including training (LE). Students who fail to meet the minimum attendance requirements and all simulator exercise obligations (LE) will not be eligible for the exam and will be required to re-enrol in the course. Written excuses can neither justify nor substitute class attendance. Students who fail to meet the requirements (lectures and exercises) due to illness or another duly justified reason, but have 90 % of more of the required minimum attendance, may take additional classes up to 100 %, in the course of the semester but no later then by the end of the lecture period. All other students, i.e. those who have not met the minimum attendance requirement and do not meet the above conditions for additional classes, are required to re-enrol in the course next year.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.5	Research		Practical training	1
	Experimental work		Report		Homework (other)	
	Essay		Term paper		(other)	
	Mid-term exams	1.5	Oral exam	1	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of full-time students:** All students must take the mid-term exam on the ECDIS simulator. This part of the exam is taken during classes, before the official exam period. To pass the mid-term exam students must earn minimum 50 % of maximum points. Students who fail the mid-term exam can not take the oral part of the exam. A precondition for the oral part of the exam are successfully passed courses *Terrestrial Navigation I* and *Terrestrial Navigation II*. The final grade for the exam is the mean of the mid-term exam grade and the oral exam grade realized in the official exam period. Student attendance and activity at lectures are monitored and count towards the final grade for the course. If students pass the final written exam from exercises or one of its two constituent parts such exams will be recognized without restrictions until the end of the academic year, i.e. until the end of the respective exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
1. Mid-term exam simulator	50	45
2. Oral exam	50	45
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Oral exam	50	90
Prior activity (including all indicators of continuous assessment)	80	10
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

Grading and assessment of part-time students:
Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. D. Zec: Planiranje pomorske plovidbe, Faculty of Maritime Studies, Rijeka,1997	5	
2. D.Jašić, G. Belamarić, Ž.Trošić, Planiranje pomorskog putovanja, University of Zadar, Maritime Department, Zadar, 2011	5	
3. D.Jašić, G. Belamarić, A.Gundić, Međunarodna pravila o izbjegavanju pravila na moru, University of Zadar, Maritime Department, Zadar, 2011	5	
4. Passage Planning Practice, Witherbys Publishing Ltd and Seamanship International Limited 2006	3	
5. Passage Planning Principles, Witherbys Publishing Ltd and Seamanship International Limited 2006	3	

	6. Bowditch, N.: The American Practical Navigator, National Geospatial-Intelligence Agency, 2017 Edition		YES
	7. Methodology for Controlling the Ship's Path during the Turn in Confined Waterways, Srđan Vujičić, Robert Mohović, Ivica Đurđević Tomaš, PFRI 2018		YES
	8. CALCULATING WHEEL-OVER POINT, Vladimir N. Drachev , *Asia-Pacific Journal of Marine Science & Education, 2012*		YES
Optional literature (at the time of submission of study program proposal)	1. NP231 Admiralty Guide to the Practical Use of ENCs, 2nd Edition 2016 2. Manuals; Admiralty 3. Developing a High-Speed Craft Route Monitor window, Odd Sveinung Hareide, Frode Voll Mjelde, Oeystein Glomsvoll, Runar Ostnes, Springer-Verlag Berlin Heidelberg 2011		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	ASTRONOMICAL NAVIGATION					
Code	PFN101	Year of study	3			
Course teacher	Zvonimir Lušić, PhD, Full Prof.	Credits (ECTS)	5			
Associate teachers	Stipe Galić, MEng	Type of instruction (number of hours)	L	S	E	F
			30	0	26	4
Status of the course	Mandatory	Percentage of application of e-learning	up to 10 %			
COURSE DESCRIPTION						
Course objectives	Identify celestial bodies and use them to determine the position and orientation of a ship at sea. Practical usage of the sextant, chronometer and nautical almanac. Determining line of position, i.e. determining the position by celestial bodies using different methods (direct and indirect methods, secant method and tangent method).					
Course enrolment requirements and entry competences required for the course	The precondition for enrolment are completed courses *Mathematics II, Terrestrial Navigation I* and *Terrestrial Navigation II.* A precondition for the exam: passed courses *Mathematics II, Terrestrial Navigation I* and *Terrestrial Navigation II.*					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Know the basic principles of movement of celestial bodies, recognise their real and apparent motions. 2. Recognize important constellations and stars, and orientation in space using them. 3. Analyse the celestial sphere, coordinate systems and the graphic coordinate conversion. 4. Know how to use a nautical almanac: transform Greenwich hour angles to local values, determine sunrise and sunset times of heavenly bodies/dawn, time of upper and lower meridian passage, use Polar and a celestial body in the upper (lower) passage to determine latitude. 5. Correct measured distances of celestial bodies using nautical tables. 6. Apply spherical trigonometry to identify celestial bodies, determine elements required to draw line of position and deviation control. 7. Independently calculate position based on celestial bodies, numerically and using special tables (distance method and direct method, with and without lines of position). 8. Know the principle of work of a chronometer and the importance of time in astronomical navigation, identify and eliminate chronometer errors. 9. Know the working principles of a sextant, know how to use a sextant, and identify and eliminate sextant errors. 10. Critically assess the usefulness of different methods for determining position in astronomical navigation (distance method, secant method, tangent method, and longitude and latitude method), including their errors.					
Course content broken down in detail by weekly class schedule (syllabus)	Lectures 1. Definition of astronomical navigation, spheres and basic theorems of spherical trigonometry. 2. Coordinate systems. 3. The first and second spherical astronomical triangle-conversion of coordinates, special cases of astronomical-nautical spherical triangles. 4. The Solar system, celestial bodies used in navigation, real and apparent motions of celestial bodies. 5. Nautical Almanac. 6. Instrument for measuring the distance of celestial bodies, sextant. 7. Errors of measured distances. 8. Weather in astronomical navigation. 9. Measuring time, the chronometer, the time service. 10. Geometric determination of a ship's position. Positioning methods (direct and indirect; tangent and secant).					

11. The altitude method, the Dozier method.
12. Special cases in astronomical navigation (φM, polar ...).
13. Identification of heavenly bodies (computer, table, identifiers, alignments).
14. Controlling the magnetic compass deviation. Using computers and tables to determine position.
15. Positioning errors in astronomical navigation.

Exercises

1. Unit conversion. Spherical trigonometry.
2. Celestial spheres and conversion of coordinates.
3. The Nautical Almanac. Translating coordinates into local values.
4. Correcting measured distances: the Sun, the Moon, planets and stars. Numerical identification of celestial bodies.
5. Calculation of time of upper meridian passage. Determining sunrise and sunset, dusk and dawn.
6. Controlling deviation using celestial bodies.
7. Using a sextant. Reading angles, detecting and correcting errors.
8. Using a sextant. Tracking celestial bodies, correcting measured distances.
9. Conversion of time. Using a chronometer.
10. Using the Polar and a celestial body in the upper (lower) passage to determine latitude.
11. Determining ship position – the distance method and identifying celestial bodies.
12. Determining ship position – the distance method – the Sun in a time lapse.
13. Determining ship position using the direct (Dozier) method and identifying celestial bodies.
14. Determining ship position numerically and using tables, identifying celestial bodies.
15. Determining position and identification with computers.

Format of instruction:

X lectures
☐ seminars and workshops
X exercises
☐ *online*
☐ partial e-learning
X field work
☐ independent assignments
☐ multimedia
☐ laboratory
☐ work with mentor

Student responsibilities

Type of activity	Criteria	Specific activity
Class attendance-lectures	Min 80 %	Class attendance
Class attendance-exercises	Min 80 %	Class attendance
Class attendance-practical part (sextant)	100 %	Class attendance
Taking notes (diary) during exercises	100 % exercises	Presentation of diary is obligatory to be eligible for signature

Obligations of full-time students:
Lectures and exercises are mandatory and attendance records are kept. Students are required to attend minimum 80 % of classes (lectures and auditory exercises). In case of unsatisfactory attendance, i.e. not meeting obligations, students will not be eligible for the exam.
A written excuse can neither serve as a justification, nor as substitute for attendance.

Obligations of part-time students:
Minimum 50 % attendance , providing that students can compensate the remainder of their obligations to 80 % attendance subsequently, at extra classes, during and after the semester, but no later then one month after the end of the lecture period in the respective semester.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.5	Research		Practical training	
	Experimental work		Report		Homework (other)	
	Essay		Term paper		Field work	0.1
	Mid-term exams	2.1	Oral exam	1.3	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	15
Mid-term exam I	75	20
Mid-term exam II	75	35
Mid-term exam III - theory	51	25
Field (practical) work	100 %	5

Final evaluation

Elements of evaluation	Success (min. %)	Percentage (%)
Previous activities (including elements of continuous evaluation)	80	10
Written exam (problem solving tasks)	75	60
Theoretical exam (written and/or oral)	51	30

Mid-term exam timetable:
Mid-term exam I - exercises week 10
Mid-term exam II - exercises week 15
Mid-term exam III - lectures week 14

Grading
A student has to achieve a minimum of 51 % of total points.

Percentage (%)	Criteria	Grade
0-50	does not meet the minimum criteria	insufficient (1)
51-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

A student has to achieve a minimum of 75 % of total points to pass the exam.

Percentage (%)	Criteria	Grade
0-74	does not meet the minimum criteria	insufficient (1)
75-84	meets the minimum criteria	sufficient (2)
85-89	average achievement with noticeable insufficiencies	good (3)
90-94	above average achievement with few mistakes	very good (4)
95-100	extraordinary achievement	excellent (5)

	After passing the mid-term exams from exercises, i.e. meeting all their obligations, students may take the oral part of the exam. Students who pass the mid-term exam from theory in the course of the semester are exempt from the oral part of the exam. Students who fail to pass exercises through mid-term exam are required to take the final written exam, providing they have met all their other obligations. Mid-term exams can be taken only during the lecture period, while the final exam can only be taken during the official exam period. To take the second mid-term exam, students must pass the first mid-term exam. Students who pass only the first mid-term exam will not be exempt from taking the final written exam from exercises. Written mid-term exams from exercises will be recognized until the end of the academic year, i.e. the end of applicable exam periods. The duration of the final exam from exercises (written) is 2 school hours. The duration of mid-term exams from exercises (only during the lecture period): 1-2 school hours. The duration of mid-term exam from theory: up to 1 school hour.		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Z.Lušić: Astronomska navigacija-teaching materials, Faculty of Maritime Studies in Split, Split, 2012		YES
	2. Bowditch, N.: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002	1	YES
	3. Nautical tables, HHI, Split	10	
	4. Nautical Almanac, 2002		YES
Optional literature (at the time of submission of study program proposal)	1. Franušić, B.: Astronomska navigacija I, Faculty of Maritime Studies in Dubrovnik, Dubrovnik, 1989 2. Čumbelić P.: Astronomska navigacija II, Faculty of Maritime Studies in Dubrovnik, Dubrovnik, 1990 3. Klarin, M.: Astronomska navigacija I, Školska knjiga, Zagrab, 2005 4. Klarin, M.: Astronomska navigacija II, Školska knjiga, Zagreb.		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	WORK ORGANIZATION AND MANAGEMENT ON BOARD					
Code	PFN314	Year of study	3			
Course teacher	Pero Vidan, PhD, Full Prof.	Credits (ECTS)	5			
Associate teachers	Mislav Maljković	Type of instruction (number of hours)	L	S	E	F
			30	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning	10 %			

COURSE DESCRIPTION	
Course objectives	Familiarize students with the organisation of a multinational crew, taking into account their cultural and social differences. Learn to organize work on a ship. Provide an insight into correct behaviour in crisis situations. Teach students management methods (command).
Course enrolment requirements and entry competences required for the course	No requirements.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Organize a crew, and plan activities and drills on board. 2. Identify particular situations as dangerous situations on board (e.g. stress, alcohol, workload, strong authority, etc.) and analyse the character traits of seafarers (attitude, value, authoritativeness, positive initiative). 3. Develop good or bad organizational structure of jobs on board. 4. Analyse cultural differences of multinational crews and, taking that into account, ensure optimum crew organization.
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures** 1. Crew resource management. Organization of duties and responsibilities on board. 2. Ship design and ergonomics, human error due to automation. 3. Attitudes, values, personality, characteristics of crew members. Application of ISM Rules. Watchkeeping and watchkeeping shifts. 4. Organizing drills on board. 5. Fatigue on board, planning working hours, ILO conventions. 6. Seafarers' contracts according to ITF. 7. Stress, fears, human limitations. 8. Mobbing, drug and alcohol abuse. 9. Short-term strategy, management (leadership), types of leadership. 10. Authority, positive initiative. 11. Communication on board. Decision-making in extraordinary situations. Conducting meetings. 12. Teamwork, management errors. 13. Cultural differences, social differences (individualism, collectivism, parochialism, small and large distance from power). 14. Case studies of distress incidents caused by errors. Errors on highly-automated ships. 15. The MCRM software package. **Exercises** 1. Human characteristics and limitations 2. Attitudes 3. Situational awareness 4. Cultural differences 5. Communication and meetings 6. Authority 7. Advice and answer

	8. Short-term strategy 9. Working hours 10. Man and automation 11. Teamwork 12. Error management 13. Management procedures 14. Decision-making 15. Ocean Learning Platform (OLP) CBT – checking results
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐*online* ☐ partial e-learning ☐ field work ☐ independent assignments X multimedia ☐ laboratory ☐ work with mentor X MCRM software package/OLP
Student responsibilities	**Obligations of full-time students:** Lecture attendance is mandatory for full-time students, i.e. to be eligible for the exam students must attend minimum 80 % of lectures and 100 % of exercises. To be eligible for STCW authorization certificates, students must attend 95 % of lectures and 100 % of exercises. **Obligations of part-time students:** Lecture attendance is mandatory for full-time students, i.e. to be eligible for the exam students must attend minimum 50 % of lectures and 50 % of exercises. To be eligible for STCW authorization certificates, students must attend 95 % of lectures and 100 % of exercises.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.125	Research		Practical training	
	Experimental work		CBT	1.175	(other)	
	Essay		Remote learning	0.7	(other)	
	Mid-term exams / pre-exam	2	Oral exam	2 (alt. mid-term exams / pre-exam)	(other)	
	Written exam	2 (alt. mid-term exams / pre-exam)	Project		(other)	

Grading and evaluating student work in class and at the final exam	Instead of taking the mid-term exams, students may take the pre-exam instead. In the course of a semester, they take the mid-term exams/pre-exam before the official exam period. Samples of mid-term exams/pre-exam are available on the Merlin e-learning platform. Minimum 50 % of all points are required to pass the mid-term exams/pre-exam. Students who pass the mid-term exams will have their grade entered in the first exam period, providing they meet all other course requirements. The final grade includes class attendance, mid-term exam results and independent/team assignments (MCRM, OLP and case studies). Students who fail mid-term exams have to take the written exam. The written exam will be replaced with an oral exam if less than 5 students apply. Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)

Attendance	80 – 100 (95 – 100)*	15
MCRM CBT	85	15
Remote learning	85	15
Mid-term exams/Written exam/Oral exam	50	55

* To be eligible for the STCW authorization certificate

Grading

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average success with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

Grading and evaluation of part-time students
The same as for full-time students.

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	1. Student Workbook, MCRM Maritime Crew Resource Management, OAA, 2010		YES
	2. P. Vidan: Teaching materials, Faculty of Maritime Studies in Split		YES
	3. Oceal Learning Platform CBT		YES

Optional literature (at the time of submission of study program proposal)	1. Bridge Team Management, Second Edition, Captain A. J. Swift FNI, 2004 2. Bridge Watchkeeping, Second Edition Various authors, 2003 3. Strandings and their Causes Captain R. A. Cahill FNI, 2002 4. Leadership Throughout R. Jeffery MNI, 2007
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	MODERN TRANSPORT TECHNOLOGIES					
Code	PFN 315	Year of study	3			
Course teacher	Rino Bošnjak, PhD, Associate Prof.	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning				

COURSE DESCRIPTION	
Course objectives	The objective of the course is to familiarize students with the technical, technological and commercial aspects of containerization and Ro-Ro technology, and transportation of bulk and special cargo by sea. Students are introduced to the essential elements of container and Ro-Ro transportation, transportation of bulk, general and special cargo. Students learn about the elements and characteristics of cargo loading/unloading. Students are introduced to the international rules, regulations, recommendations and standards related to the transportation of container, bulk, general and special cargo in accordance with the requirements and recommendations of the STCW Convention.
Course enrolment requirements and entry competences required for the course	Successfully completed course *Cargo Handling II*.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain and elaborate the types and characteristics of container ships, technology and characteristics of container transportation by sea. 2. Define types and characteristics of containers, as well as relevant regulations and standards relating to container transportation by sea. 3. Explain and define types and technology of multimodal transportation, Ro-Ro technology, LASH technology, HUCKE-PACK technology, and other technologies of multimodal transportation: SEEBEE ships, BACAT ships, CAPRICORN ships for the transportation of barges. 4. Explain characteristics and particularities of Ro-Ro transportation by sea, and explain the commercial and technical aspects of container ship and Ro-Ro ship management. 5. Describe and analyse the principles and procedures for loading, unloading, transhipment, stacking and fixing of cargo on container ships and Ro-Ro ships. 6. Explain and describe container and Ro-Ro terminals and define potential container technology and Ro-Ro technology development trends. 7. Independently make a cargo plan for a container ship and a Ro-Ro ship and calculate ship's stability and stress on the ship's structure. 8. Explain and interpret types, characteristics, technologies and specifics of transportation of bulk, dry, dangerous (packaged and bulk) cargoes by sea, and the particularities of transportation of general cargo by sea. 9. Independently make a cargo plan for a bulk carrier and calculate ship's stability and stress on the ship's structure.
Course content broken down in detail by weekly class schedule (syllabus)	1. The history of containerization in shipping. Palletization and containerization. Classification of container ships. Components of closed ISO containers. Container labelling. Serial Shipping Container Code (SSCC) instructions for use. 2. Loading and stacking containers on ships for container transportation. 3. Types of cargo for container transportation. 4. Stacking heavy containers on light containers (empty) and the effect of such mistakes on a ship. 5. Fixing, lashing and securing containers on deck, storing cargo in cargo holds on fully container ships.

	6. The distribution of containers depending on the voyage plan and requirements for the optimum distribution of containers to ensure ship stability, and with respect to ship's structural load, surface load of the hull structure, number and size of containers. 7. Mega container ships and the results of their application 8. Navigating a container ship in adverse weather conditions. 9. Types and technology of multimodal transportation, Ro-Ro technology, LASH technology, HUCKE-PACK technology. 10. Modern Ro-Ro transport system technologies. 11. Equipment for securing cargo from shifting and calculating load force. 12. Lashing and securing cargo on wheels and IMO regulations. 13. BACAT, CAPRICORN, HUCKE-PACK ships. 14. Ship's loading and unloading equipment, cargo handling. LASH, SEEBEE ships, VLCC, LNG, LPG (IMDG 1 hour). Ships for mixed cargo: OBO ships, structural characteristics. 15. Types of bulk carriers - Panamax, Bulk Container carrier, Ore carriers, Log carriers, Cement-carriers, Chemical Tankers (IMDG 1 hour).
Format of instruction:	X lectures X seminars (drafting a cargo plan) X exercises ☐ *online* ☐ partial e-learning ☐ field work ☐ independent assignments X multimedia ☐ laboratory ☐ work with mentor X practice on a simulator
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To be eligible for the exam, students must attend minimum 80 % of classes (lectures and auditory exercises) and 100 % (95 %) of lectures which include training. Students who fail to meet the minimum attendance requirements will not be eligible for the exam. Written excuse notes can neither justify nor replace attendance. Students who fail to meet the requirements due to illness or another duly justified reason, but have attended 80 % or more lectures, may compensate the remainder to 100 % (95 %) by taking additional classes during the lecture period, but no later than one month after the end of the lecture period. All other students, i.e. students whose attendance is below 80 %, will not be eligible for the exam and are required to re-enrol in the course next year. **Obligations of part-time students:** The criteria for training are the same as for full-time students. For the remaining part of lectures, minimum 50 %, providing that they may compensate the remainder of their obligations to 80 % subsequently, by taking additional classes in the course of the semester and later, but no later then one month after the end of the lecture period.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.125	Research		Practical training	
	Experimental work		Report		(other)	
	Essay		Term paper	0.875	(other)	
	Mid-term exams	1	Oral exam	1	(other)	
	Written exam		Project		(other)	
Grading and evaluating student	**Examination procedure:**					

work in class and at the final exam	Students who pass mid-term exams from exercises, i.e. meet all course requirements, may take the oral part of the exam. Students who successfully pass the mid-term exam (theory) during the lecture period are exempt from the oral part of the exam on the Merlin system. Students who fail mid-term exams have to take the final written exam consisting of two parts. The first mid-term exam is theory, solving stability issues for container and Ro-Ro ships, as well as testing work on a cargo handling simulator for container and Ro-Ro ships. The second mid-term exam is theory, solving stability issues for bulk carriers and testing work on a cargo handling simulator for bulk carriers. Students have to be eligible for the exam. Mid-term exams can be taken only during the lecture period using the Merlin system, and the final exam only during the official exam period. Students who fail to pass all mid-term exams from exercises (but only some), may be credited for work on the cargo handling simulator (as one part), i.e. for successfully passed two mid-term exams from exercises (as the second part). In that event, students only take that part of the final written exam which they had not previously passed, and their cargo handling skills are tested on the simulator (first part) or second part. The first and second mid-term exams may be replaced with corresponding independent assignments, and that only in the course of the semester. That does not apply to work on the simulator which must be passed. If students pass the final written exam from exercises or one of its two constituent parts (first part and second part) such exams will be recognized without restrictions until the end of the academic year, i.e. until the end of the corresponding exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year. The exception are students who pass the overall exam from exercises, provided they take the oral part of the exam within one year of taking the written exam from exercises. • Duration of the final exam from exercises (written): 3 school hours. • Duration of one of the two main parts of the written exam (exercises): 2 school hours. • The duration of mid-term exams from exercises (only during the lecture period): 2 school hours. • Duration of the mid-term exam from theory: 2 school hours. **Continuous evaluation of students** **Elements of evaluation** / **Success (min. %)** / **Percentage (%)** Class attendance / 80 / 10 Mid-term exam I / 70 / 25 Mid-term exam II / 70 / 35 Work on a cargo loading simulator / 70 / 15 Individual assignments / 100 / 10 CBT / 70 / 5 **Final evaluation** (for students who do not meet the requirements for continuous evaluation) **Elements of evaluation – Final exam** / **Success (min. %)** / **Percentage (%)** Previous activities (including elements of continuous evaluation) / **100** / **15** Numerical problems - written / **70** / **30** Demonstration of work on the simulator / **70** / **25** Theoretical exam (written and/or oral) / **70** / **20** Individual assignments / **100** / **5** CBT / **70** / **5** **Grading**

A student has to achieve a minimum of 70 % of total points to pass the exam.

Percentage (%)	Criteria	Grade
0 – 69	does not meet the minimum criteria	Insufficient (1)
70 – 79	Meets the minimum criteria	Sufficient (2)
80 – 89	Average achievement with noticeable insufficiencies	Good (3)
90 – 94	Above average achievement with few mistakes	Very good (4)
95 – 100	Extraordinary achievement	Excellent (5)

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. G. Belamarić: Tehnologija prijevoza kontejnera i ro-ro tehnologija, teaching materials, Split, Faculty of Maritime Studies in Split, 2012		YES
2. D. Vranić i S. Kos: Prijevoz kontejnera brodom I & II. Faculty of Maritime Studies in Rijeka, 2006 / 2008		YES
3. P. Komadina: Brodovi multimodalnog transportnog sustava. Faculty of Maritime Studies in Rijeka, 1998	6	YES
4. D. Vranić: Tereti u pomorskom prijevozu, Rijeka, VPŠ, 2000		YES

Optional literature (at the time of submission of study program proposal)

1. GDV - Die Deutchen Veicherer, CONTAINER HANDBOOK, Cargo loss and prevention information from German Marine Insurers, GDV Berlin 2010
2. Cargo Securing Manual
3. I. C. Clark: The Management of Merchant Ship Stability, Trim & Strength, The Nautical Institute, London, 2002
4. Capt. J. Isbester ExC FINI, Extra Master, Bulk Carrier Practice, The Nautical Institute, October 1993

Quality assurance methods that ensure the acquisition of exit competences

University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.

Other (as the proposer wishes to add)

COURSE NAME	PASSENGER TRANSPORT TECHNOLOGY					
Code	PFN308	Year of study	3			
Course teacher	Jakša Mišković, PhD, Assistant Professor	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30	0	11	4
Status of the course	Elective	Percentage of application of e-learning	25 %			
COURSE DESCRIPTION						
Course objectives	Acquire knowledge of the technical and technological characteristics of different types of passenger ships, the characteristics and role of maritime passenger transport, and safety measures on different types of passenger ships.					
Course enrolment requirements and entry competences required for the course	Precondition for enrolment are completed courses *Safety at sea* and *Cargo Handling 2.*					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Analyse and know international regulations that govern the transportation of passengers and their luggage by sea, and the transport of different types of vehicles. 2. Analyse the basic IMO requirements for the prevention of maritime accidents on passenger ships. 3. Differentiate and compare the basic structural characteristics of different types of passenger ships. 4. Analyse and know the organization, rules and basic principles of the maritime passenger transport market. 5. Identify, analyse and distinguish organization of life and work on passenger ships. 6. Assess and elaborate safety measures on different types of passenger ships. 7. Check and compare the basic characteristics and use of the salvage, fire-safety and passenger evacuation equipment. 8. Categorize measures for the safe return of passenger ships to port. 9. Analyse the principles and basic elements of people management in emergency situations.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures** 1. The historical development of maritime passenger transport. Types of passenger ships. 2. International conventions, regulations, recommendations and standards related to the safety of maritime passenger transport. 3. The technical characteristics of different types of ships in passenger and cargo transportation in liner passenger shipping I. 4. The technical characteristics of different types of ships in passenger and cargo transportation in liner passenger shipping II. 5. The technical characteristics of ships in passenger and cargo transportation in liner passenger shipping. 6. The technical and technological properties of high-speed passenger ships in liner passenger shipping. 7. The organizational structure of liner passenger ship management. 8. The technical characteristics of cruisers. 9. The technical characteristics of cruisers. 10. The organizational structure of cruiser management. 11. Knowing the types of dangers on passenger ships and measures for the prevention of maritime incidents and accidents. 12. Human behaviour in emergency situations and the principles of passenger protection. 13. Managing groups of people in emergency situations on cruisers.					

	14. Managing groups of people in emergency situations on liner passenger shipping. 15. The development and use of modern maritime passenger transportation technologies, and the future development of maritime passenger shipping. **Exercises** 1. Dangerous situations on passenger ships. 2. Providing services to passengers in passenger areas. 3. Structural properties of passenger and Ro-Ro passenger ships in international navigation. 4. Procedures during the loading, transportation and unloading of cargo on Ro-Ro passenger ships I. 5. Procedures during the loading, transportation and unloading of cargo on Ro-Ro passenger ships II. 6. Procedures during the embarkation, transportation and disembarkation of passengers on other types of passenger ships. 7. Loading and arranging cargo, and passenger ship stability. 8. Passenger and cargo safety measures, i.e. the integrity of RO-RO passenger ship hull. 9. The technical characteristics of different types of passenger ships I. 10. The technical characteristics of different types of passenger ships II. 11. The safety of machinery and equipment on passenger and Ro-Ro passenger ships which are not on international voyages. 12. The crew and watchkeeping. 13. Crew drills, instructions and procedures in emergency situations. 14. Managing groups of people in emergency situations I. 15. Managing groups of people in emergency situations II.	
Format of instruction:	x lectures ☐ seminars and workshops x exercises ☐ *online* ☐ partial e-learning X field work	☐ independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	Obligations and evaluation of students Obligations of full-time students Lectures and exercises are mandatory and attendance records are kept. To meet course requirements, students must attend 80 % of classes (lectures and auditory exercises) i.e. 95 % of lectures and 100 % of exercises at classes that include training. Students who fail to meet the minimum attendance requirements will not be considered to have completed the course and will not be eligible for the exam. Written excuse notes can neither justify nor replace attendance. Students who fail to meet the requirements due to illness or another duly justified reason to fail to meet their training obligations, i.e. be considered to have completed the course, but have attended 80 % or more lectures will be allowed to attend additional lectures. The students may compensate for the remainder to 95 % (100 %) at additional lectures and/or by drawing-up a term paper with a suitable topic, in the course of the semester and later, but no later then one month after the end of the lecture period. All other students, i.e. students whose attendance is below 80 % will not be considered to have completed the course and will be required to re-enrol in the course next year. Obligations of part-time students: The criteria for training are the same as for full-time students. For the remaining part of classes minimum 50 %, providing that they may compensate for the remaining part of obligations up to 80 % at additional lectures and/or by drawing-up a term paper	

	with a suitable topic, in the course of the semester and later, but no later then one month after the end of the lecture period.

4.	Experimental work		Report		Keeping a personal diary	0.375
	Essay		Term paper	0.5	CBT (other)	0.5
	Mid-term exams	1	Oral exam	n/a	(other)	
	Written exam		Project	n/a	(other)	

Grading and evaluation of full-time students:

Students take a written exam.
The written part of the exam consists of two mid-term exams organized in the course of the semester (weeks 8 and 15 of lectures) or the final written exam held in the exam period. Mid-term exams can be taken exclusively in the lecture period, and the final exam only during the official exam period.

To pass mid-term exams students must earn minimum 50 % of the maximum number of points. Students who pass both mid-term exams are exempt from the final written exam. Students who pass only one of the two mid-term exams, will be exempt from that part of the final written exam and write only the part they failed.
The passed mid-term exams will be recognized until the end of the academic year, i.e. the end of the applicable exam periods.

To be eligible for the final written exam and be considered to have completed the course students have to meet all the requirements indicated under student obligations.
For all students who pass the written exam through mid-term exams and meet the requirements to take the final exam, the overall grade for the written part of the exam is the mean value of points earned at mid-term exams.

For all students who did not pass the written exam through mid-term exams, and meet the requirements to take the final exams, the overall grade for the written part of the exam depends on the points realized at the final written exam.

Student attendance and activity at lectures are monitored and count towards the final grade for the course.

Duration of mid-term exam from theory: max 90 min.
Duration of the final exam (written): max 90 min.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
1. Mid-term exam	50	45
2. Mid-term exam	50	45
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Written exam	50	90
Prior activity (keeping a personal diary during lectures)	100	10
Total		100

After each of the exercises performed by the course assistant, students are required to independently answer the teaching questions for each of the topics. In their answers, students briefly state the content and description of the exercise, and respond to the teaching topics using mandatory literature.
Students are required to hand over every single completed and performed exercise to lecturers for review.
The lecturers, after reviewing the description of the exercise performed, as well as the replies to teaching questions for each exercise, evaluate with their signature in the student's personal diary whether the student has successfully completed the given exercise.

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

Grading and assessment of part-time students:

Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. IMO: SOLAS, Consolidated edition, 2020	1	
2. IMO: International code of safety for High Speed Craft, 2000, 2nd Edition, 2008	1	
3. D. J. House, Marine ferry transports – an operators guide, London: Witherby, 2002		YES
4. IMO: Code of safe practice for cargo stowage and securing, London, 2011	1	
5. Komadina, Brodovi multimodalnog transportnog sustava, University of Rijeka, Rijeka, 1998	11	
6. Tehnologija putničkog prijevoza, internal teaching materials, University of Split, Faculty of Martitime Studies		YES
7. Pravila za statutarnu certifikaciju pomorskih brodova, prijevoz putnika, Part 21, HRB, 2018		YES

	8. Pravila za statutarnu certifikaciju pomorskih brodova u nacionalnoj plovidbi, HRB, 2021		YES
Optional literature (at the time of submission of study program proposal)	1. Kesić, B.; Jugović, A.: Menadžment pomorskoputničkih luka, Faculty of Maritime studies in Rijeka, Rijeka, 2006 2. Gibson, P.: Cruise operations management, Butterworth-Heinemann, Oxford, UK, 2006 3. Dickinson, B.; Vladimir, A.: Selling the sea, 2nd edition, John Wiley & Sons, New Jersey, 2008		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.		

COURSE NAME	PROFESSIONAL PRACTICE					
Code	PFN 111	Year of study	3			
Course teacher	Vedran Nikolić, MEng	Credits (ECTS)	1			
Associate teachers	Stipe Galić Paško Ivančić Zvonimir Lušić, PhD, Full Prof. Jakša Mišković, PhD, Assist. Prof. Danijel Pušić, PhD, Assist. Prof. Marijan Zujić	Type of instruction (number of hours)	L	S	E	F
					20	10
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	Acquire practical knowledge and skills required to handle lifeboats, life rafts, firefighting equipment and other rescue equipment.					
Course enrolment requirements and entry competences required for the course	Successfully completed course *Safety at sea*.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Actively take part in on-board alerting operations, lifeboat hoisting and lowering. 2. Use rescue equipment. 3. Use firefighting equipment in practice. 4. Acquire basic seaman skills.					
Course content broken down in detail by weekly class schedule (syllabus)	**Exercises:** 1. Types of danger, general safety instructions. 2. Personal safety and protective equipment. 3. Inspections and repair of fire-extinguishing agents and firefighting equipment. 4. Firefighting drills for all situations. 5. Using fire extinguishers. 6. Lifeboats. 7. Lifeboat and life raft equipment. 8. Using equipment on life rafts and lifeboats. 9. Smoke, light, sound and other means. 10. Operating procedures in survival craft. 11. Towing a raft and salvaging people from the sea. 12. Basic seamanship: handling small boats, the drive of small boats, knots, etc.. 13. Seamanship, boat handling. 14. Seamanship, boat handling. 15. Safety management system on board.					
Format of instruction:	☐ lectures ☐ seminars and workshops X exercises ☐ *online* ☐ partial e-learning X field work	☐ independent assignments X multimedia ☐ laboratory ☐ work with mentor				
Student responsibilities	This course fully consists of 30 hours of practical training. Obligations of full-time students: Exercises are mandatory and attendance records are kept. To be considered to have completed or passed the course, students are required to attend minimum 100 % of classes, consisting exclusively of practical training.					

Students who fail to meet minimum attendance requirements do not meet the prescribed requirements for this course.

Written excuse notes can neither justify nor replace attendance.

Students who fail to meet the requirements to be considered to have completed or passed course due to illness or another duly justified reason, but have attended 80 % or more lectures, will be allowed to compensate the remainder up to 100 % by taking additional classes during the lecture period, but no later than one month after the end of the lecture period.

All other students, i.e. students whose attendance is below 80 % do not meet the prescribed requirements and are required to re-enrol in the course the following year.

Obligations of part-time students:
The same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)

Class attendance	0.75	Research		Practical training	
Experimental work		Report		Homework (other)	
Essay		Term paper		Demonstration of skills and personal diary keeping	0.25
Mid-term exams		Oral exam		(other)	
Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

This course does not include a mid-term exam or a written (oral) exam.

Students are required to regularly attend classes and participate in exercises. Exercises are performed in the dedicated lecture room, on boats and ships. After each of the exercises, performed by individual assistants or professors, students are required to independently answer teaching questions for each of the topics. In their answers, students briefly state the content and description of the exercise, and respond to the teaching topics using the required literature.
Students are required to hand over every single completed and performed exercise to lecturers for review.
The lecturers, after reviewing the description of the exercise performed, as well as the replies to teaching questions for each exercise, evaluate with their signature in the student's personal diary whether the student has successfully completed the given exercise.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Presence at exercises and activity during lectures	100	50
Demonstration of knowledge and skills and keeping a personal diary during classes	100	50
Total points		100

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. D. Zec: Sigurnost na moru, Rijeka: Faculty of Maritime Studies in Rijeka, 2001	16	
	2. Manufacturer's instructions for life-saving equipment and fire-extinguishers		YES
	3. MARISEC: Bridge Procedures Guide, International chamber of shipping, 5th edition, 2016	1	
	4. Computer based training – CBT – Ocean Learning Platform		YES
Optional literature			
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	ONBOARD INTERNSHIP					
Code	PFN500	Year of study	3			
Course teacher	Zaloa Sanchez Varela, PhD, Assist. Prof. Luka Vukić, PhD, Assoc. Prof.	Credits (ECTS)	5			
Associate teachers	-	Type of instruction (number of hours)	L	S	E	F
			0	0	0	150
Status of the course	Elective	Percentage of application of e-learning	0			

COURSE DESCRIPTION	
Course objectives	Enable students to solve specific practical problems in a real-life work environment and familiarize students with business processes.
Course enrolment requirements and entry competences required for the course	Students can apply for professional onboard internship before the beginning of the third year of undergraduate studies. If the number of students who apply for internship exceeds the number of available professional practical training positions in training organizations, the selection process is carried out in accordance with the Professional Practical Training Rules at the Faculty of Maritime Studies, taking into consideration available places in onboard internship bases.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Learning outcomes of the course: 1. Apply knowledge and skills acquired during studies to address specific business issues in a real-life work environment. 2. Write a report on professional practical training explaining 5-10 completed business tasks, and attach supporting documents.
Course content broken down in detail by weekly class schedule (syllabus)	Onboard internship is carried out together with a mentor from an internship base, through the performance of different tasks. Onboard internship is conducted in the course of 17 working days (136 hours). A mentor from the internship base plans work tasks in agreement with a mentor from the Faculty of Maritime Studies. The remaining 14 hours are reserved for drawing up a Report on Onboard Internship and its defence before the mentor from the Faculty of Maritime Studies in Split.
Format of instruction:	☐ lectures ☐ seminars and workshops ☐ exercises ☐ *online* ☐ partial e-learning ☑ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☑ work with mentor ☐ (other)
Student responsibilities	A student who applies for an onboard internship is required to work in an internship base for 150 hours, in keeping with a plan prepared by a mentor from the internship base. Students are required to follow mentor's instructions and actively perform work tasks. Upon the completion of the onboard internship, students are required to draw up a Report on Onboard Internship and defend it before their colleagues and mentor from the Faculty of Maritime Studies in Split.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance		Literature research		Practical training	4.5
	Experimental work		Report		Consultations with a mentor	
	Essay		Term paper		Collection of data	
	Mid-term exams		Oral exam		Preparation of a Report on Onboard Internship	0.3

	Written exam		Project		Defence of a Report on Onboard Internship	0.2

Grading and evaluating student work in class and at the final exam	Onboard internship is evaluated by mentors from the internship base and the Faculty of Maritime Studies. The mentor from the internship base continuously monitors student attendance and activity in performing work tasks. Upon the completion of the onboard internship, students are awarded one of the following descriptive grades: • Student has successfully completed onboard internship. • Student has not successfully completed onboard internship. If the mentor from the internship base awards the grade “Student has not successfully completed onboard internship”, he/she is required to provide a written explanation of the grade. In this case, the mentor from the Faculty of Maritime Studies does not evaluate the Report on Onboard Internship but only awards the final grade “not completed”. If the mentor from the internship base awards the grade “Student has successfully completed onboard internship”, the mentor from the Faculty of Maritime Studies analyses the Report on Onboard Internship, discusses completed tasks and awards the student one of the following grades: • Student has successfully composed and defended the Report on Onboard Internship. • Student has not successfully composed and defended the Report on Onboard Internship. If the mentor from the Faculty of Maritime Studies awards the grade “Student has not successfully composed and defended the Report on Onboard Internship”, the mentor is required to provide a written explanation of the grade. Onboard Internship course is successfully completed only if both mentors give a positive descriptive grade on the onboard internship/Report, and then the mentor from the Faculty of Maritime Studies enters the grade “successfully completed” in the student’s index.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	The mentor chooses professional literature from available literature.		
Optional literature (at the time of submission of study program proposal)	The mentor chooses professional literature from available literature.		
Quality assurance methods that ensure the acquisition of exit competences			
Other (as the proposer wishes to add)			

COURSE NAME	MARITIME ENGLISH VI					
Code	PFP157	Year of study	3			
Course teacher	Mira Pavlinović, PhD, Assoc. Prof.	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			15	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning	10			
COURSE DESCRIPTION						
Course objectives	Acquisition of language knowledge and skills required for the performance of management-level jobs at sea and on land. English as the language of communication in the maritime industry: acquisition of communication skills in English to ensure the safety of navigation and the protection of the marine environment. Acquisition of language skills and preparing students for learning, acquiring knowledge and following technological developments in the global maritime industry, maritime law and economics of the shipping industry and ports. Training students to give a presentation of maritime topics in English language: developing four basic language skills: reading, listening, writing and speech. Encouraging and developing the cognitive abilities of students, developing critical thinking, and creativity in the analysis, interpretation and evaluation of information, and ability to work in a team					
Course enrolment requirements and entry competences required for the course	A precondition for enrolment is the completed course *Maritime English 5.*					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Distinguish, define and apply terminology in the fields of maritime law, rescue, safety at sea, the economics of the shipping industry and ports, marine environment protection and compare English and Croatian translation of terms. Use language fluently and spontaneously to be able to participate in discussions on familiar topics, supporting personal and professional views (maritime economy, safety of navigation, modern transportation technologies, marine environmental protection, etc.). Be an active member of a team on the project of writing and presentation of some of the topics covered by the course program.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures**: 1. Standard Collective Agreement (Part 1). 2. Standard Collective Agreement (Part 2). 3. Applying for a job. 4. Marine Insurance (Part 1). 5. Marine Insurance (Part 2). 6. P & I clubs. 7. Protection and Indemnity Associations. 8. Contracts for Purchasing Supplies and Services. 9. A changing approach to safety. 10. Body language. 11. Risk assessment (Part 1). 12. Risk assessment (Part 2). 13. Commercial perspective on emergencies. 14. Renewal – Sale, Purchase and Financing. 15. Revision. **Exercises:** 1. Collocations. Standard Collective Agreement (Part 1).					

	2. Word building. Modal verbs. Standard Collective Agreement (Part 2). 3. Letter of application. CV. Tenses. Applying for a job. 4. Modal verbs. Collocations. Marine Insurance (Part 1). 5. Modal verbs. Collocations. Marine Insurance (Part 2). 6. Word building. Negotiating. Collocations. P & I clubs. 7. Mid-term test. 8. Reporting. Describing a process. Contracts for Purchasing Supplies and Services. 9. Tenses. A changing approach to safety. 10. Articles. Idioms. Body language. 11. Future tenses. Expressing imperative. Risk assessment (Part 1). 12. Zeebrugge Ferry Disaster – summary. Risk assessment (Part 2). 13. Collocations. Commercial perspective on emergencies. 14. Tenses. Instructions. Renewal – Sale, Purchase and Financing. 15. End-term test
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* X partial e-learning ☐ field work X independent assignments X multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lecture and exercise attendance is mandatory and attendance records are kept. Minimum 80 % lecture and auditory exercise attendance is required to be eligible for the exam and earn ECTS. Students who fail to achieve minimum lecture and exercise attendance, will be required to re-enrol in the course in the next academic year. The exam consists of a written and oral part. Students can pass the written part of the exam through continuous evaluation throughout the semester by taking mid-term exams or the final exam (written). Students who do not pass the mid-term exams, and are eligible for the exam, are required to take the written exam during the exam period. After passing the written part of the exam, all students are required to take the oral part of the exam. Students who successfully earn a sufficient number of points during classes are required to apply for the final exam at Studomat during the first exam period after the end of the lecture period. The final grade will be entered in the ISVU system. **Obligations of part-time students:** Lectures and exercises are mandatory for part-time students and attendance records are kept. To be eligible for the exam, part-time student are required to attend minimum 50 % of lectures and auditory exercises. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	0.75	Research		Practical training	
	Experimental work		Report		Homework	
	Essay		Term paper		Independent activity during classes	0.5
	Mid-term exams/ Written exam	1.25	Oral exam	1	(other)	
			Project		(other)	

Grading and evaluating student work in class and at the final exam	**Grading and evaluation of students:** The exam consists of two parts: written and oral. Students can take the written part of the exam in the form of mid-term exams. Exam topics will have been covered by teaching materials and include professional

vocabulary and grammar. Students may pass the written part of the exam and professional terminology prior to the beginning of exam periods. In that event, only oral part of the exam (lessons) is taken during the exam period.

Students who fail to take or pass the written part of the exam in the form of mid-term exams, but meet the minimum requirements in the course of the semester, he/she will take the final exam by writing a written assignment and taking the oral part of the exam in the regular exam periods.

In order for a student to pass the mid-terms/final exam, and take the oral part of the exam, he/she has to achieve a minimum of 50 % of the total number of points.

To take the exam during an exam period, and have the grade entered in the system, students have to apply for the exam in their target exam period.

Exam applications and cancellations are made online, using Studomat.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
Tests	50	30
Continuous assessment during lectures		10
Total		50 (in this case, the student is exempt from the written exam)

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)	50	40
Theoretical part of the exam (written and/or oral)	50	60
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1.Tallac, R.L.: Commercial Management for Shipmasters, The Nautical Institute, London 1996		
	2. Norris R. French A., Ready for CAE, MacMillan Publishers, England 2008		

Optional literature (at the time of submission of study program proposal)	1. McCarthy, M., O'Dell, F.: English Vocabulary in Use, Cambridge University Press 2005 3. Pritchard B.: Hrvatsko-engleski rječnik pomorskog nazivlja, Školska knjiga, Zagreb, 1989 4. Plančić Skračić Englesko - hrvatski pomorski rječnik, Kartular, Split, 2013 5. Selected texts from professional publications, newspapers and magazines e.g. Notices to Mariners, Maritime Reporter, Marine Technology etc.
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	SAFETY MANAGEMENT AND RISK IN SHIPPING					
Code	PFN 316	Year of study	3			
Course teacher	Jakša Mišković, PhD, Asst. Prof.	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			45	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	Familiarize students with the International Safety Management and Safety Management System (ISM / SMS), basic concepts of risk, risk assessment, risk management. Familiarize students with the Principles and Rules for the Technical Supervision of Seagoing Ships with an emphasis on the parts related to the STCW Convention (theoretical, technical and legislative issues of technical supervision and classification of sea-going ships). Familiarize students with the preparation of tankers for the transportation of liquid bulk cargo and liquefied natural gases for inspection, in accordance with the requirements of Port State Control, Flag State Control and Vetting Inspection.					
Course enrolment requirements and entry competences required for the course	The precondition for enrolment is the completed course *Safety at Sea.*					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain, interpret and implement the International Safety Management and Safety Management System (ISM / SMS). 2. Describe and explain basic terms relating to maritime risks, assess and analyse risks, and take part in risk management. 3. Prepare and conduct a personal ship inspection. 4. Understand the role Master Marine and/or Chief Engineer with respect to running, organizing, preparing for and inspecting ships. 5. Update ship certificates and other ship documents related to ship security, inspection, monitoring, and environmental protection. 6. Conduct monitoring of a ship during a trial run and know the basics elements of hull and equipment inspection, inspection of rudder, cargo equipment, machinery, pipelines, pumps, tanks (closed spaces). 7. Prepare the ship for inspection in accordance with the requirements of Port State Control, Flag State Control and Vetting Inspection. 8. Prepare and give a presentation (individually and/or as a team) on safety-at-work measures.					
Course content broken down in detail by weekly class schedule (syllabus)	1-2. Protection for mariners and persons appointed to security duties (ISPS), protection of ships against piracy and armed robbery (BMP). Best management practices for protection against piracy (BMP5)). 3-4 International Organization for Standardization (ISO) and International Safety Management (ISM). Safety Management System (SMS) of a shipping company or ship management - preparation and implementation of internal and external audits of a company. 4-5 Basic terms relating to maritime risks, risk assessment. 6 Risk management. Introduction to the rules of the Shipping Register, classification codes, classification documents, Harmonized System of Survey and Certification (HSSC) inspections - classification documents: issuing and verification of documents, validity period, extension of the validity period, maintenance and termination of documents and loss of class, restoration of ship's certificate of validity, examples of documents. 7 Types of ship inspections and preparing for inspection, ESP inspection of underwater parts of the ships' hull, other inspections, Harmonized System of					

	Survey and Certification (HSSC). Documentation, requirements for safe entry into enclosed spaces. 8. Supervising ship construction. Supervising the construction, technical documentation, supervising hull construction and machinery installations, devices and equipment, tests during construction, obligations of a shipping company. Type of approval, manufacturer's approval, approval of service suppliers, approval of testing institutions: conditions for authorisation, application for authorisation, approval decision on authorization, validity of the certificate of authorisation. Trial voyage: in general, determining the ability to perform a trial voyage, technical documentation, ship inspection. 9. Inspection of the hull and its equipment. Gradual inspection of ship systems / parts of ship, deadlines for dry-dock hull inspection, deadlines for inspection of security equipment, quarterly lists. Hull inspection - plating, decks, bulkheads, tanks, superstructure and deckhouse. Inspection of hull equipment - equipment for anchoring, mooring, towing, masts, hatches and coamings. Inspection of cargo equipment. Rudder and inspection of steering gear: general requirements and scope of inspection. Inspection of machinery: general requirements, the scope of inspection, power of propulsion units, manoeuvring positions, means of communication, control - instruments, inspection of propellers. Inspection of propulsion and auxiliary machinery, steam turbines, general requirements, management, protection and regulation. Inspection of pressure vessels: boilers, heat exchangers and pressure vessels, general requirements, the scope of inspection. Overview of pipelines: bilge system, ballast system, air pipes, gas drainage system, overflow and sounding devices, exhaust system, ventilation system: general requirements, the scope of control. Usage of plastic tubes in ships. Inspection of pumps: general requirements, scope of inspection. 10. Overview of firefighting and rescue equipment: the scope of inspection and technical documentation. 11. Overview of equipment for prevention of pollution by oil, sewage water, waste, exhaust gases. Safety at work. Oil Record Book and Oil Water Separator Book. 12. Role of the master in the management, organization, preparation and inspection of ship's devices and systems. Managing and updating ship's documentation. 13-14 Role of a chief engineer in the preparation and inspection of devices and systems, authorisation to a chief engineer on behalf of Classification Society for a conduct of inspection, chief engineer's scope of inspection, inspection of safety management system, inspection of ship's security system. 15. Port State Control – general inspection Preparation of inspection of tankers for transportation of liquid bulk cargo and liquefied natural gases, in accordance with the requirements of Port State Control, Flag State Control and Vetting Inspection with an emphasis on inspection requirements in accordance with USCG Port State Control.	
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* ☐ partial e-learning ☐ field work	☐ independent assignments X multimedia ☐ laboratory ☐ work with mentor X demonstration of ship inspection
Student responsibilities	**Student obligations and assessment** **Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To meet course requirements, students must attend minimum 80 % of classes (lectures and auditory exercises), i.e. 95 % of lectures and 100 % of exercises at classes that include training. Students who fail to meet the minimum attendance requirements will not be considered to have completed the course and will not be eligible for the exam. Written excuse notes can neither justify nor replace attendance. Students who fail to meet the requirements due to illness or another duly justified reason to fail to meet	

their training obligations, i.e. be considered to have completed the course, but have attended 80 % or more lectures, may compensate the remainder up to 95 % (100 %) by taking additional classes during the lecture period, but no later than one month after the end of the lecture period. All other students, i.e. students whose attendance is below 80 %will not be considered to have completed the course and will be required to re-enrol in the course next year.

Obligations of part-time students:

The criteria for training are the same as for full-time students. For the remaining part of classes minimum 50 %, providing that they may compensate for the remaining part of obligations up to 80 % subsequently, by taking additional classes during and after the lecture period, but no later than one month after the end of the lecture period.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)

Class attendance	1.5	Research		Practical training	1
Experimental work		Report		(other)	
Essay		Term paper		(other)	
Mid-term exams	1	Oral exam	0.5	(other)	
Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

Examination procedure:
After passing mid-term exams from theory, i.e. meeting all their obligations, students may take the oral part of the exam. Students who successfully pass the mid-term exam (theory) during the lecture period are exempt from the oral part of the exam.
Students who do not pass the theoretical part at mid-term exams, have to take the final written exam. The precondition is the realized right to be considered to have completed the course.
Mid-term exams can be taken exclusively in the lecture period, and the final exam only during the official exam period. Students who do not pass all mid-term exams only take that part of the final written exam which they had not previously passed.
The overall final written exam or one of its two constituent parts will be recognized without restrictions until the end of the academic year, i.e. the end of the applicable exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year. The exception is if a student passes the overall exam from exercises , provided that s/he takes the oral part of the exam within one year of taking the written exam from exercises..

Duration of the final exam (written): maximum 100 min.
Duration of mid-term exams from theory: maximum 100 min.

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Percentage (%)
Attendance	80	**10**
I. Mid-term exam (MERLIN)	61	**45**
II. Mid-term exam (MERLIN)	61	**45**
TOTAL		**100**

Final evaluation
(for students who do not meet the continuous evaluation requirements)

Elements of evaluation – Final exam	Success (min. %)	Percentage (%)
Previous activities (including elements of continuous evaluation)	**100**	**25**
Numerical problems - written	**61**	**35**

Theoretical exam (written and/or oral)	**61**	**35**
Individual assignments	**100**	**5**
TOTAL		**100**

Grading
Minimum 61 % of total points to pass the exam.

Percentage (%)	Criteria	Grade
00-60	does not meet the minimum criteria	insufficient (1)
61-71	meets the minimum criteria	sufficient (2)
72-82	average achievement with noticeable insufficiencies	good (3)
83-94	above average achievement with few mistakes	very good (4)
95-100	extraordinary achievement	excellent (5)

***On-line MERLIN SYSTEM + Ocean Learning platform training and testing in accordance with the agreement between the Faculty of Maritime Studies in Split and Ocean Learning platform on the usage of student training modules.

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. Pravila za tehnički nadzor pomorskih brodova - Hrvatski registar brodova (CRS), Split		YES
2. IMO: ISM Code, Edition 2018		YES
3. G. Belamarić: Upravljanje sigurnošću i rizik u pomorstvu – Authorised lectures, PPTX, Split, Faculty of Maritime Studies in Split, October 2018		YES
4. N. Vulić: Sustavi upravljanja kvalitetom, Split: Split Polytechnics, 2001		YES
5. Safety-at-Work Act of the RC (OG No. 71/14, 118/14, 154/14, 94/18, 96/18 – consolidated text)		YES
*6. The International Ship and Port Facility Security Code (IMO **ISPS** Code)*		YES
7. Best Management Practices to Deter Piracy and Enhance Maritime Security in the Red Sea, Gulf of Aden, Indian Ocean and Arabian Sea (BMP-5)		YES

Optional literature (at the time of submission of study program proposal)

1. *International Naval Surveys Bureau*- INSB Class: Guide for Risk Assessment, 2010.

Quality assurance methods that ensure the acquisition of exit competences

University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.

Other (as the proposer wishes to add)

COURSE NAME	NAVIGATIONAL PRACTICE					
Code	PFN 112	Year of study	3			
Course teacher	Asst. Prof. Danijel Pušić, PhD	Credits (ECTS)	2			
Associate teachers	Stipe Galić, Meng Zvonimir Lušić, PhD, Full Prof. Vice Milin Vedran Nikolić Zaloa Sanchez Varela, PhD, Assist. Prof. Ivica Skoko, PhD, Assist. Prof. Pero Vidan, PhD, Full Prof. Lea Vojković, PhD, Assoc. Prof. Srđan Vukša, PhD, Assist. Prof. Marijan Zujić	Type of instruction (number of hours)	L	S	E	F
			0	0	0	30
Status of the course	Mandatory	Percentage of application of e-learning				

COURSE DESCRIPTION	
Course objectives	Acquire practical knowledge and skills of ship navigation in all conditions, and experience of living and working on board.
Course enrolment requirements and entry competences required for the course	Completed courses *Terrestrial Navigation I, Terrestrial Navigation II, Electronic Navigation, Ship Manoeuvring, Cargo Handling I and Cargo Handling II and enrolled course Astronomical Navigation*.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Take part in navigational watchkeeping. 2. Use navigation instruments and devices in practice. 3. Be an active member of a crew in daily ship and marine system maintenance, mooring, unmooring, sailing, port stays, etc. 4. Gain experience of living and working on board, within a group, and in a limited space. 5. Keep a log book and keep ships' official records.
Course content broken down in detail by weekly class schedule (syllabus)	**Field work:** 1. Introduction to the ship and ship systems, equipment and rescue equipment. Determining the procedure for keeping navigational watch in port and during navigation. 2. Application of International Regulations for Preventing Collisions at Sea. 3. Navigating safely using the radar, ARPA radar and modern navigation systems to support the decision-making process. 4. Using the radar to record azimuth and distance from nearby vessels, plotting relative movement vectors on a manoeuvring diagram. 5. Passage planning, using navigational charts and manuals. ECDIS. Using electronic aids. 6. Ship steering and manoeuvring in all conditions, mooring, unmooring. Communication. 7. Ship steering and manoeuvring in all conditions; using machinery; night and day navigation. 8. Anchoring; accessing anchoring points. 9. Changing over the watch in accordance with navigational procedure checklist and ISM. Using GMDSS equipment. 10. Navigation in zones of endangered safety. Applying navigation procedures in accordance with the ISM.

	11. Anchoring, using berthing equipment. 12. Manoeuvring under special conditions. 13. Crew organization and management. 14. Security protection. Keeping official ship records. 15. Ship and equipment maintenance.
Format of instruction:	☐ lectures ☐ seminars ☐ exercises ☐ *online* ☒ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** 100 % attendance, diary keeping. Students who fail to attend 100 % of training, i.e. do not board the training ship, are required to enrol the course in the next academic year. Lessons and program of Navigational practice are realized by boarding a training or another suitable ship, and staying on it for a minimum of 5 days (24 hours a day). **Obligations of part-time students:** 100 % attendance, diary keeping.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	0.75	Research		Practical training	
	Experimental work		Report		Individual work and homework (other)	
	Essay		Term paper		Demonstration of skills	1.25
	Mid-term exams		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluation of full-time students

There is no exam. To meet their obligations, students have to attend 100 % of the planned navigation on the training ship, actively participate in all tasks and exercises, and keep a diary.

Students who have graduated from a marine secondary school or have more than 6 months of experience as cadets or officers in the last five years, are not required to take the Navigational practice course. The proof is seaman's registration book, verification of ranking issued by a navigational watchkeeping officer or cadet's diary.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	100	50
Demonstration of knowledge and skills during class, keeping a diary	100	50
Total		100

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Practical part of the exam (written)		

Theoretical part of the exam (written and/or oral)		
Previous activities (all elements of continuous assessment are included)		
Previous activities (all elements of continuous assessment are included)		
Total		

Grading

Percentage (%)	Criteria	Grade

Grading and evaluation of part-time students

There is no exam. To meet their obligations, students have to attend 100 % of the planned navigation on the training ship, actively participate in all tasks and exercises, and keep a diary.

Students who have graduated from a marine secondary school or have more than 6 months of experience as cadets or officers in the last five years will be considered to have completed navigational practice. The proof is seaman's registration book, verification of ranking issued by a navigational watchkeeping officer or cadet's diary.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. IMO: Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)		ship
	2. MARISEC: Bridge Procedures Guide, 1998		ship
	3. Hydrographic manuals and charts (HHI&UKHO)		ship
	4. IMO/ILO manuals		ship

Optional literature (at the time of submission of study program proposal)	1. F. Benković et al: Terestrička i elektronska navigacija, Hidrografski institut RM, Split, 1986 2. N. Bowditch: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002 3. R. Radulić, Manevriranje brodom, Profil International d.o.o., Zagreb, 2001 4. D. Zec: Sigurnost na moru, Faculty of Maritime Studies in Rijeka, Rijeka, 2001
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	AUTONOMOUS SHIPS					
Code		Year of study	3			
Course teacher	Rino Bošnjak, PhD, Associate Prof. Ranka Petrinović, PhD, Full Prof. Anita Gudelj, PhD, Full Prof. Hrvoje Dodig, PhD, Associate Prof. Marko Katalinić, PhD, Associate. Prof. Helena Ukić Boljat, PhD	Credits (ECTS)	4			
Associate teachers		Type of instruction (number of hours)	P	S	V	T
			45	0	0	0
Status of the course	Mandatory	Percentage of application of e-learning	**20 %**			
COURSE DESCRIPTION						
Course objectives	The main goal of the course is to offer the students a vision and a general framework of the development of autonomous vessels. Students will learn about new technologies and their implementation at various levels of ship autonomy, intelligent supervision and management systems, safety challenges and how to resolve them, the legal framework, regulatory and economic challenges.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Identify and explain types and characteristics of levels of ship autonomy. 2. Elaborate on technologies applied in autonomous ships. 3. Distinguish and compare present levels of ship autonomy with expected future levels of ship autonomy. 4. Classify types of artificial intelligence, machine learning and human-machine interaction. 5. Classify and plan the principles of remote control depending on the level of autonomy. 6. Present the role of e-Navigation. 7. Explain the security perspectives of autonomous ships. 8. Interpret different levels and application of network security and networking. 9. Interpret the legal framework and regulatory challenges. 10. Explain the economic factors that have an effect on the development of autonomous ships.					
Course content broken down in detail by weekly class schedule (syllabus)	1. Maritime operations and how autonomous ships (the fourth shipping revolution) affect maritime operations. 2. The use of advanced technologies on autonomous ships and defining their potential developmental stages. 3. New STCC (Ship Traffic Control Centre s) for autonomous ships. The integration of new Ship Traffic Control Centre s for autonomous ships. 4. Defining requisite new technologies and various solutions needed for autonomous vessels. 5. The concept of an autonomous ship. 6. Implementation and further development of e-Navigation related to autonomous ships. 7. Autonomous ships, automatization and control 8. Artificial intelligence, machine learning and human-machine interaction. 9. The application of artificial intelligence on autonomous ships.					

	10. Remote control. 11. Cyber threats and the safety of autonomous ships. 12. Network security. 13. Classification, qualification and security. 14. Marine legislation, the legal perspective, and regulations applicable to autonomous ships. 15. Economic factors and their effect on the autonomous ship industry.
Format of instruction:	X lectures X seminars (cargo load plan) ☐exercises ☐ *online* X partial e-learning ☐ field work ☐ independent assignments X multimedia ☐ laboratory ☐ work with a mentor ☐ practice on a simulator
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. Students must attend minimum 80 % of classes. Students who fail to meet the minimum attendance requirements will not be eligible for exam. Students who fail to meet the requirements due to illness or another justified reason, but have the attendance of 70 % or higher, will be allowed to compensate the remainder (to 80 %) at additional classes, in the course of the semester and later, but not later than within one month after the end of the lecture period. All other students, i.e. students with attendance under 70 %, are not eligible for the exam and will be required to re-enrol in the course next year. **Obligations of part-time students:** Part-time students are required to attend minimum 50 % of classes.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)

Class attendance	1.125	Research		Independent tasks	
Experimental work		Report		Demonstrating skills on a simulator	
Essay		Seminar	0.5	CBT training	0.375
Mid-term exams	1	Oral exam	1	(other)	
Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

Examination procedure:

After passing mid-term exams from lectures, i.e. meeting all their obligations, students may take the oral part of the exam. Students who successfully pass the mid-term exam (theory) during the lecture period are exempt from taking the oral part of the exam on the Merlin system.
Mid-term exams are held exclusively on the Merlin system in the lecture period, while the final exam is held in the official exam period. If students fail to pass all mid-term exams, the part they do pass will be recognized. Online CBT training will be held in the course of the semester.
Duration of mid-term exams from theory: 1 school hour.

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	20
Mid-term exam I	50	30
Mid-term exam II	50	30
Seminar	100	10

	CBT training	75	10

Grading

Percentage (%)	Criteria	Grade
0-49	does not meet the minimum criteria	insufficient (1)
50-64	meets the minimum criteria	sufficient (2)
65-79	average achievement with noticeable insufficiencies	good (3)
80-89	above average achievement with few mistakes	very good (4)
90-100	extraordinary achievement	excellent (5)

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. Autonomus Ships – The Next Step Ship, Intelligence Marine, Rolls-Royce 2. Connectivity for Autonomous Ships: Architecture, Use Cases, and Research Challenges Höyhtyä M., Huusko J., Kiviranta M., Solberg K., Rokka J., Connectivity for Autonomous Ships: Architecture, Use Cases, and Research, October 2017		YES
	3. Roberts G. N., Sutton, R., Advances in Unmanned Marine Vechiles, IET control enginnering series		YES
	4. Gary C. Kessler, Steven D. Shepard: Maritime Cybersecurity: A Guide for Leaders and Managers, September 2, 2020	1	YES
Optional literature (at the time of submission of study program proposal)			
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)	Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.		

COURSE NAME	LIQUID CARGO TRANSPORT TECHNOLOGY					
Code	PFN304	Year of study	3			
Course teacher	Rino Bošnjak, PhD, Assoc. Prof. Srđan Vukša, PhD, Asst. Prof.	Credits (ECTS)	5			
Associate teachers	Mario Bakota, PhD, Asst. Prof.	Type of instruction (number of hours)	L	S	E	F
			30	0	15	0
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	Know the characteristics of liquid bulk cargo transportation by sea, and international regulations, guidelines, recommendations and standards related to the transportation of liquid bulk cargo. Familiarize students with commercial and technical management of liquid bulk cargo ships and their typical markets. Acquire knowledge and skills to work on a liquid bulk cargo ship.					
Course enrolment requirements and entry competences required for the course	The precondition for enrolment is completed course *Cargo Handling II.*					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Explain and interpret the characteristics of liquid bulk cargo transportation by sea. 2. Be familiar with international rules, regulations, recommendations and standards related to the transportation of liquid bulk cargo. 3. Recognize different types of liquid bulk cargo ships, their equipment, potential hazards and safety measures. 4. Analyse and interpret cargo handling procedures on tankers (crude oil and oil products, chemicals, natural gas, etc.). 5. Plan and conduct the loading/unloading/transportation of liquid cargo. 6. Apply appropriate safety measures for handling liquid bulk cargo and plan procedures for extraordinary circumstances. 7. Analyse different types of liquid bulk cargo ship management and their typical markets.					
Course content broken down in detail by weekly class schedule (syllabus)	1. Historical development of transportation of liquid bulk cargo by sea, international rules, regulations, recommendations and standards related to the transportation of liquid bulk cargo. 2. Transportation of crude oil and its products by sea, the historical development of tankers for the transportation of crude oil by sea, tanker description, the history of tanker construction, longitudinal and mixed construction, double plating, cofferdam, VLCC and ULCC tankers, cargo tanks. 3. Transportation of crude oil and its products by sea, the explosion triangle, the most common causes of hazards on tankers, tanker equipment (cargo pipelines, cargo pumps, heat pipes, types of cargo valves). 4. Transportation of crude oil and its products by sea, the inert gas system. 5. Transportation of crude oil and its products by sea, inerting of cargo tanks by pressurization and mixing, degassing, cargo handling (loading, transportation, unloading), water washing and crude oil washing (COW) of tanks, tank stripping, checklists, transhipment of crude oil at open sea. 6. Chemical tankers, construction of chemical tankers, rules and regulations for ship construction. 7. Chemical tankers, GESAMP and NAS systems, the structure and number of tanks, materials for tank coating, MARPOL. 8. Chemical tankers, chemical cargo properties, taking and storing cargo samples, cargo which causes corrosion, reactivity and compatibility of cargo, required minimum conditions for loading certain cargo types (IMO Code).					

	9. Chemical tankers, types of IMO ships, cargo transport and handling, cargo pipelines, cargo valves and pumps, P/V valves, cargo ventilation towers, inspection of tanks by conducting a chemical analysis of tank walls, tank washing (pre-cleaning, cleaning, rinsing, steam purging, percolation and stripping). 10. Chemical tankers, cargo handling (cargo heating, cargo tank ventilation, recirculating, refrigeration), nitrogen blanketing, the safety of cargo transport and handling, fire hazard, risk for human health, MRL-TLV (maximum allowed concentration of gases, dust), safety measures during cargo loading and unloading, termination of operations, Cargo Record Book, cargo plan, manifold plan, daily inspection of cargo. 11. Transportation of liquefied natural gas by sea, the historical development of LNG tankers, rules for the construction of LNG systems, spherical and membrane tanks for liquefied natural gas (Moss Rosenberg Gas Transport, Technigaz, CS1), the comparison of spherical and membrane tanks. 12. Transportation of liquefied natural gas by sea, installations on LNG carriers (pipelines and closing components, safety valves, pumps for unloading, ship's compressor station, gas heaters and evaporators). 13. Transportation of liquefied natural gas by sea, preparing the ship for cargo loading, loading and unloading plan, cooling of cargo loading pipelines. 14. Transportation of liquefied natural gas by sea, ship ballasting and de-ballasting, cargo control room, inerting tanks, inspection of cargo during voyage, potential hazards and safety measures during the transportation of LNG. 15. Final thoughts on the transportation of liquid bulk cargo by sea, the worst tanker disasters in history, an analysis of the influence of the human factor on cargo transportation and handling. STCW requirements on liquid bulk cargo transportation, MARPOL Pollution Prevention, ship crew education and training.	
Format of instruction:	X lectures ☐ seminars and workshops x exercises ☐*online* ☐ partial e-learning ☐ field work	x independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**Obligations and evaluation of students** **Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To be eligible for the exam, students must attend minimum 80 % of classes (lectures and auditory exercises) and 100 % (95 %) of lectures which include training. Students who fail to meet the minimum attendance requirements will not be eligible for the exam. Written excuse notes can neither justify nor replace attendance. Students who fail to meet the requirements for signature for training due to illness or another duly justified reason, but have attended 80 % or more lectures, will be allowed to compensate the remainder of their obligations to 100 % (95 %) by taking additional classes during the lecture period, but no later than one month after the end of the lecture period. All other students, i.e. students whose attendance is below 80 % are not be eligible for the exam and are required to re-enrol in the course next year. **Obligations of part-time students:** The criteria for training are the same as for full-time students. For the remaining part of lectures, minimum 50 %, providing that they may compensate the remainder of their obligations to 80 % subsequently, by taking additional classes, in the course of the semester and later, but no later then one month after the end of the lecture period.	

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.125	Research		Practical training	1
	Experimental work		Report		Homework (other)	
	Essay		Term paper	0,5	(other)	
	Mid-term exams	1.375	Oral exam	1	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

Students who pass mid-term exams from exercises, i.e. meet all course requirements, may take the oral part of the exam. Students who successfully pass the mid-term exam (theory) during the lecture period are exempt from taking the oral part of the exam in the Merlin system.
Students who fail mid-term exams have to take the final written exam consisting of two parts. The first part consists of theory and product tanker, chemical tanker, and heavy oil tanker stability problems, and work on the liquid cargo handling simulator. The second part consists of theory and LNG tanker stability problems. The precondition for the exam is realized minimum required lecture and exercise attendance.
Mid-term exams can be taken only during the lecture period in the Merlin system, and the final exam only during the official exam period. Students who fail to pass all mid-term exams from exercises (but only some), may be credited for passing work on the liquid gas cargo simulator (as one whole), i.e. other two mid-term exams from exercises (as the second whole).
In that event, students only take that part of the final written exam which they had not previously passed, as well as work on the liquid cargo handling simulator (first whole) or other (second whole).
The first and second mid-term exams may be replaced with corresponding independent assignments, and that only in the course of the semester. That does not apply to work on the simulator which must be passed.
If students pass the final written exam from exercises or one of its two constituent parts (first and second whole) such exams will be recognized without restrictions until the end of the academic year, i.e. the end of the applicable exam periods. Mid-term exams will not be recognized to students who re-enrol in the course the next year. The exception is if a student passes the overall exam from exercises, provided that s/he takes the oral part of the exam within one year of taking the written exam from exercises.

Duration of the final exam from exercises (written): 3 school hours.
Duration of one of the two parts of the written exam (exercises): 2 school hours.
Duration of mid-term exams from exercises (only in the lecture period): 2 school hours.
Duration of mid-term exams from theory: 2 school hours.

Continuous evaluation of students

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance	80	10
Mid-term exam I (MERLIN e-learning platform)	70	30
Mid-term exam II (MERLIN e-learning platform)	70	30
Practice on a simulator for cargo loading	70	15
Individual assignments	100	10
CBT	70	5

Final assessment

(for students who do not meet the continuous evaluation requirements)

Elements of evaluation – Final exam	Success (min. %)	Percentage (%)
Previous activities (including elements of continuous evaluation)	**100**	**15**
Numerical problems - written	**70**	**30**
Demonstration of work on a simulator	**70**	**15**
Theoretical exam (written and/or oral)	**70**	**30**
Individual assignments	**100**	**5**
CBT	**70**	**5**

Grading

Minimum to pass: 70 %.

Percentage (%)	Criteria	Grade
0 – 69	does not meet the minimum criteria	insufficient (1)
70 – 79	meets the minimum criteria	sufficient (2)
80 – 89	average achievement with noticeable insufficiencies	good (3)
90 – 94	above average achievement with few mistakes	very good (4)
95 – 100	extraordinary achievement	excellent (5)

Required literature (available in the library and via other media)

Title	Number of copies in the library	Availability via other media
1. P. Komadina: Tankeri, Faculty of Maritime Studies in Rijeka, Rijeka, 1994	3	
2. D. Martinović, P. Stanković: Sustav inertnog plina, Faculty of Maritime Studies in Rijeka, Rijeka, 1997	1	
3. IMO, Tanker familiarization, IMO Model Course 1.01, 2000	1	

Optional literature (at the time of submission of study program proposal)

1. D. Martinović, P. Stanković: Pranje tankova sirovom naftom, Rijeka: Faculty of Maritime Studies, 1996
2. C. Baptist: Tanker Handbook for Deck Officers, Brown, Soon, & Ferguson, LTD Glasgow 1993
3. International Chamber of Shipping: International Safety Guide for Oil Tankers & Terminals, Witherby & Co. LTD., London 1996
4. Group of authors: Prijevoz kemijskim tankerima, Rijeka: Faculty of Maritime Studies, 1997
5. Group of authors: Prijevoz ukapljenih plinova morem, Rijeka: Faculty of Maritime Studies, 1992.

Quality assurance methods that ensure the acquisition of exit competences

University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.

Other (as the proposer wishes to add)

Depending on student interest, lectures can also be held in English language, with the consent of the University of Split.

COURSE NAME	INTEGRATED NAVIGATION SYSTEM					
Code	PFN104	Year of study	3			
Course teacher	Dario Medić, PhD, Assoc. Prof.	Credits (ECTS)	5			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30		15	
Status of the course	Mandatory	Percentage of application of e-learning				
COURSE DESCRIPTION						
Course objectives	Familiarize students with the main characteristics of integrated navigation systems. Give students the theoretical knowledge required to define requirements for technical and technological characteristics of integrated navigation systems. Train students to think critically about the use of integrated navigation systems. Familiarize students with offshore engineering and dynamic positioning systems.					
Course enrolment requirements and entry competences required for the course	Successfully completed course *Electronic Navigation*, and completed course *Passage Planning*.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Correctly explain and interpret the characteristics of integrated navigation systems. 2. Explain the principles of operation of integrated navigation systems. 3. Describe and explain the operation of integrated navigation systems. 4. Describe and explain applied technologies in offshore engineering. 5. Describe, explain and use dynamic positioning systems.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Introduction to the course. The basic concepts relating to integrated navigation systems. 2. Analysis of integrated navigation systems. 3. Reliability and effectiveness of integrated navigation systems; PNT Data Processing. 4. Specific requirements; Consistent Common Reference System (CCRS). 5. Integrated bridge system. 6. Ergonomic requirements. 7. Integrated anti-collision navigation system. 8. Division into subsystems. 9. Power requirements, propulsion. 10. Data bridge. 11. Electronic navigation devices in the function of integrated navigation systems. 12. Types of integrated navigation systems. 13. Optimization of navigation. 14. New builds and new technologies. 15. Mid-term exam – written. **Exercises:** 1. The term INS and division. 2. Development of the dynamic positioning system, basic principles of operation. 3. Application of the dynamic positioning system. 4. Monitoring and operation of the dynamic positioning system. 5. Reference environmental systems. 6. Reference positioning systems. 7. Errors and correction of application errors. 8. Training for work with a dynamic positioning system. 9. Analysis of external factors on dynamic positioning system operation.					

	10. Analysis of the impact of dynamic positioning system on the safety of navigation. 11. Computer support. 12. Integrated navigation systems on different ship types. 13. Overview of systematic errors. Impact on the safety of navigation. 14. Analysis of the technical integrated navigation system solutions of different manufacturers. 15. Mid-term exam – oral.
Format of instruction:	x lectures ☐ seminars and workshops x exercises ☐ *online* ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. Students must attend minimum 80 % of lectures and 100 % of laboratory exercises. Students who fail to meet the minimum attendance requirements will not be eligible for exam and will be required to re-enrol in the course next year. **Obligations of part-time students:** Students must attend minimum 50 % of lectures and 100 % of laboratory exercises. Students who fail to meet the minimum attendance requirements will not be eligible for exam and will be required to re-enrol in the course next year.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.125	Research		Practical training	1.875
	Experimental work		Report		(other)	
	Essay		Term paper		(other)	
	Mid-term exams	2	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluation of full-time students:

Students are continuously evaluated throughout the semester.

Students are required to write and present a term paper, pass a written mid-term exam during lectures and oral mid-term exam at laboratory exercises (week 15). Minimum 50 % of all points are required to pass each mid-term exam. Students who successfully write/present their term paper and pass both mid-term exams are required to apply for the exam at the first exam period after the end of the lecture period and come to the oral part of the exam in the exam period. Their grade will then be entered depending on their results or they may take the oral exam for a higher grade.

Continuous student evaluation:

Elements of evaluation	Success (min. %)	Percentage (%)
Class attendance and activity	80	10
1. Mid-term exam - lectures	50	45
2. Mid-term exam – laboratory exercises	50	45
Total		100

Final assessment:

(for students who fail to meet continuous assessment requirements)

Elements of evaluation	Success (min. %)	Percentage (%)
Written exam	50	40
Prior activity (including all indicators of continuous assessment)	100	60
Total		100

Grading:

Percentage (%)	Criteria	Grade
0 – 49	does not meet the minimum criteria	insufficient (1)
50 – 64	meets the minimum criteria	sufficient (2)
65 – 79	average achievement with noticeable insufficiencies	good (3)
80 – 89	above average achievement with few mistakes	very good (4)
90 – 100	extraordinary achievement	excellent (5)

Grading and assessment of part-time students:
Grading and evaluation criteria are the same as for full-time students.

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	1. Bowditch, N.: American Practical Navigator (Bowditch). National Geospatial - Intelligence Agency, 2019.		YES
	2. Kjerstad, N.: Electronic and Acoustic Navigation systems for Maritime Studies, 2016.	1	YES
	3. Tetley, L; Calcutt, D.: Electronic Navigation Systems. Butterworth-Heinemann, Oxford, 2001.		YES
	4. Guidelines for The Design and Operation of Dynamically Positioned Vessels, IMCA.		YES

Optional literature (at the time of submission of study program proposal)	1. M.S. Lund, J.E. Gulland, O.S. Hareide, E. Josok, K.O.C. Weum, Integrity of integrated navigation systems, in: 2018 IEEE Conf. Commun. Netw. Secur. CNS 2018, Institute of Electrical and Electronics Engineers Inc., 2018 2. Rules for the classification of ships, Part 12 -Electrical equipment, 2020 3. The Nautical Institute Certification and Accreditation Standard; Vol.1 – Training and Certification January, 2020 4. Kumar, s.: Dynamic Positioning for Engineers. CRC Press, 2020
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	BACHELOR EXAM					
Code	PFN 401	Year of study	3			
Course teacher	All teachers having a research-and-teaching rank and involved in teaching process	Credits (ECTS)	8			
Associate teachers	-	Type of instruction (number of hours)	P	S	V	T
			0	0	10	0
Status of the course	Mandatory	Percentage of application of e-learning	30 %			
COURSE DESCRIPTION						
Course objectives	Students need to demonstrate knowledge acquired in the course of their studies and pass a written exam and an oral exam before panel members.					
Course enrolment requirements and entry competences required for the course	Students may take the final exam after successfully completing and passing all courses envisaged in the curriculum and meeting their obligations from the Introductory Differential Program.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Independently plan a sea voyage analysing and using nautical charts and manuals, weather reports, navigation information and warnings, and apply maritime travel optimization methods. 2. Determine the position of a ship and safely manoeuvre a ship in all conditions, using navigational instruments and devices, modern electronic navigation devices and systems, and elements of dead reckoning. 3. Recognize and eliminate errors of navigational instruments and devices, analyse errors and reliability of navigation and other onboard systems, and take appropriate action in the event of their failure. 4. Conduct appropriate search and rescue operations, independently or in coordination with others; properly use rescue equipment, apply survival techniques at sea, provide first aid, medical care, etc. 5. Keep a safe navigational watch, actively use navigation, meteorological, communication and other equipment on the bridge; define appropriate procedures and the monitoring system for their implementation. 6. Interpret weather reports, independently use meteorological instruments and assess hydro-meteorological conditions. 7. Assess risks, especially elements that endanger safety and security, maintain them at an appropriate level, properly deal with crises situations, and develop procedures for crisis situations. 8. Maintain life-saving and survival equipment, fire extinguishers and other security systems. 9. Operate and manoeuvre a ship in all conditions, act appropriately in case of an emergency during navigation, avoid collisions and other hazards at sea, use ship communication systems and knowledge of communication procedures in ordinary and extraordinary situations. 10. Explain the basic elements of ship machinery and electrical power systems and know how to operate them. 11. Distinguish cargo and different technologies in maritime transportation, plan and perform cargo loading, unloading, stacking, fixing and storing operations; identify dangerous substances and handle them properly, assess damage to cargo and cargo holds and equipment, and take appropriate preventive actions and actions to prevent further damage; use the ballast system. 12. Analyse and assess the essential elements of ship stability and stress in ship structure; organize maintenance of the ship and ship systems.					

	13. Interpret and critically assess the elements of international and national maritime legislation, especially parts governing the protection of human life at sea, property protection and prevention of pollution of the marine environment. 14. Manage crew and groups of people in general, take appropriate action in extraordinary circumstances. 15. Explain and interpret the business principles in shipping industry. 16. Know standard seaman skills, organization of work on board, ship-related terms and practice. 17. Use professional maritime English in all situations.
Course content broken down in detail by weekly class schedule (syllabus)	The final exam consists of the written exam and the oral exam before a panel.
Format of instruction:	☐ lectures ☐ seminars and workshops ☐ exercises ☐ *online* ☐ partial e-learning ☐ field work ☑ independent assignments ☑ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	After the student has passed all the exams and fulfilled all the obligations stipulated in the study program, he reports the final exam in the Student Service. The student applies for the final exam using the Final Exam Registration form, no later than seven (7) days before the scheduled date of the exam. Students independently prepare for the final exam using the questions from the publicly available question database (on the Merlin e-learning platform). The question database includes different areas covered in undergraduate study courses pertinent to the profession.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance		Research literature	2	Practical training	
	Experimental work		Report		Consultations with a mentor	
	Essay		Term paper		Data collecting	
	Mid-term exams		Oral exam	3	Preparation of the final paper	
	Written exam	3	Project		Defence of the final paper	

Grading and evaluating student work in class and at the final exam	The final exam consists of the written and oral part. The written part of the exam lasts maximum 90 minutes. The oral part of the exam lasts maximum 30 minutes. After the written part of the final exam, the panel corrects the written exam, prepares a list of exam results, and announces the results on the Faculty's website no later than 72 hours after the end of the written part of the exam. To successfully pass the final exam, students must obtain at least 50 % of the total number of points in the written part of the exam. The oral part of the exam is held after the announcement of the results of the written part of the final exam. Students who have successfully passed the written part of the final exam are invited to the oral part of the exam (the written part of the exam is the elimination stage). Student who do not pass the written part of the final exam must apply to retake the exam. After passing the written part of the final exam, students take the oral part of the exam before a panel. Panel members, based on the grade of the written and oral exam, determine the overall grade for the final exam. The grades for the written and oral exams have an equal impact on the overall grade for the final exam. Students who meet the minimum requirements to pass the written and oral part of the final exam, will be evaluated descriptively and numerically, with a grade from 2 to 5.

Final assessment for the written exam

Elements of evaluation	Success (min. %)	Percentage (%)
Written exam – Module 1	50	12.5
Written exam – Module 2	50	12.5
Written exam – Module 3	50	12.5
Written exam – Module 4	50	12.5
Oral exam	50	50
		100

Grading
Minimum to pass: 50 %

Percentage (%)	Criteria	Grade
0-49	Does not meet the minimum criteria	Insufficient (1)
50-64	Meets the minimum criteria	Sufficient (2)
65-79	Average success with noticeable insufficiencies	Good (3)
80-89	Above average achievement with few mistakes	Very good (4)
90-100	Extraordinary achievement	Excellent (5)

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Materials determined by professors		Merlin

Optional literature (at the time of submission of study program proposal)	
Quality assurance methods that ensure the acquisition of exit competences	
Other (as the proposer wishes to add)	

2.14. Amendments to the Existing Undergraduate Study Program – Introductory Differential Program

Students who have not completed a marine secondary school of nautical or any related division are required to take and pass all courses listed in the Introductory Differential Program prescribed by the Ordinance on Amendments to the Ordinance on Ranks and Certification of Seafarers (Official Gazette 45/14), Article 84, paragraph 2, in the total duration of 240 hours and take the course *Physical Education I* (a total of 2 school hours). ECTS credits earned in the framework of the Introductory Differential Program are not included in the minimum number of ECTS credits required for the completion of this undergraduate study program.

COURSE NAME	**KNOWLEDGE OF SHIP AND NAVIGATION**					
Code	PFN 001	Year of study	1			
Course teacher	Danijel Pušić, PhD, Asst. Prof.	Credits (ECTS)	2			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			30		30	
Status of the course	Elective	Percentage of application of e-learning	20 %			
COURSE DESCRIPTION						
Course objectives	Know the basic types and characteristics of passenger, cargo, military and other ships. Master the basic concepts from the domain of ship construction, ship stability, cargo loading and stowage, control of loading, stacking, fixing and unloading of cargo and monitoring of cargo during transportation. Become familiar with requirements regarding pollution prevention, and relevant international and national regulations - IMO, ILO, SOLAS, STCW, MARPOL. Know the basic terms and definitions relating to navigation, meteorology, manoeuvring and planning of maritime voyages. Know the basic principles and procedures for keeping navigational watch and be familiar with the Regulations for Preventing Collisions at Sea.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Recognize the characteristics of different types of ships and know the basic terms and definitions relating to ship stability and construction. 2. Become familiar with ship equipment, especially with rescue and firefighting equipment. 3. Become familiar with different types of cargo transported by sea, cargo stacking and securing methods. 4. Acquire basic knowledge of relevant international and national regulations related to the prevention of pollution, protection of human life, procedures for keeping navigational watch and know the Maritime Regulations and Rules of the Maritime Register of Shipping. 5. Plot courses/azimuths, distances and positions on navigation charts. 6. Identify dangers on navigation charts, and correctly interpret weather reports. 7. Explain important navigation instruments and devices. 8. Make a simple voyage plan and explain the basic navigation techniques. 9. Explain and interpret Rules for Preventing Collisions at Sea.					
Course content broken down in	**Lectures:** 1. Basic seafaring concepts. Types of ships - division and basic characteristics.					

detail by weekly class schedule (syllabus)	2. Ship construction - dimensions, strain, structure, designators, cargo handling equipment, rescue equipment. 3. Retention of seaworthiness – ship stability, displacement, lift, FWA, static stability. 4. Supervising cargo loading, stacking, securing and unloading and monitoring cargo during transportation. Types of cargo. 5. Become familiar with the relevant international and national regulations – the IMO conventions. Pollution prevention procedures. 6. The basic navigational concepts: course, azimuth, bow angle, geographic coordinates. Navigational instruments and aids. 7. Nautical charts, reading nautical charts. Line of position in navigation. Determining position. 8. Ship books and manuals, Correcting nautical charts, books and manuals. Passage planning. 9. Electronic navigation systems and devices. 10. Methods of astronomical navigation; sextant, chronometer, nautical almanac. 11. Basic ship operation techniques; mooring, unmooring, anchoring; manoeuvring during emergency procedures and rescue at sea. 12. Rules for Preventing Collisions at Sea. 13. Basic concepts in meteorology, ocean voyages. 14. GMDSS, distress, urgency and security messages; WWNWS. Watchkeeping on the bridge. 15. Maintaining the ship and ship equipment. **Exercises:** 1. Basics of shipbuilding, different types of ships, shipbuilding materials, introduction to structural elements of the ship. 2. Basics of ship construction: hull, freeboard, freeboard line, draft, draft reading, other ship dimensions. 3. Basics of ship stability, reading curves of stability, elements of ship stability. 4. E-learning - on line, ship stability. 5. Basics of cargo: types of cargo, cargo units, dangerous cargoes, securing cargo, port visits. 6. Degrees, hours, radians, unit conversion. Using plane and spherical trigonometry. 7. Using nautical charts: plotting and reading positions on the chart. Reading angles and distances on a chart. Estimating ship velocity. 8. Working with a nautical chart: chart reading (general signs and marks, hydrographic and topographic names), IALA. Drawing lines of position on a chart. 9. E-learning - on line, navigation. 10. Basics of astronomical navigation: coordinate system, sextant, work with a sextant, reading nautical almanac. 11. Basic techniques of operating a boat: deck equipment, anchors, anchor chains, anchor winches, mooring equipment. 12. Rules for Preventing Collisions at Sea, E-learning - on line, COLREGS. 13. Basics of meteorology: meteorological maps, meteorological elements and phenomena, forecasts. 14. E-learning - on line, meteorology. 15. Watchkeeping.	
Format of instruction:	☒ lectures ☐ seminars ☒ exercises ☐ *online* ☒ field work	☐ individual work on assignments ☒ multimedia ☐ laboratory ☐ work with mentor
Student responsibilities	**1. Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept.	

	Lectures and exercises are mandatory and attendance records are kept. Students must attend minimum 80 % of lectures (lectures and auditory exercises). Students who fail to meet the minimum attendance requirement will not be eligible for exam. A submission of a written excuse cannot be a replacement for lecture or exercise attendance. **2. Obligations of part-time students:** Students have to attend minimum 50 % of lectures and may compensate the remaining obligations to 80 % subsequently by taking additional classes during the lecture period and later, but not later than one month after the end of the lecture period. Examination methods are the same as for full-time students. Grading and evaluation criteria are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.5	Research		Practical training	0.5
	Experimental work		Report		Individual work and homework (other)	
	Essay		Term paper		(other)	
	Mid-term exams	0.5 (alt. practical training)	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam

1. Grading and evaluation of full-time students

Attendance is mandatory, i.e. to be eligible for the exam students have to attend minimum 80 % of lectures and 80 % of exercises.
Students who fail to meet the minimum attendance requirement will not be eligible for exam. A submission of a written excuse cannot be a replacement for lecture attendance.
In the course of a semester, students can take mid-term exams. The examples of mid-term exam questions are available to students at the website of the Faculty and on the official e-learning platform, Merlin.
In the course of the semester, after the weekly lecture, students are given simple tests dealing with the subject of the lecture (e-learning).
Students who fail to pass the mid-term exams in the course of the semester, but have otherwise met all their other obligations, are required to take both written and oral exam in the exam period. Mid-term exams and final exams are assessed with grades passed or not passed. The course is considered passed when all below listed mid-term exams are passed and all obligations met.

Continuous evaluation of students:

Elements of evaluation	Success (min. %)	
Attendance	min. attendance:,nml> 80 % lectures and 80 % exercises	Met
Mid-term exam I	75 %	Passed
Mid-term exam II (chart)	75 %	Passed
Mid-term exam III (theory)	50 %	Passed
Simple tests	75 %	Passed
E-learning	100 %	Met
Total		

Final exam:

Elements of evaluation	Success (min. %)	Percentage (%)
Exam or mid-term exam (written and/or oral)	100 %	50 %
Previous activities (all elements of continuous assessment are included)	75 %	50 %
Total		100 %

Grading
There is no classical grade from *Knowledge of Ships and Navigation.* Upon the fulfilment of all course requirements, students are considered to have passed the course.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. D. Pušić, Poznavanje broda i plovidbe – lectures, Split, 2019		YES
	2. Z. Lušić, Elementi plovidbe, Split, 2017		YES
	3. I. Buljan, Stabilnost broda, Zagreb: Školska knjiga, 1980	5	
	4. I. Buljan, Krcanje i slaganje tereta, Zagreb: Školska knjiga, 1980	5	

Optional literature (at the time of submission of study program proposal)	1. R. Radulić: Professional Practice (exercises), University in Zadar, Zadar, 2009. 2. The Best Seamanship, A Guide to Desk Skills, IMMAJ, 2006 3. I. Buljan: Poznavanje broda i plovidbe, Školska knjiga, Zagreb 4. I. Belamarić: Poznavanje broda, HHI, Split, 2005
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.
Other (as the proposer wishes to add)	

COURSE NAME	BASIC SAFETY AND FIRST AID					
Code	PFN 002	Year of study	1			
Course teacher	Zlatko Kljajić, PhD, Asst. Prof.	Credits (ECTS)	2			
Associate teachers	Paško Ivančić, MSc	Type of instruction (number of hours)	L	S	E	F
			45	0	25	5
Status of the course	Elective	Percentage of e-learning application	20 %			
COURSE DESCRIPTION						
Course objectives	Master the basic principles of personal survival. Recognize potential hazards, assess critical situations and take appropriate action to protect human lives in emergency situations and maritime accidents. Set firefighting priorities onboard, and take measures depending on current conditions. Pay special attention to personal safety and social responsibility, and correct mistakes in their organization. Learn to provide first aid. Check and secure place of an accident. Do a check-up of injured and sick persons and identify their injuries and illnesses. Provide first aid without causing additional harm to injured or sick persons. Assess in what situations to apply resuscitation. Examine injured and sick persons and make a working diagnosis. Apply emergency first aid procedures. Establish confirmed and apparent death. Apply emergency resuscitation in case of apparent death. Prioritize care if there are more injured persons.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Assess the current situation and choose the most appropriate way to rescue and help people to survive in a dangerous situation. Weigh options and carefully plan rescue operations. 2. Detect potential fire hazards on time, properly distribute firefighting teams and equipment, and solve problems to ensure minimum damage. Adapt all operations on board to the minimal abilities of the crew and passengers, ensure their safety, and adapt the degree of social responsibility to best practices. 3. Identify potential incidents on time, identify their causes and use the most efficient measures to prevent them. 4. Determine the medical condition of an injured or a sick person. 5. Provide first aid in life-threatening situations. 6. Provide first aid in case of fractures, eye injuries, burns and bleedings. 7. Prevent inflicting additional harm to injured persons. 8. Provide first aid making no harm to yourself or injured or sick persons. 9. Applying proper first aid procedures, shorten treatment duration and rehabilitation. 10. Use basic medical and available equipment, and medicines on board.					
Course content broken down in detail by weekly class schedule (syllabus)	Personal survival and safety, the principles of survival and the SOLAS Safety Training Manual. Hazards, drills and precautions. Fire and sinking, plan and emergency signals. Abandoning ship, standby, responsibilities of crew members while abandoning ship, responsibilities towards passengers, preventing panic, launching lifeboats, boarding lifeboats and leaving the ship behind in case of danger. Rescue boats and life rafts. Personal life saving equipment (life vests, life belts, hydro thermal protective suits). Survival at sea, danger, the appropriate use of lifesaving equipment found on the lifeboat. Portable transceivers, search and rescue transponder (SART) and EPIRB. Rescue with helicopters. The principles of firefighting, theory, fire conditions, flammable substances, fire division, fire detection and prevention. Fire extinguishing agents on board: water, foam, powder, carbon dioxide and halon. Fire extinguishers and firefighting equipment: hoses, nozzles, portable extinguishers, alarm systems for detecting fire					

	and flames, fire alarm cables, fire alarm station, ship's general alarm system, fire control plans, schedules, procedures, communication, fire patrol, training, safety measures and fire. Final assessment. Personal safety and social responsibility. Safe operations on board, appropriate interpersonal relationships, understanding and executing commands and the ability to understand the duties assigned. Observing schedules and emergency procedures, implementing safety measures to prevent contamination/pollution of the sea and the marine environment. Interpersonal relationships on board, rights, duties, obligations, hiring, hygiene and health. First aid. The purpose of first aid. The basic rules of first aid. Determining vital functions – the ABC rule. General procedure at the site of an accident. First aid in life-threatening situations: resuscitation, bleeding, procedure for unconscious persons and persons in a state of shock. First aid procedures for traumatic amputation. First aid for wounds, injuries, eye injuries, injuries to head and spine, limb fractures, polytrauma. Immobilization. Disinfecting the areas around open wounds and burns. First aid for injuries caused by extreme heat (burns, heat stroke) and cold. First aid in the event of poisoning. **LECTURES:** 1. The basic principles of providing first aid on board. The importance and obligation to provide first aid on board. Difference in procedures and attitudes between providing first aid and medical care at sea and on land. 2. Familiarize students with first aid equipment on board. 3. Conditions that require an immediate intervention (respiratory arrest and cardiac arrest, severe bleeding, shock and unconsciousness). 4. Controlling vital functions. Checking breathing and pulse. 5. ABC rule and examination results. Signs of confirmed and apparent death. 6. Principles of resuscitation. 7. Types and causes of shock and first aid procedures. Chest compressions. 8. Methods of artificial respiration. 9. Types of bleeding, bleeding arrest. 10. Fractures, types and signs. First aid procedures, immobilization. 11. Causes and types of burns, first aid procedures. 12. Poisoning on board and first aid procedures. 13. Eye injuries on board and first aid procedures. 14. Hypothermia and heat stroke, first aid procedures. 15. Types of wounds and first aid procedures. **EXERCISES:** 1. Demonstration of first aid equipment and first aid on board. 2. Determining the condition of an injured person and making a "diagnosis". 3. Chest compressions - simulation on a manikin. 4. CPR. Simulation on a manikin. 5. Providing first aid in case of suffocation. Demonstration of artificial respiration methods. 6. Determining the place for measuring pulse. Describing pulse. 7. Familiarization with a resuscitation mask and the oxygen concentrator. Simulation of oxygen application. 8. Familiarization with the means for stopping external haemorrhage. Determining the location for digital compression as a method for stopping bleeding. 9. Simulating immobilization of limb fractures and immobilization of suspected spinal cord injuries. 10. Procedures for open and closed burns. Simulating the disinfection of burnt area and surrounding skin. Application of Vaseline gauze. 11. Disinfectants for disinfecting the wound and surrounding skin, skin disinfection, skin disinfectants. 12. Simulations of first aid in case of chemical eye injuries. Rinsing. 13. Simulation of first aid in the event of poisoning.

	14. Simulation of first aid in the event of hypothermia. Simulation of Hibler's method. 15. Preparing an injured person for transportation.
Format of instruction:	☒ lectures ☐ seminars and workshops ☒ exercises ☐*online* ☐ partial e-learning ☒ field work ☐ individual work on assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐consultations
Student responsibilities:	**Obligations of full-time students:** Lecture and exercise attendance is mandatory and attendance records are kept. Students who fail to meet the minimum attendance requirements will be required to re-enrol in the course next year. Students may pass the exam through continuous evaluation in the course of the semester by taking two mid-term exams. Students are required to take all mid-term exams. Students who fail to pass mid-term exams in the course of the semester, but have met the minimum attendance requirement, are required to take the written exam during the exam period. **Obligations of part-time students:** Attendance obligations are the same as for full-time students. Exam taking methods are the same as for full-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.875	Research		Practical training	
	Experimental work		Report		Homework (other)	
	Essay		Term paper		(other)	
	Mid-term exams		Oral exam		(other)	
	Written exam	0.125	Project		(other)	

Grading and evaluating student work in class and at the final exam	95 % lecture and 100 % exercise attendance is required to obtain the D2 – Basic safety onboard (STCW A-VI/1) certificate. 95 % lecture and 100 % exercise attendance is required to obtain the D19-Medical first aid (STCW VI/4-1) certificate. Two mid-term exams will be organized in the course of the semester. The first mid-term exam covers lectures 1-6 and will be held in week 7, and the second mid-term exam covers lectures 7-14 and will be held in week 15. The examples of exam questions will be made available to students at the end of each lecture. Minimum 60 % score is required to pass each mid-term exam. Students who fail to take one mid-term exam for objective reasons or do not achieve the minimum percentage of points may retake the exam. A retake will be organized for such students in weeks 7 and 15. There is no classic grade from the course *Basic Safety and First Aid*. The course is considered passed when all exams are passed and all obligations lifted below are met. **Continuous evaluation of students**:

Elements of evaluation	Success(min. %)	Percentage (%)
Class attendance	95	7,5
Term paper	100	2,5
Mid-term exams	60	45
Mid-term exams	60	45

Students who fail to pass mid-term exams in the course of the semester but have met the minimum attendance requirements, are required to take the written exam during the exam period. The same evaluation and continuous assessment criteria will apply during the exam period.

Grading:

There is no classic grade from the course *Basic Safety and First Aid*. The course is considered passed when all exams are passed and all obligations lifted below are met.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. D. Zec.: Sigurnost na moru, Rijeka, Faculty of Maritime Studies in Rijeka, 2001	10	YES
	2. R. Mulić: Prva pomoć. Textbook for students at Military Maritime Studies and Faculty of Maritime Studies. Faculty of Maritime Studies in Split, 2019	10	YES
	3. International Medical Guide for Ships, 3rd edition. World Health Organization, Geneva, 2007	-	YES
Optional literature (at the time of submission of study program proposal)	1. International maritime law embodied in international conventions. 2. International Health Regulations, World Health Organization Geneva, 2005		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	ELECTRONIC NAVIGATIONAL DEVICES					
Code	PFN003	Year of study	2			
Course teacher	Mario Bakota, PhD, Asst. Prof.	Credits (ECTS)	2			
Associate teachers	Vedran Nikolić, MEng.	Type of instruction (number of hours)	L	S	E	F
			15		30	
Status of the course	Elective	Percentage of application of e-learning	20 %			
COURSE DESCRIPTION						
Course objectives	Know how to use radar navigation systems, and other electronic navigation equipment and systems.					
Course enrolment requirements and entry competences required for the course	No requirements.					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Describe and explain the working principles of the depth gauge, speedometer, compass, satellite positioning systems, and other electronic navigation equipment and systems. 2. Recognize ship's electronic navigation devices. 3. Describe and explain the working principles of radar devices. 4. Correctly explain and interpret images on radar devices for preventing collisions at sea (Automatic Radar Plotting Aids - ARPA). 5. Properly use the ARPA system to avoid other ships and hazards at sea. 6. Avoid collisions at sea using graphical plotting. 7. Correctly explain and interpret images on the ECDIS, independently or in combination with the ARPA system.					
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures:** 1. Main definitions: electronic navigation, electronic navigation devices. Gyro and electronic compass, speedometer and depth gauge in navigation. Satellite navigation systems GPS, DGP, Glonass, Galileo. 2. Navigation radar, working principle. 3. Turning the radar on and off, image adjustment. 4. Range, measurement accuracy, distinguishing objects. 5. Dead angle, interference, relative and real radar image. 6. Determining ship direction, distance and position. CPA and TCPA 7. Radar in search and rescue, search and rescue transponder - SART. 8. Graphical plotting. 9. Radar in preventing collisions at sea, ARPA. 10. Automatic plotting, real and relative vectors, collision avoidance simulation. 11. ARPA / AIS, ARPA system errors, VDR. 12. Electronic maps, raster and vector, ECDIS. 13. ARPA / ECDIS system, system errors and usage problems. 14. Integrated Navigation Systems. 15. IMO - SOLAS requirements for electronic navigation equipment and systems. **Exercises:** 1. Electronic navigation devices on the bridge. 2. Navigation radar – reading and adjusting images. 3. Dead angle, interference, relative and actual radar image – practical work. 4. Determining ship direction, distance and position - practical work. 5. Recognizing danger by radar, determining CPA and TCPA, SART. 6. Graphical plotting - straight and relative; determining the elements of movement of an unknown vessel, assessing collision risk (CPA and TCPA), determining course and speed of evasion, returning to the original course.					

	7. Graphical plotting, determining the elements of movement of an unknown vessel, assessing collision risk (CPA and TCPA), determining course and speed of evasion, returning to the original course. 8. Graphical plotting, determining the elements of movement of an unknown vessel, assessing collision risk (CPA and TCPA), determining course and speed of evasion, returning to the original course. 9. ARPA radar - image adjustment. 10. ARPA radar - recognizing errors and alarms. 11. ARPA radar - hand grip of the goal and reading data. 12. ARPA radar - automatic plotting and collision avoidance simulation. 13. ARPA/AIS automatic plotting and collision avoidance simulation. 14. Avoiding collision using the ARP/ECDIS system, VDR. 15. Visit to a ship, practical work with electronic navigation devices.
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor x naut. sim. (other)
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To qualify for the issuance of certificates of competence, students must attend minimum 95 % of lectures and 100 % of exercises. To be eligible for the exam, students must attend minimum 80 % of lectures and 80 % of exercises. Students who fail to meet lecture and exercise attendance requirements will not be allowed to take the mid-term exam (graphical plotting) after the end of the semester and will be required to re-enrol in the course next year. Written excuse notes (medical certificates) can not substitute attendance. Students who fail to meet the requirements for the exam due to illness or another justified reason, and have under 20 % of absences, will be allowed (with a written excuse not) to compensate the part of the lectures they missed by taking additional classes in the course of the semester but not later. **Obligations of part-time students:** Part-time students are required to attend minimum 50 % of lectures and 50 % of exercises to be eligible for the mid-term exam (graphical plotting). **Should they wish to obtain certificates, the same rules that apply to full-time students apply to part-time students.**

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)						
	Class attendance	1.125	Research		Practical training	0.375
	Experimental work		Report		(other)	
	Essay		Term paper		(other)	
	Mid-term exams	0.50	Oral exam	0.5	(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	There is no grade from *Electronic Navigational Devices*. The course is considered passed when mid-term exam (graphical plotting) is passed and all above indicated obligations are met.

Required literature (available in the	**Title**	**Number of copies in the library**	**Availability via other media**

library and via other media)	1. A. Simović: Elektronička navigacija, Zagreb: Školska knjiga, 2000.	5	
	2. Radar Navigation and Manoeuvring Board Manual, NIMA, USA, 2005		YES
Optional literature (at the time of submission of study program proposal)	1. J. Kasum, Radioslužba za pomorce, Split: HHI, 2003 2. N. Bowditch, The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002 S. Kos, D. Zorović, D. Vranić, Terestrička i elektronička navigacija, Rijeka: Faculty of Maritime Studies in Rijeka, 2010		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			

COURSE NAME	WORKING SKILLS ON BOARD					
Code	PFN 005	Year of study	2			
Course teacher	Ivica Skoko, PhD, Asst. Prof.	Credits (ECTS)	2			
Associate teachers	Marijan Zujić, MEng	Type of instruction (number of hours)	L	S	E	F
			30	0	30	0
Status of the course	Elective	Percentage of application of e-learning	/			

COURSE DESCRIPTION		
Course objectives	Acquire skills to work on ship's deck; become familiar with ship maintenance procedures, know operating procedures in unusual situations, know measures for the protection of the sea and the marine environment, and ship handling techniques while mooring, unmooring and anchoring.	
Course enrolment requirements and entry competences required for the course	No requirements.	
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	1. Demonstrate skills of using ship's ropes, steel ropes, and know ship handling techniques while mooring, unmooring and in extraordinary circumstances. 2. Describe and explain ship and equipment maintenance procedures. 3. Describe and explain search and rescue procedures at sea. 4. Use distress signals at sea.	
Course content broken down in detail by weekly class schedule (syllabus)	1. Become familiar with deck and berthing equipment. 2. Ship ropes and steel ropes. 3. Knots and splices. 4. Mooring and unmooring. 5. Anchoring. 6. Steering, routine and in an emergency. 7. Towage. 8. Acting in emergency situations. 9. Own ship rescue procedures. 10. Procedures for rescuing others and providing assistance. 11. Response to distress signals at sea. 12. Using distress signals at sea. 13. Morse code. 14. Marine environment pollution prevention measures. 15. Ship and equipment maintenance.	
Format of instruction:	X lectures ☐ seminars and workshops X exercises ☐ *online* ☐ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia X laboratory ☐ work with mentor
Student responsibilities	**Obligations of full-time students:** Lectures and exercises are mandatory and attendance records are kept. To qualify for the issuance of certificates of competence, students must attend 100 % of lectures and 100 % of exercises. Students who fail to meet lecture and exercise attendance requirements will not be eligible for the exam and certificate issuance. They will be required to re-enrol in the course next year. Written excuse notes (medical certificates) can not substitute attendance. Students who fail to meet the requirements due to illness or another justified reason, and have under 20 % of absences, will be allowed (with a written excuse not) to compensate	

	the part of the lectures they missed by taking additional classes in the course of the semester but not later. Obligations of part-time students: To be eligible for the exam, part-time students are required to attend minimum 80 % of lectures and 100 % of exercises. Should they wish to obtain certificates, the same rules that apply to full-time students apply to part-time students.

Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.5	Research		Practical training	
	Experimental work		Report		Homework (other)	
	Essay		Term paper		Demonstration of skills	0.25
	Mid-term exams	0.25	Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student work in class and at the final exam	There is no grade from *Working Skills on Board*. The course is considered passed when the mid-term exam from the theoretical part of classes is passed at the end of the semester, practical knot making/tying is passed, and all the above indicated obligations are met.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. A. I. Simović: Mornarske vještine, Zagreb: Školska knjiga, 1991	10	
	2. Sjekavica- Kačić: Pravila za izbjegavanje sudara na moru, Zagreb: Školska knjiga, 1980	10	
	3. R. Radulić: Stručna praksa (exercises), University of Zadar, Zadar, 2009		YES
Optional literature (at the time of submission of study program proposal)	1. D. Zec: Sigurnost na moru, Rijeka: Faculty of Maritime Studies in Rijeka, 2001		
Quality assurance methods that ensure the acquisition of exit competences	University student survey, class attendance sheets, teaching process monitoring by the Teaching Committee, teacher self-evaluation, pass level analysis at the end of the academic year, external evaluation of the grading process.		
Other (as the proposer wishes to add)			