DETAILED PROPOSAL OF THE STUDY PROGRAMME
INTEGRATED UNDERGRADUATE AND GRADUATE UNIVERSITY STUDY PROGRAMME IN
NAVAL STUDIES
Courses: Naval Nautical Studies and Naval Marine Engineering

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<th>Name:</th>
<th>University of Split</th>
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<tbody>
<tr>
<td>Address:</td>
<td>Poljička cesta 35, 21000 Split</td>
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<td>Fax:</td>
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<tr>
<td>E-mail:</td>
<td><a href="mailto:Rektorat.office@unist.hr">Rektorat.office@unist.hr</a></td>
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2 GENERAL INFORMATION ON THE STUDY PROGRAMME

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<td>Provider(s) of the study programme</td>
<td>University of Split</td>
</tr>
<tr>
<td>Co-bearer of the study programme</td>
<td>Croatian Defence Academy, Faculty of Maritime Studies, Faculty of Humanities and Social Sciences</td>
</tr>
<tr>
<td>Type of the study programme</td>
<td>Vocational study programme ☐ University study programme ☑</td>
</tr>
<tr>
<td>Level of the study programme</td>
<td>Undergraduate ☐ Graduate ☐ Integrated ☑</td>
</tr>
<tr>
<td>Academic/vocational title earned at the completion of the study</td>
<td>Master of Naval Nautical Studies / Master of Naval Marine Engineering</td>
</tr>
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</table>
3 INTRODUCTION

3.1 Assessment of the validity of conducting the studies

The reasons for launching this study programme are based on expressed interest and requirements of the Ministry of Defence and the Croatian Armed Forces. In conformity with Article 48 paragraph 6 of the Act on Scientific Work and Higher Education, the University and the Government of the Republic of Croatia can make a special agreement to establish special study programmes in order to meet the requirements of the military and police training and education within the University. The Naval Studies programme has been developed in cooperation with the Croatian Defence Academy and the University of Split with its constituents. The study programme is established by the Government Decision and the signed Agreement between the Government and the University of Split. The Agreement assumes the study programme will be performed in the English language.

Regarding the fact that in addition to the Croatian Navy, other participants in protection of the Adriatic Sea are the Ministry of the Sea, Transport and Infrastructure, Ministry of the Interior and other competent government agencies and institutions, it is possible to carry out integrated education of future naval officers for meeting the requirements of the government institutions in such an integrated graduate study programme.

3.2 Connection with local community (economy, free enterprise, civil society)

The integrated undergraduate and graduate university study programme in Naval Studies is closely connected with contemporary scientific knowledge in the scientific field of technical and military sciences. Especially in the field of maritime affairs and interdisciplinary fields, the field of military-defense and security-intelligence science. The study finds application in all branches of the economy related to maritime affairs and various fields of science, and at the same time forms the basis for successful interaction between economy and the competent social and state structures.

3.3 Conformity with requirements of the profession

The greater part of this integrated university study programme is comprised in the study programme of the Nautical Studies and Marine Engineering and it fully meets the requirements set out by the Ministry of Defence, i.e. the Croatian Navy which the cadres will be trained and educated for.

The programme is entirely in accordance with the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention), and with the Croatian Code of Qualifications and Seafarers’ Certificates of Qualification setting minimum requirements for obtaining qualification of the First Officer of the deck and Master on the ship of 3.000 GT or bigger (STCW II/2) or the Second Officer and Chief Engineer.
on the ship with engine of propulsion horsepower of 3000 kw or more (STCWIII/2). The study programmes have been developed in accordance with the International Maritime Organization recommendations (IMO Model Course 7.01 and 7.02).

Besides, other constituents of the University of Split involved in this study programme provide special knowledge and expertise through courses in order to meet learning outcomes of the curriculum.

The study program is developed to meet educational requirements of future members of the armed forces but also it is accredited in conformity with the Bologna Declaration goals in a manner that they are in the system of ECTS credits, i.e. in the European Higher Education Area and have been conforming to Erasmus programme with regard to exchange of cadets, junior officers, assistants and professors.

3.4 Partners beyond the system of higher education

Significant partners are the Ministry of the Interior, Ministry of the Sea, Transport and Infrastructure, Ministry of Defence and other government directorates. In addition to companies and institutions within maritime industry such as e.g. Plovput, Jadrolinija (in connection with operations at sea), there are also land-based companies within maritime industry (shipyards, technical overhaul institutes, electronic centers, institutes and industrial construction design offices) which are learning base for the students.

3.5 The manner of funding

The funding of the study programmes is regulated by the Government Decision, rights and obligations of the Croatian Ministry of Defence and the University of Split ensuing from their Agreement on Establishment of Special University Study Programme, as well as individual Contracts between the Croatian Ministry of Defence and the University of Split.

3.6 Comparability of the study programme with programmes of the accredited institutions of higher education in Croatia and the European Union.

This is a study programme which has not existed in this way in the Republic of Croatia. It includes all necessary general, military and maritime knowledge and skills, and it is hardly comparable to any other study programme in the European Union. However, the parts of the study programme are comparable to other study programmes in the Republic of Croatia and the European Union Member States.

During development of the study programme, the alignment of its curriculum with the curriculums of other respectable foreign colleges was particularly taken into account in order to make the programmes mutually comparable. Comparable study programmes of the European Union are listed in the material entitled „Europe for the Future Officer, Officer for the Future Europe – Compendium of the Europe Military Officer Basic Education, http://www.miles.ac.at/iep/pdf/2011%2010%20Paile%20Compendium.pdf“ issued by the Ministry of Defence of the Republic of Poland during chairmanship of Poland over the
European Union. It should be emphasized that the system of education for maritime experts in the world is very diverse and there are no two countries with an equal educational system. This refers to almost all components of the education: enrolment requirements, aim and purpose of education, type and organization of the study, duration of the study, names of higher education institutions, etc.

The integrated undergraduate and graduate university study programme in Naval Studies enables students to gain knowledge, skills and competencies in conformity with international norms and NATO standards, in a foreign language as well. For the most part it is aligned with similar study programmes run at Faculties of Maritime Studies in Split and Rijeka and Maritime Department of the University of Dubrovnik. In addition to horizontal mobility within the Republic of Croatia similar study programmes have been developed in other EU institutions that provide education to seafarers and a high degree of comparability of the study programmes has been established. Co-operation with these institutions will provide guarantee for realization of the Bologna Declaration goals (compatibility of study programmes and mobility of teachers and students).

3.7 Openness of the study towards mobility of students (horizontal, vertical in the Republic of Croatia and international)

The integrated undergraduate and graduate university study programme in Naval Studies enables students to gain knowledge, skills and competencies in conformity with international norms and NATO standards, in a foreign language as well.

Considering the specific nature of the programme, the mobility is possible only within the similar Military study programmes of the University of Zagreb. The international mobility of students is possible through bilateral agreements made between the Croatian Ministry of Defence and partner countries.

3.8 Conformity with the mission and strategy of the University and proponents as well as with the strategic document of the network of institutions of higher education.

The study programme has been aligned with the mission of the University of Split, and with the Annual Report on the State of Readiness of the Defence System for the year 2012 adopted by the Croatian Parliament, i.e. the adopted direction of development in the forthcoming period where the necessity of launching an undergraduate and graduate university study programme as an integrated model of the civil-military education to meet the Croatian Armed Forces requirements was determined. The study programme is in line with item 3.1 of the Guidelines and Criteria for Establishing New StudyProgrammes at existing institutions of higher education, strategic document of the network of higher education institutions, enacted in 2011 by the National Council for Higher Education.

3.9 Experiences to date in implementation of equivalent or similar programmes
So far the University of Split has not conducted such a programme but each of its Constituents has a long time experience in conducting the study programmes in their specific field. Moreover, the Croatian Defence Academy has been conducting programmes in military education for many years.

The University of Split, together with its Constituents and the Croatian Defence Academy, each in its area, meet all the requirements to establish and perform such a study programme.
4 DESCRIPTION OF THE STUDY PROGRAMME

4.1 General

| Scientific/artistic area of the study programme | Technical sciences, Traffic and transport technology, Maritime and river traffic and interdisciplinary scientific fields, Sciences and skills of military defence and security and intelligence |
| Duration of the study programme | 5 academic years |
| Minimum ECTS credits required for completing the study | 300 |
| Course enrolment requirements and entry competences required for the course | 1. Completed 4-year secondary education  
2. Passed the State Matura exam  
3. Meeting the requirements for entering the officer cadet service in line with provisions of the Act on Service in the Armed Forces of the Republic of Croatia  
4. Completed basic military training after the enrolment, and before the beginning of the first semester. |

4.2 Learning outcomes of the study programme

1. To know and to understand expert and scientific principles and procedures important for the process of ship exploitation: navigation, manoeuvring, maintenance, cargo handling maritime profession, as well as maritime skills indispensable to an officer and other specific procedures regulated by the STCW Convention.
2. To identify, formulate and solve complex navigation problems through selection of appropriate methods and procedures and to apply up-to-date knowledge and technologies used in maritime traffic and navigation practice.
3. Correct use and interpreting of all language structures and specialised terminology in maritime and military environment.
4. To develop intellectual capabilities of critical thinking and creativity in analysing, interpreting and evaluation of the information necessary in decision making process on board a ship, and on board a naval ship in particular.
5. To organise and maintain ship's safety (particularly of the naval ship), crew and carry out life saving measures, fire-fighting and water penetration preventive systems and to plan and manage emergency situations and in case of damage (Shipboard Damage Control).
6. To apply general characteristics of the ship measurement and to differentiate construction and technological characteristics of various types of ships (particularly of the naval ships). Application and possibility of using ship's blueprints and charts.
7. To plan and supervise the operation of electric and electronic devices for management and supervision, and to identify and remove causes of their irregular operation.
8. To differentiate general characteristics of the ship's stability in undamaged and damaged condition, to have knowledge of the static and dynamic ship's stability.
9. To differentiate technical characteristics of the propulsion systems, basic technical notions, performance of the propulsion systems and their features, basic constructions of the ship's propulsion machines and other elements of the propulsion system.
10. To apply principles of organizing operation and management on a ship, and particularly on a naval ship.
11. Systematic approach to organization and management on a ship, individually or in a team, or solving organizational problems in complex conditions, through systematic approach to organization and management on a ship and on a naval ship in particular.
12. To recognize a legal problem, to qualify it correctly and to organize further procedures in conformity with prescribed procedures.
13. To interpret and critically judge elements of maritime-legal regulations and to organize further proceedings in conformity with prescribed procedures.
14. To plan and apply workplace safety measures.
15. To be included in time in life-long education system depending on changing technical requirements of the working environment.
16. To plan measures of safety at sea, maritime security, protection of the rights and interests of the Republic of Croatia at sea and protection of the sea and marine environment through the use of the international and national legal regulations.

4.2.1 Learning outcomes – the course in NAVAL NAUTICAL STUDIES
1. To plan a vessel’s voyage through analysis and use of navigational charts and manuals, meteorological reports, navigation notifications and warnings and to apply methods of optimizing maritime voyages.
2. To plot the position and to safely lead a ship in all conditions using navigation instruments and aids, modern electronic navigation devices and systems and elements of the dead reckoning and tactical navigation.
3. To recognize and remove errors of the navigation instruments and devices, to analyse errors and reliability of the navigation and other ship's systems and to act correctly in case of their failure.
4. To undertake search and rescue action in a correct manner, independently or in coordination with others; to use rescue equipment correctly, to apply techniques of survival at sea, to administer first aid, medical care, etc.
5. To keep safe navigational watch, to use navigation, meteorological, communication and other equipment on the bridge; to define appropriate procedures and the surveillance system for their implementation.
6. To interpret weather forecasts, to use meteorological instruments on one's own and to assess hydro-meteorological conditions.
7. To assess perils in a timely manner, especially the elements of perils for security and security protection, to maintain them at appropriate level, to act correctly in crisis situations and to develop procedures for operation in crisis situations.
8. To steer and manoeuvre a ship in all conditions, to react appropriately in case of emergency during navigation and combat engagement of the ship and ship’s weapon
systems, to avoid collisions and other perils at sea, to use ship's communication systems and to gain knowledge of the communication protocols in regular and emergency circumstances.

9. To analyse and to assess important elements of the ship's stability, strain and stresses of the ship's construction; to organize procedures for maintenance of the ship and ship's systems.

10. To have knowledge of standard maritime skills, organization of work on a ship (particularly naval), ship terminology and practice, and to use maritime and naval English language terminology in all conditions.

11. To manage and to command a ship's crew and to evaluate correctly presumptions, data, arguments and various opinions and to make responsible decisions quickly in various situations.

12. To critically assess the use of ship's and outboard navigational aids.

13. To analyse and interpret the systems of directing navigation and the system of navigation oversight;

14. To manage risks in maritime affairs.

15. To operate and manage ship's weapon systems, to organize procedures of their maintenance.

16. To interpret and critically assess elements of the maritime-legal regulations related to protection of life at sea, protection of the rights and interests of the Republic of Croatia at sea, protection of the sea and sea environment and international maritime war and humanitarian law.

17. To use professionally ship's combat and non-combat systems on a naval ship.

18. To use knowledge from maritime and naval history in solving tactical and operational problems.

4.2.2 Learning outcomes - the course in NAVAL MARINE ENGINEERING

1. To supervise, maintain and efficiently manage a ship's propulsion system (ship's diesel engines, ship's steam and gas turbines and ship's steam boilers).

2. To plan and assign procedures for work, to supervise, to evaluate the level of success and to maintain safety of the propulsion machine and auxiliary machines.

3. To manage the operation of the ship's engine systems and the system of ballast waters and to discover and remove consequences of their malfunction.

4. To set up and maintain ship's safety, crew's safety and to implement measures for life-saving, fire-fighting and preventing of water penetration systems, and to plan and manage situations in emergency and in case of damage (Shipboard Damage Control).

5. To plan and organize operation of the electric-power devices and systems of automated management and control and to discover and remove consequences of their irregular operation.

6. To plan and organize operation of the electric and electronic devices for management and control, and to discover and remove causes of their irregular operation.

7. To plan and apply workplace safety measures.

8. To lead and manage ship's engine-room department crew.

9. To identify, analyse, model and solve naval marine engineering problems by connection of basic knowledge from the area of natural and technical sciences.

10. To use complex methods by connecting engineering knowledge and skills in military – engineering practice.
11. To integrate and to apply engineering principles and techniques in the process of military system operation in unforeseen conditions.
12. To handle and to manage maintenance of military combat and non-combat assets
13. To professionally use military combat and non-combat assets of the branch/service
14. To recommend processes of safe and efficient maintenance and repairing breakdowns of the ship's systems.
15. To interpret and critically assess elements of the maritime-legal regulations related to protection of life at sea, protection of the rights and interests of the Republic of Croatia at sea, protection of the sea and sea environment, and International Naval Warfare Law and Humanitarian Law.
16. Performing logistics and procurement tasks under the NATO procedures

### 4.3 The possibility of employment

In the Ministry of Defence and the Croatian Armed Forces, Ministry of the Interior, in the state administration system, state agencies and similar.

### 4.4 The possibility to continue studying at higher level

There is a possibility to continue studying at postgraduate specialized and postgraduate doctoral study programmes.

### 4.5 The study programme/and lower levels of proponents or other institutions in the Republic of Croatia from which it is possible to enrol in the proposed study

The integrated undergraduate and graduate university study programme in *Naval Studies* may be enrolled by a person who completed secondary school in duration of four (4) years, passed the State Matura exam and who meets the requirements for admittance in cadet service in conformity with provisions of the Act on Service in the Croatian Armed Forces (meeting health, psychological, physical and security requirements).

### 4.6 The conditions and manner of studying

The integrated undergraduate and graduate university study programme in *Naval Studies* is organized in duration of five academic years, through 10 semesters in which a student earns a total of 300 ECTS. There are two courses within this study; the course in Naval Nautical Studies and the course in Naval Marine Engineering. There are elective courses of the study programme attended by students who receive education for the needs of the Ministry of the Interior.

The conditions of enrolment in the following semester, or the next year are defined in conformity with the *Regulations on studies and study system at the University of Split* and the *Book of Rules on Studying at the Faculty of Maritime Studies in Split*.

This study programme will be conducted in the premises of the Croatian Defence Academy (CDA) in Split, located on the navy base “Admiral flote Sveto Letica – Barba” and in other teaching and training facilities of the Croatian Armed Forces (CAF), except for the contents that require specialized laboratories i.e. teaching equipment of particular faculties.
4.7 Guidance and Counselling System during the study

The Croatian Defence Academy teachers will monitor the students’ work through academic and military-training part. In order to meet the required criteria and to achieve great results, students will be steered in the desired direction through official conversations and teachers’ guidelines. The purpose of official conversations, guidance and counselling of students is to achieve an increased productivity, better time management and, eventually, better results. On the basis of academic results from training activities, each student will obtain an annual descriptive grade.

4.8 Criteria and conditions for transferring ECTS credits

Transferring of ECTS points may be carried out between different studies. Criteria and conditions for transferring ECTS points shall be prescribed by the Regulations on studies and study system at the University of Split and the Book of Rules on studying at the Faculty of Maritime Studies.

4.9 Completion of the study

<table>
<thead>
<tr>
<th>Method of completing the study</th>
<th>Final thesis</th>
<th>Final exam</th>
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</tr>
<tr>
<td>Graduation exam</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Conditions for registering for the final/graduation thesis and/or final/graduation exam: Students are entitled to register if they have passed all the courses envisaged by the study curriculum.

Procedure of evaluating the final/graduation exam and evaluating and defending the final/graduation exam: In line with the Ordinance on Final and Graduation Theses and the Graduation Thesis Defence Protocol.
### 4.10 List of mandatory and elective courses

#### 4.10.1 1st Year, I Semester

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**Semester: III.**

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**Semester: IV**

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**Semester:** VI.

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4.10.6  3rd Year, VI Semester
### 4.10.7 4th Year, VII Semester

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**Semester:** VII.

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| Mandatory Naval Marine Engineering | VPE111 | Marine Power Electronics       | 30        | 0     | 15   | 0     | 4       |
|                                   | VPS114 | Marine Engine Systems           | 60        | 0     | 30   | 0     | 6       |
|                                   | VPS115 | Marine Hydraulics and Pneumatics | 30       | 0     | 15   | 0     | 4       |
|                                   | VPE112 | Automation of Marine Engine Systems | 45   | 0     | 30   | 0     | 4       |
|                                   |         | **TOTAL**                       | 165       | 0     | 90   | 0     | 18      |
## LIST OF COURSES

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Semester: VIII.

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| Mandatory Naval Nautical Studies |        | On-board Training IV                                | 0 | 0 | 0 | 30 | 2   |
|        | VPO132 | Naval Combat Systems II                             | 45 | 0 | 15 | 0 | 4   |
|        | VPN129 | Tactical Navigation                                 | 30 | 0 | 30 | 0 | 5   |
|        | VPE115 | Automation in Maritime Traffic                      | 30 | 0 | 15 | 0 | 4   |
|        | VPN130 | Modern Transport Technology                         | 45 | 0 | 30 | 0 | 5   |
|        | VPO133 | * Misdemeanour Law                                  | 60 | 0 | 0 | 0 | 5   |
|        | VPO134 | * Police Powers and Their Application               | 45 | 0 | 15 | 0 | 4   |
| Note:  | * a mandatory course for NNS students instead of the courses “Naval Combat Systems II” and “Tactical Navigation” |        | 150 | 0 | 90 | 30 | 20  |

| Mandatory Marine Engineering |        | Simulator and On-board Training IV                  | 0 | 0 | 45 | 0 | 2   |
|        | VPS117 | Naval Combat Systems                                | 45 | 0 | 15 | 0 | 4   |
|        | VPS118 | Breakdown and Failure Diagnosis                     | 30 | 0 | 15 | 0 | 3   |
|        | VPS119 | Marine Refrigerating and Air-conditioning systems   | 30 | 0 | 15 | 0 | 4   |
|        | VPS120 | Naval Propulsion Systems                            | 60 | 0 | 30 | 0 | 7   |
| TOTAL  |        |                                                      | 165 | 0 | 120 | 0 | 20  |
### 4.10.9 5th Year, IX Semester

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</thead>
<tbody>
<tr>
<td>Mandatory (joint)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VPN133</td>
<td>Hydrographic Engineering</td>
<td>L: 45, S: 0, E: 15, F: 0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>VPO139</td>
<td>Professional Practice</td>
<td>L: 60, S: 0, E: 180, F: 0</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>VPO140</td>
<td>Master thesis</td>
<td>L: 0, S: 0, E: 120, F: 0</td>
<td>15</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>L: 105, S: 0, E: 315, F: 0</td>
<td>32</td>
</tr>
</tbody>
</table>
## 4.11 DESCRIPTION OF THE STUDY PROGRAMME COURSE

### 4.11.1 1st Year, I Semester

#### 4.11.1.1 Maritime English I

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARITIME ENGLISH I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO101</td>
</tr>
<tr>
<td>Year of study</td>
<td>1</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Adelija Čulić Viskota, Ph.D</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Silvana Kokan, M.Ed.</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 30 S 0 E 30 F 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

**Course objectives**

- Acquiring basic and specialized English language skills and competencies in order to educate students for obtaining certificates of competency and authorization for the highest ranking seafaring officers (according to STCW 1995 Convention requirements with its annexes and amendments) - English as the language of official maritime communication.
- Mastering presentation skills on maritime topics.
- Encouraging and developing students' cognitive abilities as well as developing basic language skills: listening, reading, writing and speaking.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

- Upon completion of the course, students will be able to communicate in English, as follows:
  - identify terminology related to structural members of a ship and ship's equipment;
  - present different merchant ship types and their purposes;
  - categorize terminology related to ship crews and the organisation of ship departments;
  - explain duties and responsibilities of ship crews;
  - identify main parts of ship's diesel engine and fuel system;
  - describe and compare main weather patterns;
  - identify causes and consequences of tides and currents;
  - distinguish terms for main parts of ports and port facilities;
  - distinguish terms for various types of cargo and cargo handling equipment.

**Course content broken down in detail by weekly class schedule (syllabus)**

- Lectures:
  1. Importance of Maritime English: STCW and SMCP;
  2. Shipbuilding (naval architecture);
  3. Types of vessels: Transportation
  4. Types of vessels: Assistance and service
  5. Manning;
  6. Engineering: Diesel Engines, Auxiliary Engines
8. Revision
9. Meteorology;
10. Currents & Winds;
11. Tides & Waves;
12. The Ports of Split and Rijeka;
13. Cargo Handling Equipment;
14. Loading, Discharging and Trim;
15. Revision;

Exercises:

1. Present Simple vs Present Continuous (active) / Describing a ship
2. Present Simple vs. Preset Continuous (passive) / Describing structural members of a ship
3. Past Simple vs Past continuous (active) / Presenting Transportation Vessels
4. Past Simple vs Past Continuous (passive) / Presenting Assistance and Service vessels
5. Present Perfect (active / passive) / Describing shipboard duties
6. Past Perfect (active / passive) / Describing parts of diesel and auxiliary engines
7. Expressing Future (active / passive) / Describing the fuel system, lubrication and cooling the engine
8. Midterm exam
9. Question Forms / Describing weather systems
10. Nouns: Countable and Uncountable / Classifying currents and winds
11. Adjectives: Comparison / Describing tides
12. Adverbs: Comparison / Presenting port facilities and equipment
13. Articles / Identifying cargo handling equipment
14. Modal verbs and expressions / Analysing a stowage plan
15. End of term exam

<table>
<thead>
<tr>
<th>Format of instruction</th>
<th>Lectures</th>
<th>Seminars and workshops</th>
<th>Exercises</th>
<th>Online in entirety</th>
<th>Field work</th>
<th>Independent assignments</th>
<th>Multimedia</th>
<th>Laboratory</th>
<th>Tutorials</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
<th>Full time students' responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students have an obligation to attend classes regularly and participate actively, bring class materials and prepare assignments on regular basis. The maximum of six hours of absence is allowed, including both, absence from the lectures or exercises. Class attendance is required in order to obtain the course teacher’s signature at the end of a semester. In case students are denied the course teacher’s signature, they are to re-enrol in the course in the following academic year.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>1.5</td>
<td>Report</td>
<td>Independent study</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar</td>
<td>and homework (other)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>paper</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Assessment and evaluation of full-time students' work

Final exam comprises two parts, a written and oral exam. The written exam may be successfully completed by taking a midterm and end of term exam. Tested content is based on class materials and it comprises professional terminology and grammar. Students have an option to complete the written exam before the beginning of the examination period. In this case, at the final exam, students shall take only the oral exam. If students fail the midterm/end of term exam but fulfil the minimum of class responsibilities, they are allowed to take the entire final exam in the allocated examination period. It is required to achieve at least 50% of the points at the midterm/end of term exams/written exam in order to access the oral exam. Students have to apply for the final exam in the examination period in order to gain access to the final exam and in order to have the grade entered into the system. Exam application and application withdrawal are done via Studomat, an online student portal.

### Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and activity level at exercises</td>
<td>max. 6 hours of absence during a semester</td>
<td>10</td>
</tr>
<tr>
<td>Midterm / End of term exams</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50 – in this case student doesn't take written exam</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical exam (written)</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Pre-activities (include all elements of continuous evaluation)</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Fails to meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with occasional mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF THE COURSE</td>
<td>MATHEMATICS I</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>VPO102</td>
<td></td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
<td></td>
</tr>
<tr>
<td>Course teacher</td>
<td>Nikola Koceić-Bilan, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Type of instruction (number of hours in a semester)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L S E F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 0 30 0</td>
<td></td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
<td></td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
Basic knowledge of the mathematics areas (basic algebra, mathematical analysis and corresponding mathematical methods) that are necessary for studying and student performance in other courses within the curriculum.

**Course enrolment requirements and entry competencies required for the course**

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**
1. Recognise basic concepts of set theory;
2. Solve tasks inside the sets of real and complex numbers;
3. Express and describe the elements of linear algebra;
4. Interpret solutions of a system of linear equations and matrix, together with vector algebra and analytic geometry;
5. Examine continuous functions and calculate their limes;
6. Analyse convergent sequences and series;
7. Apply differential calculus on examining the performance of real functions;
8. Describe the performance of real elementary functions.

**Course content broken down in detail by weekly class schedule (syllabus)**

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction.</td>
</tr>
<tr>
<td>3. Real and complex numbers.</td>
</tr>
<tr>
<td>4. Elements of linear algebra. (1/2)</td>
</tr>
<tr>
<td>5. Elements of linear algebra. (2/2)</td>
</tr>
<tr>
<td>7. Analytic geometry of space.</td>
</tr>
<tr>
<td>8. Elementary functions.</td>
</tr>
</tbody>
</table>
9. Continuous function and limits of functions.
10. Infinite sequences and real numbers series.
15. Reviewing and revision.

**Exercises:**
1. Revision of elementary mathematics.
3. Real and complex numbers.
4. Matrix and determinant.
5. Systems of linear equations.
7. Analytic geometry of space.
8. Elementary functions. *1st midterm exam*
10. Infinite sequences and real numbers series.
11. Elementary functions derivation techniques. Composition of functions derivation.
14. Examining the flux and drawing graph of functions.

### Format of instruction

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars and workshops</th>
<th>Exercises</th>
<th>On line in entirety</th>
<th>Partial e-learning</th>
<th>Field work</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑️</td>
<td></td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Individual assignments</th>
<th>Multimedia</th>
<th>Lab exercises</th>
<th>Mentoring</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑️</td>
<td>☑️</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Student responsibilities

**Full time students' responsibilities**
Attending lectures and auditory exercises for at least 80% of provided hours. Active participation in lectures and regular attendance at midterm/end of term exams (there are two midterm exams). Passing both midterm exams exempts the student from attending the final written exam. After passing the written part of the exam the student must attend the oral exam.
In case the student does not attend the lectures regularly he/she is obligated to enrol in the course again 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)*

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Experimental work</th>
<th>Essay</th>
<th>Midterm exams</th>
<th>Written exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,5</td>
<td>Report</td>
<td>Seminar paper</td>
<td>2,5</td>
<td>Project</td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
<td>(Other)</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

22
Assessment and evaluation of full-time students’ work
Each student must attend the written and oral exam. Written part of the exam consists of midterm/end of term exams (during the 8th and 15th week of the course) and of the final written exam (during the examination term). After passing the written part of the exam the student must attend the oral exam. In case a student is extremely active during the lectures and is content with his/her grade of the written exam, he/she can be exempt from attending the oral part of the exam. The student must have at least 50% of the maximum number of points to pass the midterm/end of term exam. The student must pass both exams to be spared of taking the final written exam. If the student passes only one of the two exams (midterm/end of term), he/she will be exempt from that part of the exam in the final written exam. The grade of the written part of the exam is based on the mean value of the midterm/end of term exam points or the final written exam points (if the student has not passed the midterm/end of term exams).

The students’ attendance and activity are monitored during the course and are added to the final grade of the course.

Continuous evaluation of students’ performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and activity during the course</td>
<td>80 The most active students gain 5-10 points, depending on the activity.</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>70 - in this case the student can attend the oral exam</td>
<td></td>
</tr>
</tbody>
</table>

The final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written exam</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Previous activities (include all indicators of the continuous evaluation)</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average achievement mistakes with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
<tr>
<td>Title</td>
<td>Number of copies in the library</td>
<td>Availability via other media</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td><a href="https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal">https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal</a></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td><a href="https://contabeisueg.files.wordpress.com/2016/08/cc3alculo-um-curso-moderno-e-suas-aplicac3a7a3c3b5es-10-edic3a7c3a3o-1-d-hoffmann-g-l-bradley.pdf">https://contabeisueg.files.wordpress.com/2016/08/cc3alculo-um-curso-moderno-e-suas-aplicac3a7a3c3b5es-10-edic3a7c3a3o-1-d-hoffmann-g-l-bradley.pdf</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abramson, J., Precalculus, openstaxTM, 2014</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td><a href="https://d3bxy9ew4e147.cloudfront.net/oscms-prodcms/media/documents/Precalculus-OP.pdf">https://d3bxy9ew4e147.cloudfront.net/oscms-prodcms/media/documents/Precalculus-OP.pdf</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://soaneemrana.org/onewebmedia/ADVANCED%20ENGINEERING%20MATHEMATICS%20BY%20ERWIN%20ERESZIG1.pdf">https://soaneemrana.org/onewebmedia/ADVANCED%20ENGINEERING%20MATHEMATICS%20BY%20ERWIN%20ERESZIG1.pdf</a></td>
</tr>
<tr>
<td><a href="http://sandbox.hlt.bme.hu/~gaebor/gyakanyag/Book/">http://sandbox.hlt.bme.hu/~gaebor/gyakanyag/Book/</a></td>
</tr>
</tbody>
</table>

Quality assurance methods that ensure the acquisition of exit competences

Survey carried out by University of Split, List of student attendance, Teaching process monitored by Faculty.

Other (as the proposer wishes to add)
### 4.11.1.3 Applied Computer Science

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>APPLIED COMPUTER SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO103</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Anita Gudelj, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate lecturers</td>
<td>Hrvoje Karna, Ph.D.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20%</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

Familiarisation with the structure and the operation principles of computers and acquiring knowledge from the areas of software and basic programming, which are necessary for understanding program packages needed in performing maritime processes. Acquiring knowledge and skills for text editing and spreadsheet design. Training students to solve problems by developing algorithms and implementing them by using a computer programming language.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Describe a computer from the point of view of its functional and physical model features.
2. Distinguish the features of the hardware components.
3. Explain the components and functions of computer networks.
4. Identify various network services.
5. Describe various types of computer software and explain the principles of operation system
6. Make use of general purpose application packages (MS Word and MS Excel) to address real-life problems
7. Develop an algorithm and design a program by using the constructs of selected program language.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**

1. Basic information science terminology. Introduction to marine computer application.
2. Mathematical-logic computer fundamentals.
4. Memory. Primary memories.
8. Cybercrime and security.
11. Algorithm design and programming logic.
14. Iteration statements or loops: WHILE loop. FOR loop.
15. 2nd Midterm exam.

**Exercises:**

1. Operating system. Text processor - MS Word.
2. MS Word: editing symbols and objects, tables, equations, drawing shapes…
3. MS Word: styles, format paragraph, format page, content design.
   MS Word – 1st Midterm exam.
5. Formulae. Basic functions: Math & Trig, Statistical, Logical
7. MS Excel – charts.
8. MS Excel – 2nd Midterm exam
10. Input and Output Functions. Assignment statements.
12. Control statements: IF-ELSE function
13. Control statement: FOR loop
14. Control statement: WHILE loop, DO WHILE loop

Format of instruction:
- lectures
- individual assignments
- seminars and workshops
- multimedia
- exercises
- lab exercises
- on line in entirety
- partial e-learning
- mentoring
- field work
- (other)

Student responsibilities

Full time students' responsibilities
The student is expected to attend lectures for at least 80% of provided hours and laboratory exercises for 100% of provided hours. Active participation in lectures, exercises and regular attendance in exams. If (only) one laboratory exercise is missed, the next lab. exercise will be substituted.

During the course there are 5 midterm exams, each one will last between 30 and 45 minutes; two midterm exams concerning the theory and three midterm exams relating to the matter worked in laboratory classes (computer exercises on the following topics: MSWord, MS Excel, develop solutions to tasks using a high-level programming language C++ ).

In case the student does not attend the lectures/exercises regularly or does not pass 1st or 2nd midterm exam from lab. exercises he/she is obligated to enrol in the course again next year.

Passing all midterm exams exempts the student from attending the final exam.

To pass this course, students must:
Obtain a minimum score 50% on each midterm exam.

Class attendance Research Practical training
Experimental work Report Self-study and homework assignments (Other) 0.5
Essay Seminar paper (Other)
Midterm/ Final exams Oral exam 0.5 (Other)
Written exam Project (Other)

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

Assessment and evaluation of full-time students' work
On-Line test (short answers to essay question in MELIN e-learning system) 10 points
Midterm exams – matter discussed in exercises: 45 points

PT1 Test about practice of themes 1-3 from exercises (WORD): 10 points
PT2  Test about practice of themes 4-7 from exercises (EXCEL): 15 points  
PT3  Test about practice of themes 8-14 from exercises (C++): 20 points

Midterm exams – matter discussed in lectures (45 points)  
  T1  Exam on themes 2-8: 22.5 points  
  T2  Exam on themes 9-14: 22.5 points

Total points: 100  
The formative assessments aim to prepare students for the summative assessments. The midterm exams T1 and T2 test Learning Outcomes 1-5. The midterm exams PT1, PT2 and PT3 test Learning Outcomes 6, 7.

**Continuous evaluation of students' performance:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>At least 80</td>
<td>10</td>
</tr>
<tr>
<td>Formative assessments and activities</td>
<td>On-Line tests</td>
<td></td>
</tr>
<tr>
<td>Midterm exams-exercises</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Midterm exams-lectures</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

If the student passes only one of two midterm exams relating to lectures, he/she will be exempt from that part in the final written exam.  
If the student does not pass the midterm PT3 he/she should be examined on a written exam as a part of the final exam.

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written exam about practice (Problem-solving and Programming)</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Exam about lectures (written or oral)</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Previous activities (include all indicators of continuous evaluation)</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49.9</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-61.9</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>62-74.9</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>75-87.9</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
</tbody>
</table>
## Required literature (available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merlin portal at <a href="https://moodle.srce.hr">https://moodle.srce.hr</a> &gt; Resources by Course</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

## Optional literature (at the time of submission of study programme proposal)

- [http://www.computerworld.com](http://www.computerworld.com)
- [http://www.computing.co.uk](http://www.computing.co.uk)
- T. Zhang. C in 24 hours. SAMS Publishing

## Quality assurance methods that ensure the acquisition of exit competencies

- Survey carried out by University of Split.
- List of student attendance.
- Teaching process monitoring by Faculty.
- Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001).

## Other (as the proposer wishes to add)

It is necessary to perform exercises in groups in a 1/1 way, i.e. one student at one computer.

---

### 4.11.1.4 Maritime Law

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARITIME LAW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO104</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Ranka Petrinović, Ph.D. Nikola Mandić, Ph.D.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Type of instruction (number of hours in a semester)</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE DESCRIPTION</th>
</tr>
</thead>
</table>

Course objectives

The main goal of the course is to familiarise students with: international and national regulations on the rights and obligations of the states in marine and submarine areas; procedures for carrying out maritime administrative formalities on arrival, stay and departure of the ship from the port; the state-legal position of the ship, meeting the (international) requirements on the safety of navigation, particularly on the protection of human life at sea and protection of the marine environment; rights and obligations of the master and other crew members, and all persons involved in the maritime industry; maritime property institutes and the overview of the Croatian and international maritime property law.
<table>
<thead>
<tr>
<th>Course enrolment requirements and entry competencies required for the course</th>
<th>/</th>
</tr>
</thead>
</table>
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | - Identify, distinguish and compare the sea zones in accordance with the International Law of the Sea.  
- Classify types of vessels.  
- Distinguish basic concepts of maritime administrative law.  
- Analyse the organization of the vessel traffic service and inspection.  
- Differentiate the rights and obligations in the Labour Law with relation to seafarers.  
- Identify and classify charter parties. Distinguish and compare maritime average.  
- Categorise the types of marine insurance.  
- Analyse the national and international regulations in the International Law of the Sea, Maritime administrative law and Maritime labour law, regulations governing charter parties, maritime average and maritime insurance. |
| Course content broken down in detail by weekly class schedule (syllabus) | Lectures: |
| | 1. Definition, meaning and sources of maritime law and law of the sea.  
3. Protection of marine environment; MARPOL Convention.  
5. Maritime administrative law – maritime domain, ports, inspection affairs.  
6. The convention of maritime administrative law.  
7. SOLAS Convention; ISM Code.  
8. Ship's documents and books.  
10. The legal concept of ship, the type of ships and ship individualization.  
13. General average; Salvage.  
14. The responsibility for the pollution of the marine environment; Collision of ships.  
15. Marine insurance. |
| Format of instruction | ☒ lectures  
☐ seminars and workshops  
☐ exercises  
☐ on line in entirety  
☐ partial e-learning  
☐ field work  
☐ individual assignments  
☐ multimedia  
☐ laboratory  
☐ mentoring  
☐ (other) |
| Student responsibilities | Full time students' responsibilities  
Students must attend lectures. Their presence shall be registered and kept in a record.  
In order to get the signature, students must attend at least 80% of the lectures  
In case of insufficient attendance, the students will not be granted a signature and  
shall be obliged to enrol in the course the following year.  
Students may take the oral part of the exam through continuous evaluations during  
the semester, by taking mid term tests.  
Students who do not pass the mid term test and have obtained the signature must take  
the written exam during the exam period.  
Students who have passed the exam via mid term tests must register for the exam  
via Studomat for the first exam period after the lectures and during that time must  
have their grade entered or be tested for a better grade. |
### 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credit</th>
<th>Report</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1.125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>1.5</td>
<td>Oral exam</td>
<td>0.3</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

### Assessment and evaluation of full-time students' work

Class attendance is compulsory for regular students and a precondition for obtaining a signature is attendance at 80% of the lectures.

Midterm tests are organized during the semester. The first mid-term test covers lectures 1 to 5 and is taken in week 6 of the lectures. The second mid-term test covers lectures from 6 to 10 is taken in week 11 of the lectures. The third mid-term test covers lectures from 11 to 15 is taken in week 15 of the lectures. The example questions are at the end of all lectures.

To pass the test, one must have at least 50% of the points. Students who for objective reasons do not take the midterm test or do not pass the minimum, have to repeat the exam.

The final mark is given based on presence at lectures and on the mid-term test. Students who do not take the mid-term test during the semester but have been granted a signature may take the written exam in the exam period. The same rules and criteria apply for the exam period evaluation as for continuous knowledge testing.

### Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures and active participation in exercises</td>
<td>95</td>
<td>10</td>
</tr>
<tr>
<td>Continuous evaluation (Midterm exams)</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test or mid term test (written)</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Previous activity (including all continuous test indicators)</td>
<td>95</td>
<td>10</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49,9</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 - 61,9</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>62 - 74,9</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>75 - 87,9</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>88 - 100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>
### Required literature (available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christopher Hill, Yash Kulkarni: <em>Maritime Law</em> (Lloyd's Practical Shipping Guides), Informa Law from Routledge; 6 edition, 2014</td>
<td>1</td>
<td>NO</td>
</tr>
<tr>
<td>Susan Hodges, Christopher Hill: <em>Principles of Maritime Law</em>, Informa Profesional, 2001</td>
<td>1</td>
<td>NO</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

- MLC Convention
- MARPOL Convention
- SOLAS Convention
- STCW Convention

### Quality assurance methods that ensure the acquisition of exit competences

Survey carried out by the University of Split, List of student attendance, Teaching process supervision by the Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001).

### Other (as the proposer wishes to add)

- 

---

### 4.11.1.5 Academic Writing

#### NAME OF THE COURSE

**ACADEMIC WRITING**

<table>
<thead>
<tr>
<th>Code</th>
<th>Year of study</th>
<th>Credits (ECTS)</th>
<th>Status of the course</th>
<th>Percentage of application of e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPO105</td>
<td>1st</td>
<td>3</td>
<td>Mandatory</td>
<td>20%</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

The aim of the course is through lectures and active participation through writing a seminar qualify students for independent research of scientific and professional literature and application of the methodology of preparation and development of professional, scientific and academic papers.

**Course enrolment requirements and entry competences required for the course**

/  

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Differentiating scientific and professional papers types.
2. Diversify different types of data sources.
3. Acquaintance with the methods of retrieving the data source.
4. Knowledge of scientific work organization.
5. To plan and design a scientific and professional work.
6. To plan and create different ways for presentation of their work (poster, presentation).

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**
1. Introduction to academic writing. Classification and differences between professional, scientific and academic papers. (2)
2. Preparation for writing academic papers (topics selection, research, reading and analysing literature, taking notes and making sketches of the work). (2)
3. Introduction to different types of data sources - library catalogues and databases. How to search different types of data sources. (2)
4. The organization and structure of paper (Introduction, Methods, Results and Discussion). (4)
5. Citation and quotations in scientific texts. (2)
6. Computer data processing – Word text formatting and design and application of Excel tables and charts (1)
7. Creation of oral presentations ie. a PowerPoint presentation. (1)
8. Creation of oral presentations ie. a poster presentation. (1)

**Seminars:**
Computer data processing – Word text formatting and design and application of Excel tables and charts, content, etc. (S-2).
Creation of oral presentations ie. exposure and visual aspects of assisted presentations in PowerPoint. (S-2)
Creation of an oral presentation ie. a poster presentation. (S-1)

**Exercises:**
1.-2. Preparation for writing - select a theme. Retrieving different types of data sources. (2),
3.-4. Study and review of the literature. Taking notes. Creating a draft work. (2)
6.-10. Practical work - application of methods and techniques in writing academic papers. (6)

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ lectures</td>
<td>☒ individual assignments</td>
</tr>
<tr>
<td>☒ seminars and workshops</td>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☒ exercises</td>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
<td>☐ (other)</td>
</tr>
<tr>
<td>☐ field work</td>
<td></td>
</tr>
</tbody>
</table>

**Student responsibilities**
Students must attend lectures. Their attendance shall be registered and kept in a record.
In order to get the signature, students must attend at least 80% of the lectures. In case of insufficient attendance, the students will not be granted a signature and shall be obliged to enrol in the course the following year.
Students are required to write a seminar paper according to given instructions and give oral presentation.
Students who have passed the exam during the semester must register for the exam via Studomat for the first exam period after the lectures and during that time must have their grade entered or be tested for a better grade.

<table>
<thead>
<tr>
<th>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)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>0.75</td>
</tr>
<tr>
<td>Experimental work</td>
<td>Research</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>Oral exam</td>
</tr>
<tr>
<td></td>
<td>e-learning</td>
</tr>
<tr>
<td></td>
<td>Independent study and homework (other)</td>
</tr>
</tbody>
</table>

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

### Assessment and evaluation of full-time students' work

Students are evaluated continuously during the semester. They are obligated, independently or in team, to perform some tasks in designated time.

Students must independently write seminar paper according to given rules and in given time. Seminar paper must be orally presented.

Students who have passed the exam during the semester must register for the exam via Studomat for the first exam period after the lectures and during that time must have their grade entered or be tested for a better grade.

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures and active participation in exercises</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Independent/team tasks</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Seminar paper</td>
<td>100</td>
<td>70</td>
</tr>
<tr>
<td>Overall</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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


### Optional literature (at the time of submission of study programme proposal)


### Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

### Other (as the proposer wishes to add)
### 4.11.1.6 Seamanship I

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SEAMANSHIP I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN101</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
</tbody>
</table>
| Course teacher     | Rosanda Mulić, Ph.D. 
                     | Danijel Pušić, M.Eng. |
| Credits (ECTS)     | 5            |
| Associate teachers | Vesna Majić, MD 
                     | Dijana Cvitanović, MD 
                     | Tomislav Sunko, M.Eng. 
                     | Jakša Mišković, M.Eng. |
| Type of instruction | L S E F |
| (number of hours in a semester) | 45 0 55 5 |
| Status of the course | Mandatory |
| Percentage of application of e-learning | 20% |

#### COURSE DESCRIPTION

**Course objectives**

Acquiring basic terms related to ships and ship construction with the emphasis on warships. Being familiar with types and characteristics of passenger, merchant and warships as well as with other types of ships. Acquiring skills necessary for working on a deck. Being familiar with the prevention of pollution requirements and with relevant international and national regulations – IMO, ILO, SOLAS, STCW, MARPOL… Recognizing potential dangers, assessing critical situations and learning how to take appropriate measures in order to protect human lives in maritime emergencies. Mastering the basic survival principles as well as first aid techniques.

**Course enrolment requirements and entry competencies required for the course**

/  

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

- Recognize different types of ships, explain basic terms in the field of ship construction and strength, with the emphasis on warships;  
- Correct handling of deck equipment, life-saving apparatus and fire-fighting equipment;  
- Obtain basic knowledge of relevant international and national regulations pertaining to human life and environmental protection, watchkeeping, Maritime Regulations and the Rules of Maritime Register of Shipping;  
- Assess current situation and make appropriate decisions in order to save human lives in distress situations. Analyze opportunities and thoroughly plan actions for saving lives;  
- Timely detect potential fire hazards, deploy fire-fighting teams and equipment and solve difficulties with minimum damage;  
- Adjust all onboard activities to the minimum crew and passenger capacities in order to provide their safety, and adjust the degree of responsibility to the real circumstances. Timely detect potential incidents, investigate the causes and choose the best way to eliminate them;  
- Assess the health condition of the injured or sick, administer first aid, prevent the occurrence of irreversible effects (impairment, disability, death);  
- Apply appropriate procedures in order to shorten treatment and recovery period;  
- Use basic onboard medical equipment.
Course content broken down in detail by weekly class schedule (syllabus)

**Lectures:**

1-2. **Types of ships.** - basic characteristics of different types of ships with the emphasis on warships.


3. **Deck equipment** - deck equipment handling and maintenance. Ship ropes and lines: classification, characteristics, maintenance; steel wire ropes - classification, characteristics, maintenance and handling;

3. **Ship ropes and lines:** knots and splices, characteristics and significance of the knots, knot tying, characteristics and use of splices, making splices

4. **Familiarization with the International Convention for the Prevention of Pollution from Ships – MARPOL 73/78.** Measures to prevent pollution of the marine environment and the pertaining equipment (SMPEP, SOPEP)

Introduction to the relevant national and international regulations.


5. **Personal survival and safety** – survival techniques and SOLAS Safety Training Manual. Potential threats, training and precautions. Fire and sinking, muster lists and emergency signs. Abandon ship procedures, personal readiness, crew liabilities in the organization of abandoning the vessel, obligations to passengers, panic prevention, rescue boats launching, embarkation and staying clear of the vessel in distress.


7. **Fire-fighting principles, theory and fire conditions, flammable materials, division, detection and prevention of fires.** Shipboard fire-fighting systems: water, foam, powder, carbon dioxide and halons.

8. **Fire-fighting equipment and tools:** hoses, nozzles, portable extinguishers, flame and fire alarms, fire-alarm ducts, fire station, general emergency alarm signal, fire-fighting plans, schedules, procedures, communication, fire patrols, drills, safety measures and fire extinguishing. Final analysis.

9. **Personal safety and social responsibility.** Safe operation of the vessel, adequate interpersonal relationships, understanding and obedience. Adherence to schedule and emergency procedures as well as precautions to prevent pollution /contamination of the sea and marine environment. Interpersonal relationships on board, rights, duties, obligations, employment, hygiene and health.

10. **Nuclear, chemical and biological (NCB) protection on warships (NCB systems and way of their functioning, filter ventilation system, encapsulation and achieving overpressure in ship’s compartments, decontamination of the ship, etc.).**

11-15. **First aid:** First-aid administration. Basic principles of first-aid administration. Assessment of vital functions – ABC rule. General procedures at the scene of the accident.

Administering first aid in case of poisoning. First aid for wounds, eye, head or backbone injuries, fractures, multiple trauma. Immobilisation. Disinfection of skin surrounding open wounds or burns.
First aid in case of body injuries caused by extreme heat (burns, heatstroke) or cold.

**Exercises:**
1. Basics of shipbuilding, different types of ships, ship construction materials, structural elements of a ship, cargo holds arrangement, navigation bridge, crew accommodation, engine room. Basics of ship construction: hull, freeboard, freeboard marking, displacement, draft measurements, other ship measurements, a visit to a ship in the port. Specifics of a warship construction.
2. Basics of ship construction: bow and stern, equipment, rudders and propellers, mooring equipment, cargo handling equipment, anchoring equipment, fire-fighting equipment, life-saving apparatus.
3-5. Ship lines: knots and splices, knot importance and characteristics, tying knots, characteristics and usage of splices, making splices.
11. Nuclear, chemical and biological (NCB) protection on warships (NCB systems and their functioning, filter ventilation system, encapsulation and achieving overpressure in ship’s compartments, decontamination of the ship, etc.).

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>☒ lectures</th>
<th>☐ individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ seminars and workshops</td>
<td>☒ multimedia</td>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☒ exercises</td>
<td>☐ mentoring</td>
<td>☐ (other)</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ partial e-learning</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Student responsibilities

Lectures and exercises are obligatory; there is a record of attendance. To obtain a signature, min 80% of attendance at lectures and exercises is required, for specific course training minimum is 100 (95)%. In case a student fails to acquire minimal hours of attendance, student will not get a signature and accordingly has no right to apply for the exam.

### 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)*

<table>
<thead>
<tr>
<th>Class attendance (lectures+exercise)</th>
<th>1</th>
<th>Research</th>
<th>Practical training</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>0,5</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>2,5</td>
<td>Oral exam</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

### Assessment and evaluation of full-time students' work

Lectures and exercises are obligatory; there is a record of attendance. To obtain a signature, min 80% of attendance at lectures and exercises is required, for specific course training minimum is 100 (95)%. In case a student fails to acquire minimal hours of attendance, student will not get a signature and accordingly has no right to apply for the exam.

No absentee notes can justify or replace attendance. In case of sickness or any other justified reason, students who have more than 80% of attendance, but do not have 100(95)% attendance of special course training, can get extra hours in other, additional terms during semester or later, but not later than one month after regular teaching part of semester.

All other students, i.e. students with less than 80% of attendance have no right to signature and must enrol in the course again next year.

### Continuous evaluation of students’ performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Level of success (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80/100</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50/75</td>
<td>70</td>
</tr>
<tr>
<td>E-learning</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading nad evaluation of student work during classes and final exam

1<sup>st</sup> Midterm exam/ 7th week

2<sup>nd</sup> Midterm exam / 14th week

Midterm exams dates are not in the lecture schedule, i.e. they are not planned as part of the class. Midterm exams are written only once. If a student passes both midterm exams, he is exempted from writing the written part of the exam. If a student passes one midterm exam and the other fails the written part of the exam, he is released from the part he passed through the midterm exam.
Midterm exams (parts of final exam) are available only during class attendance period, and final exam only during examination period at the end of semester. Requirement for the 2nd midterm exam is passing the 1st midterm exam. If a student passes the 1st midterm exam, and does not pass the 2nd midterm exam, and acquires the right to sign, it is valid only until the end of the academic year. It means that student will need to pass only the midterm exam that he didn’t pass, during final examinations.

The written exam from theory is valid until the end of the academic year, i.e., the end of the corresponding deadlines. Students who re-enrol in the course in the following year are not recognized for parts of the exam. Time of writing the total exam (written): up to 1 school hour. The time of writing a midterm exam from theory (only during classes) is: up to 1 school hour. Students who do not pass the course through the midterm exams take the final written exam. The requirement for other students to take final examination is signature.

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam or midterm exams</td>
<td>50/100</td>
<td>60</td>
</tr>
<tr>
<td>Previous activities (including any indication of continuous assessment)</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Percentage points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

### Required literature

(available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SNAME: Ship Design and Construction I &amp; II, 2003</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competencies</td>
<td>University survey, list of student attendance, Faculty teaching supervision</td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.11.1.7 Military Leadership

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY LEADERSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO141</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Dario Matika, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td></td>
<td>45 0 15 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for all students</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20%</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives: During this course students learn military values, principles and characteristics of commanders/leaders, and leadership theories in order to develop leadership capabilities and to define their own approach to leadership. Students acquire knowledge and skills required by officers to perform the role of commander and used directly and indirectly to influence subordinates through organization systems and procedures, organizational culture and ethical climate. Through integration of theoretical knowledge on military leadership with practical examples of leadership, students will understand the importance of leadership in the process of commanding for navy officers in the Croatian Armed Forces.

Course enrolment requirements and entry competencies required for the course:

1. Understand and explain organizational leadership,
2. Understand the specifics of leadership in commanding for navy officers,
3. Understand the approach to Mission Command,
4. Understand the military values and characteristics of navy officers,
5. Understand the military leadership principles and apply them in the command process,
6. Identify sources of power and apply the methods of influence and leadership styles,
7. Understand the importance of group and teamwork in a unit,
8. Understand and be able to apply the methods of conflict management,
9. Apply the situational leadership model to lead subordinates,
10. Understand the influence of organizational culture on command.
Course content broken down in detail by weekly class schedule (syllabus)

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Title</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to Military Leadership, 1</td>
<td>(course purpose, teaching subjects, learning outcomes, student obligations, assessment/grading)</td>
</tr>
<tr>
<td>2</td>
<td>Understanding Leadership, 3</td>
<td>definition of leadership, what do leaders do, characteristics of leadership (what is it, or isn’t, leadership), leadership mistakes, difficulties of leadership experience, comparison of leadership and management, leadership function</td>
</tr>
<tr>
<td>3</td>
<td>The Basics of Military Leadership, 3</td>
<td>definition and importance of military leadership, specifics of navy officer leadership, factors of military leadership (leader, subordinate, and situation)</td>
</tr>
<tr>
<td>4</td>
<td>The Chain of Command and Leadership, 3</td>
<td>command components, authority and responsibility, structure of a military organization, commander’s vision and its implementation, chain of command and the process of delegation, understanding the relation between command and leadership</td>
</tr>
<tr>
<td>5</td>
<td>Leadership and Mission Command Philosophy, 2</td>
<td>leadership as the key element of combat power, understanding the principle of Mission Command</td>
</tr>
</tbody>
</table>
| 6       | Military Values and Characteristics of Navy Officers, 3              | a. Values: commitment, determination, drive, respect for others, integrity, loyalty.  
            |                                                                      | b. Characteristics: ability to assess, clarity and vision, communicativeness, innovativeness, trust, selflessness, self-discipline, courage, responsibility, tact, common sense. |
| 7       | Leadership Principles in the Navy, 3                                 | leadership principles, the process of solving leadership problems, bad leadership (what is it, how it happens, why it happens), criteria for assessing good leaders |
| 8       | Power and Influence, 3                                              | definition; sources and types of power (positional and personal power); relation between power and leadership; methods of influence; use of leadership styles; emotional intelligence |
| 9       | Groups and Group Development, 3                                      | definition and classification of groups, reasons for the creation of groups, stages of group development, group’s structural dimension (roles, status, standard, structure and cohesion), understanding group structures |
| 10      | Team Leadership, 3                                                  | understanding and development of teamwork, team building, roles and activities of leaders, advantages and disadvantages of teamwork, team dysfunction |
| 11      | Situational Approaches to Leadership, 3                             | situational leadership, use of situational models, command vs. Leadership effectiveness, following superiors – “You have to learn how to follow before you can lead” |
| 12      | Leadership Communication, 2\3                                       | communication process, military communication channels, communication obstacles, steps of effective communication, written communication, military briefing, formal appointment with the commanding officer, time management |
| 13      | Motivating Subordinates, 2\3                                        | definition, theories of motivation (content and process theories), advising, mentoring, negotiating |
| 14      | Conflict Management, 2                                               | defining conflicts, the conflict process, (causes and consequences of organizational conflicts, types of conflicts and conflict management), functionality and dysfunctionality of conflicts |
| 15      | Organizational Culture and Command Climate, 2                       | the concept and definition of organizational culture, levels of organizational culture, symbols of organizational culture, organizational culture and leadership |
| 16      | Ethical Leadership, 2                                               | meaning, leader’s behaviour in different situations – what did he/she say or do, (honesty, showing... |
understanding for subordinates, respect), ethical questions and standards, creating ethical climate.

**Exercises:**
1. Analysis of the (ship) commander’s leadership experience
2. Analysis of the factors of military leadership (leader, subordinate, mission)
3. Identify the basic values and characteristics of the (ship’s) commander while conducting operations.
4. Identify leadership principles in different situations
5. Use the criteria for assessing good leaders in realistic situations
6. Identify types of power, methods of influence, and leadership styles of the (ship’s) commander
7. Identify stages of group development
8. Evaluate team efficiency
9. Evaluate the team’s functionality and dysfunctionality
10. Assess the level of subordinate readiness
11. Analysis of an example of situational leadership in realistic situations
12. Analyse the platoon commander’s briefing
13. Analyse the situation –motivating subordinates to carry out the mission
14. Analyse an example of a good and bad organizational culture in the unit
15. Analyse ethical examples of leadership in the Homeland War and international military operations.

**Format of instruction:**
- Lectures
- Seminars and workshops
- Exercises
- Online in entirety
- Partial e-learning
- Field work
- Individual assignments
- Multimedia
- Lab exercises
- Mentoring
- Other

**Student responsibilities**
Students are required to attend lectures and exercises. In order to obtain the course teacher’s signature, students must have 90% attendance at lectures and exercises. In case of insufficient attendance, students will lose their right to obtain the signature and possibility to take an exam.

The final grade in practical training includes the grade in seminar attendance, consulting the seminar reading materials and active participation in seminar discussions.

Students who pass the mid-term and end of term exams and have regular (90%) attendance in practical training are not required to take the oral exam.

The final passing grade will be given only if all elements of evaluation have been successfully achieved.

Absentee notes cannot justify absence from the class. Students who haven’t met the necessary requirements to obtain the signature due to illness or some other justified reason and lack up to 20% of regular attendance in lectures and exercises, may be provided with consultations and given additional assignments. All other students, i.e. those with less than 50% class attendance, lose the right to obtain the signature and are required to re-enrol in this course next year.

**Screening student work** (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1</th>
<th>Research</th>
<th>Practical training</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimen</td>
<td>tial work</td>
<td>Report</td>
<td>Independent study and homework (other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Grading and evaluating student work in class and at the final exam

<table>
<thead>
<tr>
<th>Assessment and evaluation of full-time students' work</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a midterm and end of term exam.</td>
</tr>
<tr>
<td>If students fail midterm/end of term exams, they are required to take an oral exam.</td>
</tr>
<tr>
<td>If they pass midterm/end of term exams, they get an average grade.</td>
</tr>
<tr>
<td>Students must have 90% attendance in lectures and exercises in order to obtain a signature.</td>
</tr>
</tbody>
</table>

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance and active participation in exercises</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>End of term</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Exercises and seminar discussions</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

If students pass midterm/end of term exams and have 90% attendance in practical training, they are not required to take the written exam.

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Fails to meet minimal criteria</td>
<td>Fail(1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average achievement with mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>NATO publications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• AJP-3.1,</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>• AJP-3(B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• AJP-01(D);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patrick Lencioni, Five Dysfunctions of a Team, 2012.</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Optional literature (at the time of submission of study programme proposal)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>

**Quality assurance methods that ensure the acquisition of exit competences**

Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire, teaching supervision.

**Other (as the proposer wishes to add)**


4.11.1.8 Military Training I

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY TRAINING I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO119</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Copies (ECTS)</td>
<td>2</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Hrvoje Šimleša</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>0 0 0 30</td>
<td></td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for all students</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
- To develop skills and train cadets in leading the team/squad during various tactical mission tasks in winter conditions.
- To teach cadets about leadership and command duties in different tactical missions and situations as a team/squad leader.
- To develop military virtues needed for naval officers, such as endurance, courage, resourcefulness and competence.

**Course enrolment requirements and entry competences required for the course**
- Cadets need to fulfil required standards for the PRT (Physical Readiness Test) and to finish prior theoretical part of the training.

**Learning outcomes expected at the level of the course (4 to 10 learning outcomes)**
1. Apply specific skills in communication, organization and of planning of activities for the team/squad leadership.
2. Making decision independently and lead team/squad.
3. Develop, guide and implement creativity in daily team/squad tasks.
4. Know concepts, elements, factors and methods of preparations and executing tactical movement and employing fires.
5. Know concepts and methods of supporting the team before, during and after combat functions.
6. Know concepts, functions and procedures of engineering support and explosive ordnance disposal for force protection.
7. Know basic parts of personal weapons, using „4 golden rules“and handling of personal weapons.
8. Know how to do the orientation using all available orienteering means.
9. Know how to apply specific knowledge and skills of communication and CBRN means.
10. Know how to apply specific knowledge and skills of first aid emergency procedures as well as tactical combat casualty care.

**Course content broken down in detail by weekly class schedule (syllabus)**

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Team/squad tactics, techniques and procedures.</td>
</tr>
<tr>
<td>2. Infantry weapons handling techniques and firing practice.</td>
</tr>
<tr>
<td>4. Communication devices, equipment and procedures.</td>
</tr>
<tr>
<td>5. CBRN.</td>
</tr>
<tr>
<td>6. First aid emergency treatment and tactical combat casualty care.</td>
</tr>
</tbody>
</table>

**Format of instruction**
- ☐ lectures
- ☐ seminars and workshops
- ☒ exercises
- ☐ on line in entirety
- ☒ independent assignments
- ☐ multimedia
- ☐ laboratory
- ☐ work with mentor
Student responsibilities

Attendance: 100%

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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Experimental work

<table>
<thead>
<tr>
<th>Essay</th>
<th>Seminar</th>
<th>Skills demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1.25</td>
</tr>
</tbody>
</table>

Tests

<table>
<thead>
<tr>
<th>Tests</th>
<th>Oral exam</th>
<th>(Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Written exam

<table>
<thead>
<tr>
<th>Written exam</th>
<th>Project</th>
<th>(Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students' work

There will only be a practical test of knowledge and skills:
Cadet will assume the role of team/squad leader; cadet will demonstrate knowledge on personal and infantry weapons handling, first aid emergency treatment and tactical combat casualty care. The use of protective gas masks, orienteering on map as well as in real environment, use of communication devices.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement(mi %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>Demonstration of knowledge and skills during classes, keeping logs</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM 3-90 – Tactics</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>FM 3-21.8 – The Infantry Rifle Platoon and Squad</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>STANAG 2014</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Mladen Pahernik, Stanislav Frangeš, Robert Zupan, Military Topography I – Topographic Land Objects and Military Topography II – Orientation and Topographic Maps</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>APP-6 – Military Symbols for Land Based Systems (1986)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>APP-6(A) – Military Symbols for Land Based Systems (1998)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>APP-6(B) – Joint Symbology (2008)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>APP-6(C) – NATO Joint Military Symbology (2011)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>MIL-STD-2525 manuals from Defense Information Systems Agency (DISA)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>FM 101-5-1/MCRP 5-2A OPERATIONAL TERMS AND GRAPHICS (1997)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Reeves, Ira L., The A B C of Rifle „Revolver and Pistol Shooting“: Kansas City, MO, USA.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>„NRA Gun Safety Rules“: The National Rifle Association of America. 2018.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Optional literature (at the time of submission of study programme proposal)</td>
<td>FM 3-06 – Urban Operations</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td></td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competences</td>
<td>Evidence of students’ attendance, evidence of professors’ attendance, students’ questionnaire, Faculty class inspection.</td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.11.1.9 Physical Education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO106</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>0</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td></td>
<td>0 0 30 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one’s health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

Use part of the basic kinesiological motor knowledge about a certain kinesiological activity that is important for successful studying.
Develop the abilities, characteristics and positive attitudes defined within the educational area of physical education which contribute to successful studying, and afterwards, to better and more efficient performance of military service.
Recognize the need and importance of regular exercise in order to preserve one's health and improve the quality of life.
Use methodological procedures while carrying out kinesiological activities.
Perform basic kinesiological programs on one’s own. Reconsider acquired eating and regular exercise habits. Conduct the testing of anthropological characteristics.

### Exercise:
1. Regular testing of physical abilities
2. The development of functional abilities
3. The development of motor abilities
4. Fitness programs
5. The basics of martial arts

### Format of instruction:
- Lectures
- Seminars
- Exercises
- On-line in entirety
- Field work
- Individual assignments
- Multimedia
- Lab exercises
- Mentoring

### Student responsibilities
Students are required to participate in exercises. Records of student attendance are also kept.

### 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

**Assessment and evaluation of full-time students’ work**
During the academic year, students are required to take two regular physical fitness tests to meet the established norms.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)

### Quality assurance methods that ensure acquisition of learning outcomes
University survey and teaching supervision.

### Other (as the proposer wishes to add)
4.11.2 1st Year, II Semester

4.11.2.1 Maritime English II

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARITIME ENGLISH II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO101</td>
</tr>
<tr>
<td>Year of study</td>
<td>1</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Adelija Ćulić Viskota, Ph.D</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Silvana Kokan, M.Ed.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L  S  E  F</td>
</tr>
<tr>
<td></td>
<td>30  0  30  0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**

Acquiring basic and specialized English language skills and competencies in order to educate students for obtaining certificates of competency for the highest ranking seafaring officers (according to STCW 1995 Convention requirements with its annexes and amendments) - English as the language of official maritime communication.

Mastering presentation skills on maritime topics.

Encouraging and developing students' cognitive abilities as well as developing basic language skills: listening, reading, writing and speaking.

**Course enrolment requirements and entry competencies required for the course**

Successful completion of Maritime English I

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

Upon completion of the course, students will be able to communicate in English, as follows:

- distinguish terms related to anchoring, mooring, berthing and leaving berth;
- identify parts of ship's navigating bridge, describe the way they operate and their integration into navigation systems;
- comment the most important inventions in the history of navigation, relate them to navigating techniques and the usage of seacharts;
- present buoyage systems;
- describe and classify the master and crews' duties when meeting heavy weather;
- describe ship's safety systems and comment COLREGS;
- distinguish types of maritime communication and VHF messages in urgent circumstances;
- discuss the causes and consequences of maritime pollution;
- identify basic types of maritime documents.

**Course content broken down in detail by weekly class schedule (syllabus)**

1. Introduction to Navigation
2. Anchoring/Anchors, Berthing
3. Leaving Berth, Underway
4. The Navigating Bridge
5. Electronic Aids to Navigation
6. Marine Radar
7. Sea Charts
8. Revision  
9. Buoyage Systems  
10. Meeting Heavy Weather  
11. Safety at Sea  
12. Maritime Communication  
13. Maritime Environmental Protection  
14. Documents  
15. Revision

**Exercises:**
1. Tenses: Revision / Describing types of navigation  
2. Narrative Tenses / Describing anchors, berthing  
3. Conditional Sentences: Types 0 & 1 / Presenting the procedures while leaving berth and while underway  
4. Conditional Sentences: Type 2 / Identifying parts of the ship's navigating bridge  
5. Conditional Sentences: Type 3 / Identifying electronic aids to navigation  
6. Modals: Present Deductions / Presenting marine radars  
7. Modals: Past Deductions / Describing types of sea charts  
8. Midterm exam  
9. Gerunds & Infinitives / Defining buoyage systems  
10. Expressions of Quantity / Defining ship's motions and stresses in heavy weather  
11. Reported Speech: Statements / Presenting safety equipment  
12. Reported Speech: Commands / Transmitting distress, urgency and safety messages  
13. Reported Speech: Questions / Discussing causes of maritime pollution and possible solutions  
14. Defining / Non-defining Relative clauses / Filling in a form  
15. End of course exam

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>☑ lectures ☐ seminars and workshops ☑ independent assignments</th>
<th>☑ independent assignments ☐ multimedia ☐ laboratory ☐ tutorials</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ exercises ☐ on line in entirety ☐ field work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student responsibilities**

Full time students' responsibilities

Students are required to attend classes regularly and participate actively, bring class materials and prepare assignments on regular basis. A maximum of six hours of absence is allowed, including both, absence from the lectures or exercises. Class attendance is required in order to obtain the course teacher’s signature at the end of a semester. In case students are denied the right for signature, they are to re-enrol in the course the following academic year.

| Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits) |
|---------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|
| Class attendance 1.5  | Research  | Practical training |
| Experimental work Report | Independent study and homework (other) |

50
<table>
<thead>
<tr>
<th>Grading and evaluating student work in class and at the final exam</th>
<th>Essay</th>
<th>Seminar paper</th>
<th>(Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm/ End of term exams</td>
<td>1.5</td>
<td>Oral exam</td>
<td>1</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td></td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students’ work

Final exam comprises two parts, a written and oral exam. The written exam may be successfully completed by taking a midterm and end of term exam. Tested content is based on class materials and it comprises professional terminology and grammar. Students have an option to complete the written exam before the beginning of the examination period. In this case, at the final exam, students shall take only the oral exam. If students fail the midterm/end of term exam but fulfil the minimum of class responsibilities, they are allowed to take the entire final exam in the allocated examination period. It is required to achieve at minimum 50% of the points at the midterm/end of term exams/written exam in order to access the oral exam. Students have to apply for the final exam in the examination period in order to gain access to the exam and in order to have the grade entered into the system. Exam application and application withdrawal are done through Studomat, an online student portal.

Continuous evaluation of students’ performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and activity level at exercises</td>
<td>max. 6 hours of absence during a semester</td>
<td>10</td>
</tr>
<tr>
<td>Midterm / End of term exams</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50 – in this case student doesn’t take written exam</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical exam (written)</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Pre-activities (include all elements of continuous evaluation)</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Fails to meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with occasional mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
<tr>
<td>Required literature (available in the library and via other media)</td>
<td>Title</td>
<td>Number of copies in the library</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional literature (at the time of submission of study programme proposal)</th>
<th>Title</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Quality assurance methods that ensure the acquisition of exit competencies</th>
<th>Students' questionnaire, attendance list, supervision of teaching</th>
</tr>
</thead>
</table>

| Other (as the proposer wishes to add) |  |
### COURSE DESCRIPTION

#### Course objectives

Acquire basic knowledge of the mathematics areas (algebra basics, mathematical analysis and corresponding mathematical methods) that are necessary for studying and student performance in other courses within the curriculum.

#### Course enrolment requirements and entry competencies required for the course

Successful completion of Mathematics I

#### Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Express primitive elementary function and calculate the indefinite integrals;
2. Interpret basic integration methods and apply Newton - Leibnitz formula in solving defined integrals;
3. Recognise and solve improper integrals;
4. Apply defined integrals in calculating areas, arc length, volume and area of revolution areas;
5. Analyse and solve problems of functions featuring a set of variables;
6. Interpret, solve and explain essential differential equations of the first and second order.

#### Course content broken down in detail by weekly class schedule (syllabus)

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction. Definition and basic features of the indefinite integral. Standard integrals.</td>
</tr>
<tr>
<td>2. Integration by substitution. Integration using partial fractions.</td>
</tr>
<tr>
<td>3. Integration of rational functions. Integration of some irrational functions.</td>
</tr>
<tr>
<td>4. Integration of trigonometric functions. Definite integrals and their properties.</td>
</tr>
<tr>
<td>7. Calculating surface area and volume of solids of revolution.</td>
</tr>
<tr>
<td>12. Homogeneous, linear, Bernoulli’s and exact differential equations.</td>
</tr>
<tr>
<td>13. Second order differential equations: Second order differential equations that are reduced to first order differential equations.</td>
</tr>
<tr>
<td>14. Linear second order differential equations with constant coefficients. Homogenous and non homogenous linear differential equations of the 2nd order.</td>
</tr>
</tbody>
</table>
15. Reviewing and revision.

**Exercises:**
1. Indefinite integrals: Standard integrations.
2. Integration by substitution. Integration using partial fractions.
3. Integration of rational and some irrational functions.
4. Integration of trigonometric functions. Defined integrals and their properties.
5. Connection between defined and non-defined integral. Improper integrals.
7. Calculating surface area and volume of solids of revolution.
8. Functions of several variables: Natural domain and geometrical presentation.
   *1st midterm exam.*
13. Second order differential equations that are reduced to first order differential equations.
14. Linear second order differential equations with constant coefficients. Homogenous and non-homogenous linear differential equations of the 2nd order with constant coefficients.
15. *2nd midterm exam*

<table>
<thead>
<tr>
<th><strong>Format of instruction:</strong></th>
<th>☒ lectures</th>
<th>☐ seminars and workshops</th>
<th>☐ individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☒ exercises</td>
<td>☐ on line in entirety</td>
<td>☒ multimedia</td>
</tr>
<tr>
<td></td>
<td>☐ partial e-learning</td>
<td>☐ lab exercises</td>
<td>☐ mentoring</td>
</tr>
<tr>
<td></td>
<td>☐ field work</td>
<td>☐ (other)</td>
<td></td>
</tr>
</tbody>
</table>

| **Student responsibilities** | Attending lectures and auditory exercises for at least 80% of provided hours. Active participation in lectures and regular attendance of midterm (midterm) exams (there are two midterm exams). Passing both midterm exams spares the student from attending the final written exam. After passing the written part of the exam the student must attend the oral exam. In case the student does not attend the lectures regularly he or she is obligated to enrol again next year. |

<table>
<thead>
<tr>
<th><strong>Screening student work</strong> (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)</th>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>1,5</td>
<td>Report</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>2,5</td>
<td>Oral exam</td>
<td>1 (Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Assessment and evaluation of full-time students' work</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Each student must attend the written and oral exam.</td>
</tr>
<tr>
<td>Written part of the exam consists of two exams (Midterm exam during the 8th, and End of term exam during the 15th week of the course) and of the final written exam (during the examination term). After passing the written part of the exam the student must attend the oral exam. In case the student has been extremely active during the lectures and is content with his or her grade of the written exam, he or she can be spared from attending the oral part of the exam. The student must achieve at least</td>
</tr>
</tbody>
</table>
50% of the maximum number of points to pass the midterm/end of term exam. The student must pass both midterm and end of term exam to be spared of attending the final written exam. If the student passes only one, he or she will be spared of that part of the curriculum in the final written exam. The grade of the written part of the exam is based on the mean value of the midterm/end of term exam points or the final written exam points (if the student did not pass the midterm exams).

The students' attendance and activity are monitored during the course and are added to the final grade of the course.

**Continuous evaluation of students' performance:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures and active participation in exercises</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>The most active students gain 5-10 points, depending of the activity.</td>
<td></td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>70 - in this case the student can attend the oral exam</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written exam</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Previous activities (include all indicators of the continuous evaluation)</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

1. [https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal](https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <a href="https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal">https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal</a></td>
<td></td>
<td>yes</td>
</tr>
</tbody>
</table>
   yes

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


7. Ivan Sikirica

Quality assurance methods that ensure the acquisition of exit competencies
Survey carried out by University of Split, List of student's attendance, Teaching process monitored by Faculty.

Other (as the proposer wishes to add)

### 4.11.2.3 Safety at Sea

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SAFETY AT SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN102</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Ivica Pavić, Ph.D.</td>
</tr>
</tbody>
</table>
| Associate teachers | Jakša Mišković, M.Eng.  
|                    | Tino Sumić, M.Eng.    
|                    | Tomislav Sunko, M.Eng. |
| Credits (ECTS)     | 5            |
| Type of instruction (number of hours in a semester) | L S E F |
|                    | 45 0 3 12    |
| Status of the course | Mandatory      |
| Percentage of application of e-learning | 20% |

#### COURSE DESCRIPTION

**Course objectives**
Acquire knowledge to manage search and rescue operations, communications in distress, survival at sea, firefighting management, handling of a lifeboat and rescue boat, basic level of security awareness and basic principles of ship handling in crisis situations.

**Course enrolment requirements and entry competencies required for the course**
Successful completion of Seamanship I.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**
Understand the legal regulations of the international system of maritime safety. Put acquired knowledge into practice. Be able to design, plan and organize necessary measures for the safety of navigation. Analyze and categorize actions in difficult situations. Recognize and evaluate levels of danger. Analyze the
concepts of search and rescue. Pay special attention to the means of search and rescue at sea, as well as to the methods and means of survival. Pay adequate attention to radio communication equipment and procedures. Know how to use and manage firefighting systems on board, and all activities related to ship safety issues.

**Lectures:**

6. Abandoning of ship II. Abandoning ship and saving lives.
9. Advanced firefighting on board III. Extinguishing fire arrangements, resources and procedures. Fire extinguishers and systems. Organization and training of fire teams.
10. Advanced firefighting on board IV. Firefighting hazards.
13. Diving - diving safety measures

**Exercises:**

1. Survival craft or rescue boat handling during and after launching I. The use of stowage, launching and recovery systems.
2. Survival craft or rescue boat handling during and after launching II. The use of stowage, launching and recovery systems.
3. Survival craft or rescue boat handling during and after launching III. Maintenance procedures and inspection.
4. Survival craft or rescue boat handling during and after launching III. Maintenance procedures and inspection.
5. Organization and training of firefighting teams I. Fire plans.
6. Organization and training of firefighting teams II. Firefighting training and exercises for crewmembers.
7. Organization and training of firefighting teams III. Training and exercises for crewmembers.
8. Organization and training of firefighting teams IV. Planning and conducting firefighting exercises.
9. Supervision and dangers of firefighting procedures on board.
10. Supervision of firefighting procedures on board I. Firefighting procedures on board during navigation.
11. Supervision of fire procedures on board II. Firefighting procedures on board during in port operations.
12. Supervision of fire procedures on board III. Firefighting procedures on board for ships carrying dangerous goods. Inspection and servicing of systems and equipment for fire detection and extinguishing I. Personal protecting equipment.
13. Inspection and servicing of fire detection and extinguishing systems and equipment II. Rescue and salvage equipment.
14. Inspection and servicing of systems and equipment for fire detection and extinguishing III. Rescue and salvage equipment.
15. Inspection and servicing of systems and equipment for fire detection and extinguishing IV.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>lectures</th>
<th>seminars and workshops</th>
<th>exercises</th>
<th>on line in entirety</th>
<th>field work</th>
<th>individual assignments</th>
<th>multimedia</th>
<th>lab exercises</th>
<th>mentoring</th>
<th>(other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student responsibilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lectures and exercises are obligatory; there is a record of attendance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>To obtain a specific certification min 95% of attendance at lectures and 1000% of attendance at exercises is required.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>To obtain a signature min 85% of attendance at lectures and 100% of attendance at exercises is required. In case a student fails to acquire minimal hours of attendance, student will not get a signature and accordingly has no right to apply for the exam. All other students, i.e. students with less than 80% of attendance have no right to signature and must enrol in the course again next year.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No absentee notes can justify or replace attendance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>In case of sickness or any other justified reason, students who have more than 80% of attendance, but do not have 100 (95)% attendance of special course training, can get extra hours in other, additional terms during semester or later, but not later than one month after regular teaching part of semester.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance 1.5</td>
<td>Experimental work</td>
<td>Report</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Midterm/End of term exams 2</td>
<td>Oral exam</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

| Grading and evaluating student work in class and at the final exam | Two mid term tests are organized during the semester. The first mid term test covers lectures 1 to 7 and is taken in week 8 of the lectures. The second mid term test covers lectures from 8 to 15 and is taken in week 15 of the lectures. To pass the test, one must have at least 50% of the points. In order to take the second mid term test a student should not have to pass the first one. If a student does not pass one mid term test and realizes the right to sign, he/she can take the written exam only the part that he/she did not pass. Taking the exam in this way is valid until the end of the exam deadlines in the current academic year. Students who do not pass the mid term test but fulfil all obligation, can take the written exam during the exam. |

58
Students who have passed the exam via mid term tests must register for the exam via Studomat for the first exam period after the lectures and during that time must have their grade entered or be tested for a better grade.

Continuous evaluation of students’ performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture /practical work attendance</td>
<td>80/95/100</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam 1</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Midterm exam 2</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Practical work</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100 (students exempt from taking oral examination)</td>
<td></td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>
Optional literature (at the time of submission of study programme proposal)

4. Pike, D., Launch and Recovery of Boats from Ships, The Nautical Institute, London, 2018

Quality assurance methods that ensure the acquisition of exit competences

University survey, List of student attendance, Faculty teaching supervision

Other (as the proposer wishes to add)

4.11.2.4 Sea and Marine Environment Protection

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SEA AND MARINE ENVIRONMENT PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN103</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Merica Slišković, Ph.D.</td>
</tr>
<tr>
<td>ECTS</td>
<td>2</td>
</tr>
<tr>
<td>Associate teachers</td>
<td></td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10%</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives
Pollution of the marine environment from vessels. Defining potential sources of pollution. Pollution prevention and taking appropriate measures if pollution is detected. Adoption of the provisions of the MARPOL Convention 73/78 and legal regulations.

Course enrolment requirements and entry competencies required for the course

Learning outcomes expected at the level of the course (4-10 learning outcomes)
Identify the types and characteristics of pollutants, and assess effects of pollution to the marine environment and human life. Categorize the Most Common Sources of pollution from ships and describe prevention measures to prevent pollution of the marine environment.
Interpret the basic content of the International Convention on Marine Pollution 73/78 and its annexes (MARPOL Annexes I - VI), and the most important international regulations on the prevention of pollution from ships (applies to machinery spaces, cargo, ballast tanks). Connect actions against pollution with the necessary equipment. Discuss the purpose of regional cooperation in preventing pollution, preparedness and appropriate response to an incident of pollution - Subregional Plan. Interpret Intervention Plan (SOPEP) and give a brief description of the main elements that will be included in SOPEP (Article 26 of Annex I of MARPOL).

### Course content broken down in detail by weekly class schedule (syllabus)

1. Introduction to the subject. Pollution / contamination of the sea.
2. Pollution / contamination of the sea as a result of human activities
4. Prevention of Pollution from Ships - MARPOL Convention 73/78
5. Annex I - Prevention of oil pollution from ships
7. SOPEP – Ship Oil Pollution Emergency Plan: Compulsory and optional requirements.
8. Appendix II - Prevention of Pollution by Noxious Liquid Substances
9. Annex III - Prevention of pollution by harmful substances, which are transported by sea in packaged form
10. Annex IV - Prevention of pollution by sawage.
11. Annex V - Prevention of pollution by garbage from ships

### Format of instruction:

- ☒ lectures
- ☐ seminars and workshops
- ☐ exercises
- ☐ on line in entirety
- ☒ partial e-learning
- ☐ field work
- ☐ individual assignments
- ☒ multimedia
- ☐ lab exercises
- ☐ mentoring
- ☐ (other)

### Student responsibilities

Students must attend lectures. Their presence shall be registered and kept in a record.

In order to get the signature, students must attend at least 80% of the lectures. In case of insufficient attendance, the students will not be granted a signature and shall be obliged to enrol in the course the following year.

Students may take the oral part of the exam through continuous evaluations during the semester, by taking two mid term tests.

Students who do not pass the mid term test and have obtained the signature must take the written exam during the exam period.

Using e-learning material, students may study the given topics individually or as a team.

Students who have passed the exam via mid term tests must register for the exam via Studomat for the first exam period after the lectures and during that time must have their grade entered or be tested for a better grade.

### Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>0.7</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
</tr>
<tr>
<td>e-learning</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
</tr>
<tr>
<td>Seminar paper</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Midterm exam</td>
<td>1.3</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>
Class attendance is compulsory for regular students and a precondition for obtaining a signature is attendance at 80% of the lectures.

Mid term tests are organized during the semester. The first mid term test covers lectures 1 to 6 and is taken in week 7 of the lectures. The second mid term test covers lectures from 7 to 14 are organized at the end of the class.

The example questions are at the end of all lectures.

To pass the test, one must have at least 50% of the points. Students who for objective reasons do not take the mid term test or do not pass the minimum, have to repeat the exam.

In order to take the second mid term test a student should pass the first one.

The final mark is given based on presence at lectures and on the mid term test. Students who do not take the mid term test during the semester but have been granted a signature may take the written exam in the exam period. The same rules and criteria apply for the exam period evaluation as for continuous knowledge testing.

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures and active participation in exercises</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam I</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Final examination

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test or mid term test (written)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Theory test (written test)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Previous activity (including all continuous test indicators)</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
</tbody>
</table>
Required literature (available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARPOL Convention, 1973/78.</td>
<td>5</td>
<td>YES</td>
</tr>
<tr>
<td>SOLAS Convention, 1974 (Chapter VII)</td>
<td>3</td>
<td>YES</td>
</tr>
<tr>
<td>Sliskovic, M.: lecturers notes (+on line CBT)</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

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


Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

Other (as the proposer wishes to add)

4.11.2.5 Seamanship II

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SEAMANSHIP II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPN104</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>1st</td>
</tr>
<tr>
<td><strong>Lecturer</strong></td>
<td>Danijel Pušić, M.Eng.</td>
</tr>
<tr>
<td><strong>Course status</strong></td>
<td>Mandatory</td>
</tr>
<tr>
<td><strong>ECTS</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Teaching methods (number of teaching hours per semester)</strong></td>
<td>45 L 0 45 Ex 0</td>
</tr>
<tr>
<td><strong>Percentage of application of e-learning</strong></td>
<td>20%</td>
</tr>
</tbody>
</table>

**Course objectives**

Acquiring basic terms related to ship construction, ship stability, cargo loading and stowing, supervision of cargo loading, stowing, securing and discharging, cargo watch during the voyage. Being familiar with the ship maintenance procedures, emergency procedures and with mooring, unmooring and anchoring techniques. Contribution to the maritime safety through awareness of potential threats. Understanding the work organization on the Croatian warships. Acquiring skills.
necessary for handling small boats, sailing boats and fast rescue boats, their maintenance and operating procedures in emergencies.

<table>
<thead>
<tr>
<th>Enrolment requirements and entry competences required for the course</th>
<th>Successful completion of Seamanship I</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Explain the basic terms related to ship construction and stability. Describe ship's behaviour in waves.</td>
<td></td>
</tr>
<tr>
<td>- Become familiar with different types of cargoes transported by sea, cargo stowing and securing techniques.</td>
<td></td>
</tr>
<tr>
<td>- Describe and explain the procedures of search and rescue at sea, use emergency signals at sea.</td>
<td></td>
</tr>
<tr>
<td>- Independently operate small boats, motorboats, sail and oar boats.</td>
<td></td>
</tr>
<tr>
<td>- Apply International Regulations for Preventing Collisions at Sea.</td>
<td></td>
</tr>
<tr>
<td>- Apply safety measures and procedures on board and in ports.</td>
<td></td>
</tr>
<tr>
<td>- Understand the specifics of the Croatian Navy ship organization.</td>
<td></td>
</tr>
<tr>
<td>- Confirm the procedures in case of accidents at sea involving small vessels.</td>
<td></td>
</tr>
<tr>
<td>- Operate a fast rescue boat in search and rescue procedures and generally in need of rapid transportation of people and goods.</td>
<td></td>
</tr>
<tr>
<td>- Demonstrate survival and rescuing people from the sea techniques, administer first aid.</td>
<td></td>
</tr>
<tr>
<td>- Describe and explain the ship and ship’s equipment maintenance techniques.</td>
<td></td>
</tr>
</tbody>
</table>

Course-level expected learning outcomes (4 to 10 learning outcomes)

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2. Maintaining the ship in a seaworthy condition - ship's stability, displacement, buoyancy, FWA, static stability, initial stability, angle of heel, static stability curve, shift of centre of gravity, free surfaces, trim, etc. Stability of a ship in damaged and undamaged condition.</td>
</tr>
<tr>
<td>3. Become familiar with different types of cargo transported by sea; the cargo stowing and securing techniques. Supervision of loading, stowing, securing and discharging of cargoes, cargo watch during voyage. Different types of cargo – liquid gases, chemicals, containerized cargoes, bulk, and grains as dry bulk cargo, dangerous goods, heavy cargo, and deck cargo. Bill of Lading and stowage plan.</td>
</tr>
<tr>
<td>4. Ship manoeuvring: introduction, the concept of the division, influence of geometric and structural characteristics on ship’s manoeuvrability, turning point of a ship, interaction with other ships, squat effect, shallow water impact, interaction with the coast, analysis of coastal impact on the ship manoeuvring.</td>
</tr>
<tr>
<td>5. Ship manoeuvring: types of propulsion and manoeuvring devices, impact analysis, and screw. Screw operation and its impact on the ship manoeuvring characteristics, rudder and rudder operation, thruster operation and its impact on the ship, ship manoeuvring equipment, and impact on manoeuvrability features of the ship, ship manoeuvring characteristics.</td>
</tr>
<tr>
<td>6. Basic techniques of manoeuvring the ship: mooring, unmooring, anchoring. Manoeuvring in emergency. IMOSAR.</td>
</tr>
<tr>
<td>7. Diving</td>
</tr>
<tr>
<td>8. Boat manoeuvring: Rowing and sailing techniques.</td>
</tr>
</tbody>
</table>
Coordinated search and rescue. Pulling people out of the sea and first aid administering. The techniques of survival at sea.

10. Collision Rules

11. Basic sea wave theory, ship behaviour and manoeuvrability

11-12. Work organization, chain of command, rights and duties on the Croatian Navy warships.

12-13. Management in emergencies: measures providing the protection and safety of passengers in emergency situations, action plan in emergencies, measures and procedures after going aground, procedures after collision, fire or explosion. Abandon ship procedures, equipment and steering procedures in emergencies, towing and towing equipment, rescuing people and ship in distress, procedures for helping a ship in distress.


Safety protection of ports. Safety protection of ships. Officer responsible for ship safety protection.

Work organization, chain of command, rights and duties on the Croatian Navy warships.

14-15. Maintenance of the ship: ship maintenance approach, principles and procedures for ship maintenance, general maintenance of shipboard systems, maintenance of the ship's hull and equipment, maintenance of holds, decks and shell plating.

15. Maintenance of the ship: preparing surfaces for coating, coating characteristics, coating application, cargo handling equipment maintenance. Undertaking regular security inspections of the ship.

Exercises:


4. Steering and ship manoeuvring while underway.

5. Basic techniques of ship manoeuvring: mooring, unmooring, anchoring.

6. Special cases of manoeuvring: in traffic separation zones and VTS system areas, docking manoeuvres, entering and leaving the locks, passage under bridges, in bad weather, ice navigation.

7. Manoeuvring in emergencies: “Man Overboard” manoeuvre, rescue manoeuvres, imminent collision, inevitable grounding, intentional grounding, re-floating, and fire on board, emergency steering, emergency towing, and manoeuvring analysis. Search and rescue, usage of IMOSAR.

8. Boat manoeuvring, rowing and sailing; mooring and unmooring with or without machinery, hoisting and launching.

9. Boat manoeuvring, rowing and sailing, sea voyage, towing, pulling people out of the sea and giving first aid. Survival at sea techniques

10. Diving

13. Fast motor boats manoeuvring in all conditions.
14-15. Handling fast boats in search and rescue operations, mooring to other vessels, coordinated search and rescue, pulling out people from the sea, maintenance of a boat and its equipment.
15. Identification of weapons, dangerous substances and devices, awareness of the damage they might cause. Basic knowledge of communication and data procedures related to security. Basic knowledge of training requirements, drills and exercises based on relevant conventions, regulations and IMO newsletter, including those relevant to piracy and robbery prevention.

**Teaching methods**
- ☒ lectures
- ☐ seminars and workshops
- ☐ exercises
- ☐ on line in entirety
- ☐ partial e-learning
- ☒ field work
- ☐ individual assignments
- ☐ multimedia
- ☐ lab exercises
- ☐ mentoring
- ☐ (other)

**Student obligations**

**Monitoring student performance (write 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)**

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

| Written exam | Project | (Other) |

**Assessment and evaluation of full-time students’ work**

Lectures and exercises are obligatory; there is a record of attendance. To obtain a signature min 80% of attendance at lectures and exercises is required, for specific course training minimum is 100 (95) %. In case a student fails to acquire minimal hours of attendance, student will not get a signature and accordingly has no right to apply for the exam.

No absentee notes can justify or replace attendance. In case of sickness or any other justified reason, students who have more than 80% of attendance, but do not have 100(95)% attendance of special course training, can get extra hours in other, additional terms during semester or later, but not later than one month after regular teaching part of semester.

All other students, i.e. students with less than 80% of attendance have no right to signature and must enrol in the course again next year.
Continuous evaluation of students’ performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Level of success (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance (lectures+exercise)</td>
<td>80/100</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50/75</td>
<td>70</td>
</tr>
<tr>
<td>E-learning</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading nad evaluation of student work during classes and final exam

1st Midterm exam/ 7th week

2nd Midterm exam /14th week

Midterm exams dates are not in the lecture schedule, ie they are not planned as part of the class. Midterm exams are written only once. If a student passes both midterm exams he is exempted from writing the written part of the exam. If a student passes one midterm exam and the other fails the written part of the exam, he is released from the part he passed through the midterm exam.

Midterm exams (parts of final exam) are available only during class attendance period, and final exam only during examination period at the end of semester. Requirement for the 2nd midterm exam is passing the 1st midterm exam. If a student passes the 1st midterm exam, and does not pass the 2nd midterm exam, and acquires the right to sign, it is valid only until the end of the academic year. It means that student will need to pass only the midterm exam that he didn’t pass, during final examinations.

The written exam from theory is valid until the end of the academic year, ie the end of the corresponding deadlines. Students who re-enrol in the course in the following year are not recognized for parts of the exam. Time of writing the total exam (written): up to 1 school hour. The time of writing a midterm exam form theory (only during classes) is: up to 1 school hour. Students who do not pass the course through the midterm exams take the final written exam. The requirement for other students to take final examination is signature.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam or midterm exams</td>
<td>50/100</td>
<td>60</td>
</tr>
<tr>
<td>Previous activities (including any indication of continuous assessment)</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>
Grading scale:

<table>
<thead>
<tr>
<th>Percentage points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

Required textbooks and reading material (available in the library and via other media):

<table>
<thead>
<tr>
<th>Title</th>
<th>Copies available in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

Optional textbooks and reading material (at the time of submission of study programme proposal):

Quality assurance methods that ensure the acquisition of exit competences:

Other (as the proposer wishes to add):
# Marine Electrical Engineering and Electronics I

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARINE ELECTRICAL ENGINEERING AND ELECTRONICS I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPE101</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Danko Kezić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Kuzmanić, M.Sc.</td>
</tr>
<tr>
<td></td>
<td>Dean Sumić, M.Eng.</td>
</tr>
<tr>
<td></td>
<td>Ante Gelo, M. Eng.</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10</td>
</tr>
</tbody>
</table>

## COURSE DESCRIPTION

### Course objectives
Mastering of basic laws of direct electric current circles, electrostatics, and magnetism, applicable to other study courses and practical work aboard. Physical properties of all materials used in electrical engineering devices and systems, as well as their components, are studied. Particular attention will be paid to the application of acquired knowledge and competences in the work of shipboard electric devices and systems.

### Course enrolment requirements and entry competencies required for the course

### Learning outcomes expected at the level of the course (4-10 learning outcomes)
Upon successful completion of this course the student will be able to:
- Define and use all the laws of direct, electrostatic, and magnetic current circuits.
- Analyse and calculate complex electric, electrostatic, and magnetic circuits.
- Plan and perform measurements in electric current circuits.
- Master all essential / relevant safety measures in working with electric current.
- Examine influence of marine environment to electrical, construction and other materials used in electrical/electronic products.

### Course content broken down in detail by weekly class schedule (syllabus)

#### Lectures:


14. Magnetic field forces. Magnetic field energy. Eddy currents. Classification of materials according to magnetic properties.


**Exercises:**
1. Safety measures in laboratory. Influences of electric current to human body.
2. Batteries.
4. Recognition of various ship's cables.
5. Measurement of current and voltage by digital and analogue instruments.
8. Wheatson's bridge. Resistance measurement and colour code.
11. Calculus of directs application of Kirchhoff' laws in circuit analysis.
12. Circuit analysis by superposition principle.
13. Calculation of networks by network theorems (Thevenine, Norton and Millman).
15. Serial, parallel, and hybrid capacitor circuits at DC.

**Format of instruction:**
- x lectures
- ☐ seminars and workshops
- x exercises
- ☐ on line in entirety
- ☐ partial e-learning
- ☐ field work
- ☐ individual assignments
- x multimedia
- x lab exercises
- ☐ mentoring
- ☐ (other)

**Student responsibilities**
Students have to attend 80% of lectures and 100% of laboratory exercises in order to obtain the course teacher’s signature. Students must make up for missing exercises if they do not fulfil the requirements in regular lecture calendar. If not, they have to enrol again in the course the next academic year. Students, who obtain
Students need to obtain sufficient points to pass. They have to attend 80% of lectures and 100% of lab exercises. There are three midterm exams (tests). The first one tests the material from 1st to 4th week and it is written in the 6th week. The second midterm exam covers materials from 5th to 9th week and it is written during the 9th week. The third midterm exam covers material from the rest of the semester and it is written in the last week of the semester.

Examples of exams and exam questions are available at the Faculty WEB. Minimal requirement for every midterm exam is 40% of maximum points. Students can retake the midterm exam if they could not attend the first time due to objective reasons or if they have not passed one of the midterm exams. Students who do not pass midterm exams, are obligated to take the final exam in the examination term.

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures and active participation in exercises</td>
<td>80 (100)</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam I</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical test (written)</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Theory test (written test)</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Previous activity (including all continuous test indicators)</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>
## Grading scale

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-39</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>40-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lessons in Electric Circuits, allaboutcircuits.com/textbook vol.1: DC</td>
<td></td>
<td>Web site</td>
</tr>
<tr>
<td>K.P. Mohandas, Basis of Electrical Engineering, ECRference Books</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

## Optional literature (at the time of submission of study programme proposal)


## Quality assurance methods that ensure the acquisition of exit competences

University questionnaire, student evidence list, Faculty teaching supervision.

## Other (as the proposer wishes to add)

...
### 4.11.2.7 Military Management

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO143</td>
</tr>
<tr>
<td>Year of study</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Dario Matika, Ph.D</td>
</tr>
<tr>
<td></td>
<td>Luka Mihanović, Ph.D</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Mirko Šundov, Ph.D</td>
</tr>
<tr>
<td></td>
<td>Marijan Kostanjevac, M.Sc.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for all students</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20%</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

| Course objective | This course is oriented towards management activities that organization leaders need in order to efficiently manage resources of the organization. Students will learn how management functions, planning skills and achievement of goals, time and stress management, group decision making, problem solving and leadership challenges are applied in commanding process. Illustration and analyses of the theoretical concepts, through the analyses of the relevant situations within environment of the manager/commander from civilian and military field (case study method), provides opportunity for students to develop their own skills for an effective commanding a unit at the tactical level. |
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | 1. To understand hierarchy of the chain of command in organization and interrelation of the authority, responsibility and accountability towards superiors.  
2. To understand importance of the organizational structure and creating organizational units.  
3. To understand approach to the “Mission Command” philosophy  
4. To understand the functions of management and their importance in the commanding process.  
5. To be familiar with the techniques and skills necessary in planning and decision making.  
6. To be able to establish meaningful objectives and priorities, to manage time, resources and personnel.  
7. To be able to create working groups based on task requirements, capability of the group and available means.  
8. To analyze the role of cohesion, communication and motivation in a group and team.  
9. To understand the relation between setting objectives and feedback information and to adequately establish the system of control.  
10. To understand the interdependence of commanding, leadership and management for the purpose of effective management of the military organization. |


Course content broken down in detail by weekly class schedule (syllabus)

Lectures:

1. **Introduction into the course, 1** - course objectives, topics, learning outcomes, student obligations, assessment and grading.

2. **To understand management in a military organization, 2** - relation of the function of the management, leadership and execution in a civilian and military organization; legal bases for commanding (the Constitution, Defense Act, Service Act) the basis of leadership and commanding in Croatian Armed Forces, (ZDP-1 Doctrine).

3. **The purpose of organizing and creating organizations, 4** - purpose and importance of the organizations; classical and modern principles of organizing; organization as a system; evolution of the organization's development (civilian and military) from industrial to information era; components of the structure and forms of the organizational structures; change of the organizational pattern; interest groups of the society and their expectations.

4. **Managing/leading an organization, 2** - who are managers?, what do they do? and where do they work?; functions of management in organization; application of the principles of efficiency, levels, roles and required skills for managers;

5. **Principles of military establishment of the organization, 3** - principles of establishment (unity of command – clear chain of command, the range of control, integrity of units, delegating and decision making, separating command function from staff functions); classical organizational structure of the military organization; command post(the role of commander and staff), organizing units for conduct of the mission, the continuity of command and control.

6. **Commanding military organization, 3** - authority and responsibilities, approach of the philosophy of commanding: “Mission Command” (Auftragstaktiks), art of commanding and control requirements, the system of command and control.

7. **Commander’s knowledge and skills for management, 3** - relation between manager/commander in an organization (civilian/military); levels, roles and necessary skills of the manager/commander; use of the principles of effectiveness and efficiency in a military organization.

8. **Military view on management in the past and nowadays, 3** - overview of the basetheoretical approaches –management focus; comprehensiveness of the management.

9. **Application of the managerial techniques in planning, 3** - what is planning? Establishing objectives and developing plans, planning process, planning tools and techniques.

10. **Employment of managerial techniques in military decision making, 3** - identify a problem, choosing a solution and assessing effectiveness, styles of decision making, steps in military decision making, ethics of making decisions in a military context.

11. **Managing organizational changes, 3** - causes of changes on organization (structure, technologies and personnel), commander/manager and managing changes, self-management, stress and innovations, time management.

12. **Understanding the function of leadership and management in military organization, 4** -
   
   a. understanding individual (behavior and personality) and group behavior,
   
   b. team work (team building, types of teams, characteristics of successful teams), managing teams.

13. **Understanding communication process in a military organization, 2** - understanding communication, communication process, obstacles in communication, organizational communication, communication and information technology, development of communication skills.

14. **Dependence of effective management on leadership and trust, 2** - interrelation of the type of power and employing methods of influence of the ship's commander, theories of leadership, models of leadership in commanding, new approaches in leadership development.

15. **Control/supervision – the function of managing a military organization, 2** - what is control? Importance of control for commander, how to carry out the controlling process? (objectives and standards, effectiveness of the existing measures, comparison
of results with objectives/standards, correction of activities for achieving standards),
tools and techniques of control.

16. **Commanding, management and leadership in leading military organization, 2** -
the interdependence of leadership, management and commanding, the role of
commander as a leader and manager, importance of developing commander's
managerial and leadership skills.

**Exercises:**

1. Comparison of the function of management, leadership and execution in civilian and
military organization.
2. Case study, - "Creating added value for the organization"
3. Advantages and disadvantages of various forms of organizational structures
4. Relations between authority, responsibility and accountability towards superior
   officer (Commander of the ship).
5. Examples of creating task forces (TF - equivalent of the company).
6. Study case of the “Mission Commanding” philosophy.
7. After Action Report according to principles of efficiency and effectiveness.
8. Study case of managing training by objectives
9. Example of solving military problem in seven steps.
10. Case study of team work and group work.
11. Case study, analyses of poor communication example.
12. Case study “I do not have enough time”, planning one's own schedule (weekly,
    monthly).
13. Standards, SOPs (ship).
14. Case study, activities of the managers i.e. leaders (in small company /platoon).
15. Guest lecturer “Managing own career”.

**Format of instruction:**

- ☒ lectures
- ☐ seminars
- ☐ workshops
- ☐ exercises
- ☐ on-line in entirety
- ☒ partial e-learning
- ☒ field work

- ☒ individual assignments
- ☐ multimedia
- ☐ lab exercises
- ☐ mentoring
- ☐ other

**Student responsibilities**

Students are required to attend lectures and exercises. In order to obtain a signature,
students must have 90% attendance in lectures and exercises. In case of lower attendance
in classes, students will lose their right to obtain a signature and possibility to take an
exam.

The final grade in practical training includes the grade in seminar attendance, consulting
the seminar reading materials and active participation in seminar discussions.

Students who pass the two mid-term exams and have regular (90%) attendance in practical
training are not required to take the oral exam.

The final passing grade will be given only if all elements of evaluation have been
successfully achieved.

Absentee notes cannot justify absence from the class. Students who haven't met the
necessary requirements to obtain a signature due to illness or some other justified reason
and lack up to 20% of regular attendance in lectures and exercises, may be provided
consultations and given additional assignments. All other students, i.e. those with less than
50% class attendance, lose the right to obtain a signature and are required to enroll this
course next year.

**Screening student work**

*name the proportion of ECTS credits for each activity so that the total*

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td>1</td>
</tr>
<tr>
<td>Experimental work</td>
<td>Report</td>
</tr>
<tr>
<td>Self-study and homework</td>
<td></td>
</tr>
</tbody>
</table>
### number of ECTS credits is equal to the ECTS value of the course

<table>
<thead>
<tr>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Seminar paper</td>
</tr>
<tr>
<td>Mid-terms</td>
</tr>
<tr>
<td>Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
<tr>
<td>Project</td>
</tr>
</tbody>
</table>

### Assessment and evaluation of full-time students' work

There are two exams – a Midterm and End of term exam. If students fail midterm/end of term exams, they are required to take an oral exam. If they pass midterm/end of term exams, they get an average grade. Students must have 90% attendance in lectures and exercises in order to obtain a signature.

### Continuous evaluation of the students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance and active participation in exercises</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>End of term</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Exercises and seminar discussions</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
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<td>100</td>
</tr>
</tbody>
</table>

### Final exam:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average achievement with a few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

### Required literature

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>NATO publications:</td>
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</table>
### 4.11.2.8 On-board Training I

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ON-BOARD TRAINING I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN105</td>
</tr>
<tr>
<td>Year of the study programme</td>
<td>1st year</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Jakša Mišković, M.Eng.  Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>2</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of e-learning application</td>
<td></td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

**Course objectives**
The main objective of this course is to acquire practical knowledge and skills of ship handling in all conditions and gain experience of living and working on board a ship.

**Course enrolment requirements and entry competences required for the course**
Successful completion of Seamanship I and II, Safety at sea, Maritime English I and II

**Learning outcomes expected at the level**
1. Acquiring skills for working on deck, familiarization with procedures of maintaining a ship, activities in case of emergency, measures of protecting the sea and the marine environment.
of the course (4 to 10 learning outcomes)

<table>
<thead>
<tr>
<th>Exercises:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Procedures of organizing the ship's crew at sea and in port according to SOLAS manual.</td>
</tr>
<tr>
<td>2. Using and maintaining navigational and communication instruments and devices.</td>
</tr>
<tr>
<td>3. Preparing, starting and maintaining the ship's propulsion system</td>
</tr>
<tr>
<td>4. Berthing and unberthing a ship, anchoring a ship, handling marine ropes and steel cables</td>
</tr>
<tr>
<td>5. Regular and emergency steering gear</td>
</tr>
<tr>
<td>6. Applying International Regulations for Preventing Collisions at Sea</td>
</tr>
<tr>
<td>7. Maintaining bridge communication procedures, both in Croatian and English.</td>
</tr>
<tr>
<td>8. Calculating ship cargo plan, lashing and securing cargo.</td>
</tr>
<tr>
<td>9. Handling deck equipment and other means for loading / discharging cargo operations.</td>
</tr>
<tr>
<td>10. Maintenance of a ship and ship equipment.</td>
</tr>
</tbody>
</table>

Course content broken down in detail by weekly class schedule (syllabus)

<table>
<thead>
<tr>
<th>Format of instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ lectures</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
</tr>
<tr>
<td>☐ exercises</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
</tr>
<tr>
<td>☑ field work</td>
</tr>
<tr>
<td>☐ independent assignments</td>
</tr>
<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ laboratory</td>
</tr>
<tr>
<td>☐ work with mentor</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

Student obligations

<table>
<thead>
<tr>
<th>Student obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory 100% attendance, log keeping. Students who do not achieve 100% attendance, i.e. miss boarding the school ship are required to re-enroll in the course next year. The schedule and program of the Navigation Practice are realized during boarding on a school or some other appropriate ship, within a 24-hour stay on the ship for a minimum of 5 days.</td>
</tr>
</tbody>
</table>

Screening student work (enter 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 | 0.7 |
| --- |
| Research | Practical training |
| Experimental work | Report |
| Essay | Seminar essay |
| Tests | Oral exam |
| Written exam | Project |

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

The exam is not taken. In order to obtain a signature, it is necessary to complete 100% of the planned voyage on the school ship, actively participate in the exercises, fill in the appropriate log and complete other set tasks. Students who have completed maritime high school and have more than 6 months of navigation as deck trainees (or officers) in the last five years will be recognized as navigational practices. Evidence is obtained by inspecting the seaman's book, and by reviewing the authorization of the officer of the navigational watch or by reviewing the log kept by the cadet.
Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Demonstration of skills and knowledge</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMO: Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>MARISEC: Bridge Procedures Guide, 1998</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>IMO/ILO Reference Manual</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

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


Quality assurance methods that ensure the acquisition of exit competences

Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire

Other (as the proposer wishes to add)

4.11.2.9 Physical Education

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO109</td>
</tr>
<tr>
<td>Year of study</td>
<td>1st</td>
</tr>
<tr>
<td>Course teacher</td>
<td>DomagojBagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>0</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>0 0 30 0</td>
<td></td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

79
## COURSE DESCRIPTION

### Course objectives

The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one's health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.

### Course enrolment requirements and entry competencies required for the course

Use part of the basic kinesiological motor knowledge about a certain kinesiological activity that is important for successful studying. Develop the abilities, characteristics and positive attitudes defined within the educational area of physical education which contribute to successful studying, and afterwards, to better and more efficient performance of military service. Recognize the need and importance of regular exercise in order to preserve one's health and improve the quality of life. Use methodological procedures while carrying out kinesiological activities. Perform basic kinesiological programs on one's own. Reconsider acquired eating and regular exercise habits. Conduct the testing of anthropological characteristics.

### Course content broken down in detail by weekly class schedule (syllabus)

#### Exercises:

1. Regular testing of physical abilities
2. The development of functional abilities
3. The development of motor abilities
4. Fitness programs
5. The basics of martial arts

### Format of instruction:

- Lectures
- Seminars
- Exercises
- On-line in entirety
- Field work
- Individual assignments
- Multimedia
- Lab exercises
- Mentoring

### Student responsibilities

**Student obligations**

Students are required to participate in exercises. Records of student attendance are also kept.

### 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Self-study and homework assignments (Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

### Grading and evaluating student

**Assessment and evaluation of full-time students' work**
During the academic year, students are required to take two regular physical fitness tests to meet the established norms.

<table>
<thead>
<tr>
<th>Individual practical tasks (performing sets of exercises)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In total</td>
<td>100</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tudor O. Bompa, Ph.D.: Periodizacija teorija i metodologija treninga, Zagreb, 2006.</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

- University survey and teaching supervision.

### Quality assurance methods that ensure acquisition of learning outcomes

### Other (as the proposer wishes to add)

---

### 4.11.3 2nd Year, III Semester

**4.11.3.1 Naval English I**

<table>
<thead>
<tr>
<th><strong>NAME OF THE COURSE</strong></th>
<th><strong>NAVAL ENGLISH I</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>PFP171</td>
</tr>
<tr>
<td>Year of study</td>
<td>2</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Adelija Čulić-Viskota, Ph.D., Silvana Kokan, M.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Davor Vodopija, M.Ed.</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L S E F</td>
</tr>
<tr>
<td>(number of hours in a semester)</td>
<td>30 0 15 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**

- Acquiring basic and specialized English language skills and competencies in order to work efficiently in a specific environment of a navy as well as meeting the requirements necessary to work within the NATO system.
- Mastering presentation skills on navy topics.
- Encouraging and developing students' cognitive abilities as well as developing basic language skills: listening, reading, writing and speaking.
- Developing research skills and abilities of gathering, organizing and evaluating the information.

**Course enrolment requirements and entry**

Successful completion of Maritime English II
<table>
<thead>
<tr>
<th>Learning outcomes expected at the level of the course (4-10 learning outcomes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon completion of the course, students will be able to communicate in English, as follows:</td>
</tr>
<tr>
<td>- distinguish terminology related to military hierarchy, organisation and command structure;</td>
</tr>
<tr>
<td>- categorize terminology related to uniform types and insignia;</td>
</tr>
<tr>
<td>- explain officers’ and NCO's duties;</td>
</tr>
<tr>
<td>- distinguish basic administrative procedures and forms;</td>
</tr>
<tr>
<td>- describe conditions of combat readiness;</td>
</tr>
<tr>
<td>- present types and characteristics of warships;</td>
</tr>
<tr>
<td>- present types and characteristics of amphibious ships and patrol boats.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rank and Rate</td>
</tr>
<tr>
<td>2. Ship Organization: Command Structure</td>
</tr>
<tr>
<td>3. Ship Organization: Departments and Divisions</td>
</tr>
<tr>
<td>4. Uniforms</td>
</tr>
<tr>
<td>5. Shipboard Duties</td>
</tr>
<tr>
<td>6. Bills</td>
</tr>
<tr>
<td>7. Conditions of Readiness</td>
</tr>
<tr>
<td>8. Ship characteristics</td>
</tr>
<tr>
<td>9. Aircraft Carriers</td>
</tr>
<tr>
<td>10. Cruisers</td>
</tr>
<tr>
<td>11. Destroyers and Frigates</td>
</tr>
<tr>
<td>12. Submarines</td>
</tr>
<tr>
<td>13. Amphibious Warfare Ships</td>
</tr>
<tr>
<td>14. Patrol Combatants</td>
</tr>
<tr>
<td>15. Revision</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exercises:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Offering Congratulations / Writing an application for rating</td>
</tr>
<tr>
<td>2. Describing someone's record / Writing a recommendation</td>
</tr>
<tr>
<td>3. Checking for information / Writing a Command Department Log</td>
</tr>
<tr>
<td>4. Apologizing for a mistake / Writing: Disciplinary Report</td>
</tr>
<tr>
<td>5. Emphasizing a point / Writing: Ship's Maintenance Log</td>
</tr>
<tr>
<td>6. Confirming information / Writing: Emergency Assignment Form</td>
</tr>
<tr>
<td>7. Giving commands / Writing: Change of Readiness Report</td>
</tr>
<tr>
<td>8. Midterm exam</td>
</tr>
<tr>
<td>9. Describing abilities, making comparisons / Writing: Specifications</td>
</tr>
<tr>
<td>10. Getting more information / Writing: Taking notes</td>
</tr>
<tr>
<td>11. Supporting an idea / Writing: Notes on the POS mission</td>
</tr>
<tr>
<td>12. Describing limits / Mission Plan</td>
</tr>
<tr>
<td>13. Stating preference / Writing: Operation Plan</td>
</tr>
<tr>
<td>14. Getting people's attention / Writing: Patrol Mission Briefing Form</td>
</tr>
<tr>
<td>15. End of term exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ lectures</td>
</tr>
<tr>
<td>☑ seminars and workshops</td>
</tr>
<tr>
<td>☑ exercises</td>
</tr>
<tr>
<td>☑ on line in entirety</td>
</tr>
<tr>
<td>☑ field work</td>
</tr>
<tr>
<td>☑ independent assignments</td>
</tr>
<tr>
<td>☑ multimedia</td>
</tr>
<tr>
<td>☑ laboratory</td>
</tr>
<tr>
<td>☑ tutorials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time students’ responsibilities</td>
</tr>
<tr>
<td>Students are required to attend classes regularly and participate actively, bring class materials and prepare assignments on regular basis. The maximum of six hours of</td>
</tr>
</tbody>
</table>
absence is allowed, including both, absence from the lectures or exercises. Class attendance is required in order to obtain the course teacher’s signature at the end of a semester. In case students are denied the course teacher’s signature, they are to re-enroll in the course the following academic year.

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Research</td>
</tr>
<tr>
<td>Practical training</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Report</td>
</tr>
<tr>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Seminar paper</td>
</tr>
<tr>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
</tr>
<tr>
<td>Oral exam</td>
</tr>
<tr>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
<tr>
<td>Project</td>
</tr>
<tr>
<td>(Other)</td>
</tr>
</tbody>
</table>

**Assessment and evaluation of full-time students' work**

Final exam comprises two parts, a written and oral exam. The written exam may be successfully completed by taking a midterm and end of term exam. Tested content is based on class materials and it comprises professional terminology and grammar. Students have an option to complete the written exam before the beginning of the examination period. In this case, at the final exam, students shall take only the oral exam. If students fail the midterm/end of term exam but fulfil the minimum of class responsibilities, they are allowed to take the entire final exam in the allocated examination period. It is required to achieve at minimum 50% of the points at the midterm/end of term exams/written exam in order to access the oral exam. Students have to apply for the final exam in the examination period in order to gain access to the exam and in order to have the grade entered into the system. Exam application and application withdrawal are done via Studomat, an online student portal.

**Continuous evaluation of students' performance:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and activity level at exercises</td>
<td>max. 6 hours of absence during a semester</td>
<td>10</td>
</tr>
<tr>
<td>Mid-term / End-term exams</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>50 – in this case student doesn't take written exam</td>
<td></td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical exam (written)</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Pre-activities (include all elements of continuous evaluation)</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Fails to meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with occasional mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Taylor, J. i Goodwell, J. (2011.): Career Paths Navy Book 1, 2, Express Publishing</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Quality assurance methods that ensure the acquisition of exit competencies

- Students' questionnaire, attendance list, supervision of teaching

### Other (as the proposer wishes to add)

### 4.11.3.2 Technical Mechanics I

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>TECHNICAL MECHANICS I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS101</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Zlatan Kulenović, Ph.D.</td>
</tr>
<tr>
<td>Year of study</td>
<td>2nd</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>30 0 15 0</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**
Course objectives

Familiarisation with basic principles and methods in mechanics and their application in studying the effects of forces and their influence on body motion and states. Developing straightforward and logical way of thinking while analysing and solving practical engineering tasks in the area of statics and kinematics of marine machine elements and constructions.

Course enrolment requirements and entry competencies required for the course

/ 

Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Describe basic terminology, principles and methods related to the mechanics of solid bodies and the importance of their application in maritime engineering.
2. Define the fundamentals of statics of solid bodies (systems of forces and moments in plane and space, addition and resolution, equilibrium, girders, friction, centre of gravity).
3. Solve and analyse the examples of beams and trusses under various types of load.
4. Define and understand the basic kinematic quantities of rectilinear and curvilinear motion (position, speed and acceleration) of a body in various coordinate systems.
5. Solve and analyse the examples of kinematic translation, rotation, plane and complex body motion.
6. Develop prerequisites for understanding and acquiring knowledge in other courses within the curriculum.

Lectures:

5. Equilibrium of forces. Solving the equilibrium problems.
8. Static diagrams.
12. Curvilinear motion. Displaying in Descartes, polar and natural coordinate system.

Exercises:

2. Equilibrium of forces.
3. Equilibrium of forces.
4. Statics of bodies. Reduction of force system. Equilibrium of system of forces.
5. Equilibrium of system of forces.
12. Curvilinear motion.
15. Complex motion.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ lectures</td>
</tr>
<tr>
<td>☑ seminars and workshops</td>
</tr>
<tr>
<td>☑ exercises</td>
</tr>
<tr>
<td>☑ on line entirely</td>
</tr>
<tr>
<td>☑ mixed e-learning</td>
</tr>
<tr>
<td>☐ individual assignments</td>
</tr>
<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ field work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending lectures (min 80%) and exercises (100%). In case of insufficient number of arrivals (up to 20% of excused absences), students will have to do additional tasks in order to obtain the course teacher’s signature. Students, who due to illness cannot attend classes, are required to bring a valid doctor’s note. Students, who achieve less than 50% of arrivals to class, are not eligible for signature and shall enrol in the course again next year. Students, who pass the two midterm exams, do not take the final exam. Students can retake only one midterm exam they have not passed. If students have not passed both midterm exams, they are required to take the final exam (written and oral).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance 1,1 Research Practical training</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Midterm/ End of term exams 2,9 Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Continuous evaluation of students' performance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluation</td>
</tr>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Midterm exam I</td>
</tr>
<tr>
<td>Midterm exam II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final examination:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluation</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
<tr>
<td>Oral exam</td>
</tr>
<tr>
<td>Previous activities (including any indication of continuous assessment)</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grading scale:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points (%)</td>
</tr>
</tbody>
</table>

86
<table>
<thead>
<tr>
<th>Score Range</th>
<th>Criteria Description</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)


### Quality assurance methods that ensure the acquisition of exit competencies

- Survey carried out by the University of Split. List of student attendance. Teaching process monitored by the Faculty.

### Other (as the proposer wishes to add)
4.11.3.3 Elements of Maritime Transport I

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ELEMENTS OF MARITIME TRANSPORTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN106</td>
</tr>
<tr>
<td>Year of study</td>
<td>2nd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Marko Katalinić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ana Karaman, M.Eng.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
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<td>S</td>
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<tr>
<td></td>
<td>E</td>
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<tr>
<td></td>
<td>F</td>
</tr>
<tr>
<td>Status of the course</td>
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</tr>
<tr>
<td>Percentage of application of e-learning</td>
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</table>

**COURSE DESCRIPTION**

**Course objectives**

Aims of the course:
- to introduce students to the basics of the ship’s geometry,
- to gain knowledge of materials in shipbuilding and ship maintenance
- to recognize the structural elements of the ship and their role in the strength of the ship and waterproofing.
- to get to know the technology of shipbuilding and to learn the basic concepts of stability, manoeuvrability and sea keeping of the ship.

**Course enrolment requirements and entry competencies required for the course**

Describe and explain the development of ships throughout history.
Get to know the role of classification societies.
Categorize the terms of ship geometry.
Analyse different ship drawings and plans.
Identify ships by application and type of cargo.
Learn the basics of shipbuilding materials.
Analyse ship construction framing system, elements of longitudinal and transverse strength of the ship. Analyse structural elements of the ship.
Distinguish shipbuilding processes in the shipyard.
To present the basics of welding and recognize the importance of preparation and quality of the welds.
Define ship bulkheads and recognize watertight bulkheads and the openings therein.
Distinguish types of corrosion protection.
Establish the level of maintenance and the importance of the ship survey.
Examine the basics of stability, seakeeping and ship manoeuvrability.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

01. Historical development of ships and the importance of ships and shipbuilding.
02. The importance of classification societies and International Maritime Organization.
03. Drawings of ship geometry, ship main dimensions and measures.
04. Ship drawings, lines plan, general arrangement, hydrostatic tables.
05. Division of ships by application and type of cargo.
06. Shipbuilding materials and the importance of their characteristics.
07. Construction framing systems, elements of various construction types, structural elements of the ship.
<table>
<thead>
<tr>
<th>Exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>01. Introduction to the work of classification societies.</td>
</tr>
<tr>
<td>02. Overview of the main dimensions, calculations of the form coefficients.</td>
</tr>
<tr>
<td>03. Ship drawings.</td>
</tr>
<tr>
<td>04. Calculation of coefficients using numerical integration.</td>
</tr>
<tr>
<td>05. Introducing characteristic features of shipbuilding construction materials.</td>
</tr>
<tr>
<td>06. Elements of the ship construction.</td>
</tr>
<tr>
<td>07. Visit to the shipyard, introduction to ship construction.</td>
</tr>
<tr>
<td>08. Sketching structural elements. Colloquium 01.</td>
</tr>
<tr>
<td>09. Bending moment and shear forces.</td>
</tr>
<tr>
<td>10. Visit to the shipyard. Introduction to the shipbuilding process.</td>
</tr>
<tr>
<td>11. Sketching ship rudders and propellers.</td>
</tr>
<tr>
<td>12. Corrosion affects to ship construction.</td>
</tr>
<tr>
<td>13. Sea states and waves.</td>
</tr>
<tr>
<td>14. Recognizing and sketching the ship equipment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Format of instruction:</th>
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</thead>
<tbody>
<tr>
<td>☒ lectures</td>
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<tr>
<td>☐ seminars and workshops</td>
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<tr>
<td>☒ exercises</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
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<tr>
<td>☐ field work</td>
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<td>☒ individual assignments</td>
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<tr>
<td>☐ multimedia</td>
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<td>☐ lab exercises</td>
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<tr>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures and exercises are compulsory. The records of arrivals to class and practical exercises are kept continuously during the semester. The requirement for obtaining signatures is the attendance of at least 80% at classes (lectures and exercises) and 100% of practical exercises. Obtaining the course teacher’s signature is a prerequisite for taking the exam. Written absentee cannot replace attending classes and practical exercises.</td>
</tr>
</tbody>
</table>

| 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 | Practical training |
| Experimental work | Report | (Other) |
| Essay | Seminar paper | 0,5 | (Other) |
| Midterm/ End of term exams | Oral exam | (Other) |
| Written exam | Project | (Other) |

Assessment and evaluation of full-time students’ work
Class attendance is compulsory. Requirement for obtaining a signature is attendance of a minimum 80% of the lectures.
Testing includes 2 midterm exams. The first midterm exam, including lectures 1-7, is in the eighth week of classes, and the other midterm exam with lectures 8-14 is in the 15th week of classes.
Sample questions for the midterm exam are available.
At each midterm exam it is necessary to achieve at least 60% of the points to pass. Students that cannot attend a midterm exam due to objective reasons or do
not achieve the minimum percentage, may retake the midterm exam in the 9th week.
Students who do not pass the first midterm exam cannot are not allowed to take
the second midterm exam.
The final evaluation includes lecture attendance, the results of tests and
individual assignments.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending at lectures and active participation in exercises</td>
<td>80</td>
<td>15</td>
</tr>
<tr>
<td>I midterm exam</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>II midterm exam</td>
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<td>40</td>
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<tr>
<td>Individual assignments</td>
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<td>5</td>
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</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
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<td>0-59</td>
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<td>60-69</td>
<td>Meets minimum criteria</td>
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<tr>
<td>70-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

Students who do not pass the midterm exams during the semester but obtain the
signature, are required to sit for the exam in the examination period.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
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</thead>
<tbody>
<tr>
<td>Grubišić, I.: The Geometry of Ships, digital book</td>
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</table>

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

1. Lechter, J.: The Geometry of Ships, SNAME
2. Biran, A.: Ship Hydrostatics and Stability
4. Dokkum, K.: Ship Knowledge, Dokmar
5. Eyres, D.J.: Ship Construction

Quality assurance methods that ensure the acquisition of exit competencies

Questionnaires, evidence lists of the students, faculty supervision.

Other (as the proposer wishes to add)

4.11.3.4 Seamanship III

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
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<td>Code</td>
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<td>Year of study</td>
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<td>Type of instruction (number of hours in a semester)</td>
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<td>Filip Bojić</td>
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<tr>
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</table>

### COURSE DESCRIPTION

#### Course objectives

Master the basic notions of navigation, meteorology, ship handling and manoeuvring as well as passage planning. Familiarize with the basic principles of Bridge watch-keeping and Regulations for preventing collisions at sea. Master radar navigation systems, and other marine electronic navigation devices and systems.

Familiarize with basic signs of emergency at sea, Morse code and communications in distress.

#### Course enrolment requirements and entry competencies required for the course

Successful completion of Seamanship II

#### Learning outcomes expected at the level of the course (4-10 learning outcomes)

- Independently plot course and safely conduct the ship in all conditions using knowledge of different methods of positioning and maritime kinematics. Plan courses and routes using knowledge of the essential features of charts. Basic notions in meteorology and meteorological reports.
- Describe and explain the principles of depth sounder, speed log, compass, satellite positioning systems, and other electronic navigation devices and systems.
- Recognize marine electronic navigation devices.
- Describe and explain the principles of radar devices.
- Correctly interpret images on collision avoidance radars (ARPA).
- By proper use of ARPA systems avoid other ships and risks at sea.
- By applying graphical plotting avoid collisions at sea.
- Correctly interpret the image on the ECDIS, alone or in combination with ARPA systems.
- To make simple voyage plan and explain basic ships handling.
- Speed logs, depth sounders, non-magnetic compasses. Satellite positioning systems. Navigation radar, range, accuracy, object discrimination, blind spot, interference, relative and true radar image, determining direction, distance and position of the ship.
- The orientation of the radar image, the true and relative motion. Radar in coastal navigation. Graphical plotting. Errors of radar systems.
- Radar in search and rescue. Radar transponder in search and rescue - SART.
- Collision Avoidance Radar ARPA, ECDIS system
- Describe and explain the COLREG.
- Proper communication in emergency and proper usage of signs of emergency at sea.

#### Course content broken down in detail by weekly class schedule (syllabus)

1. Fundamental concepts in maritime navigation: course, bearing, relative bearing, latitude and longitude. Basic measurement units, nautical mile, cable, inch, foot, yard, fathom, knot, variation, deviation, control of deviation. Nautical charts: chart projections, Mercator chart, nautical charts.
2. Instruments and tools in navigation: compass (errors and corrections), speed logs, depth-sounders, range finder, ARPA radars, GPS/DGPS, AIS, ECDIS, integrated navigational systems.
3. Symbols and abbreviations on nautical charts, position line and drawing on nautical chart (distance circle and line), different methods of determining position of a ship at sea: observed position, position at time intervals, dead reckoning, errors in positioning, navigation with drift.
4. Passage planning: Ships’ Routeing Systems and Ship Reporting Systems, nautical publications, Pilots, List of lights, Maritime radio service, Notices to
Mariners for updated and corrected chart, ships books and documents, bridge watch, ships log. Basic notions in meteorology, meteorological reports.

5. Methods in astronomical navigation: Sun and Moon, sunrise and sunset, twilight, dawn refraction and depression and time. Coordinate systems, Real and apparent motion of celestial bodies Identification of the heavenly bodies (sextant, chronometer, nautical almanac).

6. Regulations for preventing collisions at sea, bridge watch-keeping, importance of bridge teamwork.

7. Passage planning. Basic techniques of ships handling: berthing, unberthing, anchoring; emergency manoeuvring.

8. The principle operation of marine RADAR. IMO Performance Standards for Navigational Equipment. Start up and setting up radar display, log off.


10. Radar in search and rescue. Radar transponder in search and rescue - SART Collision Avoidance Radar ARPA

11. Graphical plotting.

12. Method to use of ARPA systems avoid other ships, true and relative vectors, avoidance simulation. Determining position and usage of parallel index.

13. ARPA navigation radar, operating principles, errors, connection with other systems. ARPA/AIS, errors, of ARPA system, VDR. ECDIS system, use and accuracy. Integrated navigation systems.

14. Methods of search and rescue at sea.; Communications in distress, urgency, safety and general communication; WWNWS; GMDSS.


Exercise

1. Applications of trigonometry in geometry and sphere trigonometry for nautical calculations. Basic knowledge about nautical drawing tools, nautical charts and nautical tables. Calculating distance problems : distance, speed and time. The SI base units the building blocks of the system and all other units derived from them (m, kg, s, A, K, mol, cd).

2. Reading of nautical charts-basic elements. Chart work: reading and drawing a position on nautical charts. Reading and drawing angles and distances on nautical charts. Distance measuring.

3. Chart work: the marks on nautical charts (hydrographical and topographic marks), practical exam of buoyage– IALA systems A and B. Droving position line at chart, dead reckoning position. Position at time intervals.

4. Making a voyage plan and calculation for time of arrival (ETA)


6. The International Regulations for Preventing Collisions at Sea

7. Basic ship handling techniques berthing, unberthing and anchoring.

8. Basic ship handling techniques: the deck equipment, anchor anchor chains and windlass, capstan and winches – visit to the ship in port.

10. Dead sectors, disturbance, the orientation of the radar image, the true and relative motion. Measuring courses, distances and ships positions – manually. Determining when danger of collision exists by radar, SART.

11. Graphical plotting, drawing and calculating elements, CPA i TCPA

12. Graphical plotting, drawing and calculating elements, CPA i TCPA

13. ARPA radar - setting up. ARPA radar-errors and alarms. ARPA radar-manual acquisition and data reading,

14. ARPA radar-automatic and manual plotting, simulation of collision avoidance.

15. Collision Avoidance by ARPA/AIS/ECDIS system, VDR. Usage of Radar in safe sailing and navigation.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ lectures</td>
</tr>
<tr>
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<tr>
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<td>☐ lab exercises</td>
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</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance, and exercise. Min 80% lecture attendance and 100% exercise.</td>
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</table>

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
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<tr>
<td>Experimental work</td>
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<tr>
<td>Essay</td>
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<tr>
<td>Midterm/ End of term exams</td>
</tr>
<tr>
<td>Written exam</td>
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<table>
<thead>
<tr>
<th>Assessment and evaluation of full-time students' work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance and exercise. Min 80% lecture attendance and 100% exercise.</td>
</tr>
<tr>
<td>Midterm exams 4 (numerical problems, work with chart, work with radar, theories). On midterm exams students are required to achieve a minimum of 50% points, on final exam 75% points. Student must regularly complet assessment of e-learning module. At final exam include lecture attendance and points on midterm exams, e-learning assessments. Student without midterm exams, are obligated to attend final exam in written and oral form. For final exam marking criteria is equal.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Continuous evaluation of students' performance</th>
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</thead>
<tbody>
<tr>
<td>Elements of evaluation</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>Regular lecture attendance</td>
</tr>
<tr>
<td>Midterm exam</td>
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### Final examination:

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<th>Achievement (min.%</th>
<th>Portion of the final mark (%)</th>
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</thead>
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<tr>
<td>Exam or midterm exam (oral or written)</td>
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<td>60%</td>
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<tr>
<td>Past activities (involve continuous assessments)</td>
<td>100%</td>
<td>40%</td>
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<td>Total</td>
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<td>100%</td>
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#### Grading scale:

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<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
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<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
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<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Does not meet minimum criteria</td>
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<tr>
<td>75-84</td>
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<td>85-89</td>
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<td>Good (3)</td>
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<tr>
<td>90-94</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>National imagery and mapping agency, international code of signals for visual, sound, and radio communications, United States Edition 1969 edition (revised 2003), NIMA, Bethesda, Maryland, USA, 2003</td>
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### Optional literature (at the time of submission)

4.11.3.5 Maritime Medicine

<table>
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<tr>
<th>NAME OF THE COURSE</th>
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<tbody>
<tr>
<td>Code</td>
<td>VPN108</td>
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<td>Year of study</td>
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<tr>
<td>Course teacher</td>
<td>Rosanda Mulić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
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<td>30</td>
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<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
</tbody>
</table>

**Course objectives**

Master the methods of providing medical first aid and medical care. Be able to recognize the symptoms of the most common illnesses. Know how to administer medications and when to change the therapy. Know the medicines in the ship medicine chest - the effect they produce, how they should be applied and their most common side-effects. Maintain the ship medicine chest.

**Course enrolment requirements and entry competencies required for the course**

/ 

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Estimate the health condition of the injured person
2. Provide medical first aid in life-threatening situations
3. Use the basic medical equipment on board the ships
4. Understand the request and the provision of radio-medical advice
5. Identify different medical conditions on board and provide appropriate procedures by using the basic medical equipment available on board ships
6. Estimate the needs of the injured person for helicopter transportation. Identify signs of death (early and late signs of death, apparent death, causes of death) and organize corpse procedures (inspection of the deceased person's body, procedure with the body, burial at sea)

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**
2. First aid on board.
3. Medical care: Shock, Pain management; Eye injuries and diseases; Bone, joint, and muscle injuries.
4. Nursing care and medical procedures.
5. Infectious diseases; Chest pain and other disorders of the heart and circulation.
6. Tobacco, alcohol, and drug use.
8. Pregnancy and childbirth.
12. Environmental control and hygiene.
14. The ship’s medicine chest. Basic rules for managing the medicine chest: Anaphylaxis; Drug rash and other drug-related skin problems; Controlled drugs; Ships carrying dangerous goods. Specific categories of medicines: Fluids for intravenous infusion.
15. Abdominal and chest injuries. Wounds: Wound healing; Red flag wounds; Local anaesthesia. Special wounds. Dressing wounds that cannot be closed
Surgical equipment, instruments and materials.

Exercises:
1. Check-up of vital functions (AVPU, ABC rule, quick examination of the injured person). Monitoring the vital signs. How to take the pulse rate. How to take the body temperature. How to take the respiratory (breathing) rate.
2. Measuring blood pressure.
3. Disease history-taking, inspection of an ill person (SAMPLE form)
5. Getting acquainted with the resuscitation mask and oxygen breathing apparatus. Applying of oxygen. Oxygen masks.
6. Getting acquainted with external haemorrhage control devices
7. Immobilization of broken arm/leg bones, immobilization in case of suspected spinal injury.
8. Treatment of an open head injury, treatment of open and closed burn wounds.
9. Treatment and stitching of wounds, disinfecting the skin and area around the wound, skin disinfectants, incision of built up pus.
10. Identifying the pulse palpation points, using urine reagent test strips.
11. Administering an intramuscular injection.
12. Ship environment inspection, getting acquainted with the tools and methods for pest and rodent control.
13. What to do in case of bleeding after tooth extraction, in case a tooth filling falls out or in case of toothache.
14. Getting to know about medications, its forms and dosage, learning about the Ordinance on minimum equipment and contents of the ship medicine chest.
15. Asking for radio-medical advice, procedure, filling out the form.

lectures
individual assignments
<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>☐ seminars and workshops</th>
<th>☐ multimedia</th>
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<tbody>
<tr>
<td>☑ exercises</td>
<td>☐ lab exercises</td>
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<tr>
<td>☑ on line in entirety</td>
<td>☐ mentoring</td>
<td></td>
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<tr>
<td>☐ partial e-learning</td>
<td>☐ (other)</td>
<td></td>
</tr>
<tr>
<td>☐ field work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student obligations**

Students must attend the lectures. Their presence shall be registered and kept in a record.

In order to get the signature, students must attend at least 95% of the lectures and 100% of the exercises.

In case of insufficient attendance, the students will not be granted a signature and shall be obliged to enrol in the course the following year.

Students may take the oral part of the exam through continuous evaluations during the semester, by taking mid term tests. Mid term tests are not compulsory.

Students who do not pass the mid term test and have obtained the signature must take the oral exam during the exam period.

Using e-learning materials, students may study the given topics individually or as a team.

Students who have passed the oral exam via mid term tests must apply for the exam via Studomat for the first exam period after the lectures and during that time must have their grade entered or be tested for a better grade.

| 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                                 | 1.2                             | Research         | Practical training |
| Experimental work                                |                                 | Report           | (Other)          |
| Essay                                            |                                 | Seminar paper    | 0.5 (Other)      |
| Midterm/ End of term exams                       |                                 | Oral exam        | 0.5 (Other)      |
| Written exam                                     | 0.5                             | Project          | (Other)          |

**Assessment and evaluating full-time students' work**

Class attendance is compulsory for regular students and the precondition for obtaining a signature is attendance at 95% of the lectures and 100% of the exercises.

Mid term tests are organized during the semester. The first mid term test covers weeks 1 to 9 and is taken in week 10 of the lectures. The second mid term test is organized at the end of the class. To pass the test, one must have at least 60% of the points. Students who for objective reasons do not take the mid term test or do not pass the minimum may take oral exam.

The final grade is based on the lecture attendance, mid term test/oral exam results and written exam results. Students who do not take the mid term test during the semester but have been granted a signature may take the oral exam in the exam period. The same rules and criteria apply for the exam period evaluation as for continuous knowledge checks.

**Continuous evaluation of students' performance**
<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures and active participation in exercises</td>
<td>min. class attendance 95% of lectures and 100% of exercises</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam I</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test or progress/midterm exams (written)</td>
<td>60</td>
<td>30+30</td>
</tr>
<tr>
<td>Theory test (written and/or oral)</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Previous activity (including all continuous test indicators)</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-60</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>61-70</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>71-80</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>81-90</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>91-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competencies</td>
<td>University questionnaire, student attendance list, monitoring by the Faculty</td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.11.3.6 Military Maritime Geography

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY MARITIME GEOGRAPHY</th>
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<tbody>
<tr>
<td>Code</td>
<td>VPN109</td>
</tr>
<tr>
<td>Year of study</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Mladen Pahernik, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Mirko Šundov, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Marinko Lozančić, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Marko Zečević, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Jelena Petrović, Ph.D.</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 45 0 15 0 20%</td>
</tr>
<tr>
<td></td>
<td>S E F</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**
- To get students familiar with preparing and carrying out military activities in accordance with requirements of natural and social elements of the geo-space in maritime, coastal and littoral environment.
- To get students familiar with cartography work and orientation in topographic-cartographic environment.

**Course enrolment requirements and entry competencies required for the course**
/
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | 1. Identify geographical space as a factor of combat and other-than-war naval military operations.  
2. Plan military activities with regard to maritime-military characteristics of the area.  
3. Name important maritime-military factors at sea, coast and littoral area.  
4. Assess the coast and littoral zone from military-geographical and military-geological aspect.  
5. Apply military-geological features of the coast and littoral zone during naval operations.  
6. Use basic tactical topographical map for simple cartographic measuring  
7. Develop the capability of using functionally spatial methods during military decisions making process. |
|---|---|
| Course content broken down in detail by weekly class schedule (syllabus) | Lectures:  
1. Introduction into maritime-military geography.  
2. Military categories of the area:  
   a. Wartime framework (military operations; military geography and operational planning)  
   b. Spatial categories of warfare (theatres of war; battlefields)  
3. Maritime cartography:  
   a. Maritime cartography (historical outline; modern maritime charts)  
   b. Military topographic maps (topographic maps; cartometry)  
4. Factors of the maritime military geography:  
   a. Sea (geographical position, spatial coverage and borders at sea; interrelation of the sea and land; classification of the sea)  
   b. Structure and division of underwater area (structural elements of the lithosphere – epicontinental shelf; deep-sea basin, seamounts, sediments of the sea bed)  
   c. Characteristics of the sea (salinity; gases in the sea; temperature of the sea; ice in the sea, sea pressure, sound propagation and sea density; luminosity, clearness and sea colour)  
   d. Sea movements (sea level; sea currents, tides, waves)  
   e. Life in the sea (sea flora and fauna; quality of the sea)  
   f. Coast and islands (coast and coastal zone; types of coasts; islands; military-geological aspects of the littoral area)  
   g. Climatic and meteorological elements (air temperature; precipitation; circulation of the air)  
   h. Geopolitical elements (internal stability; local geopolitical stability; national strength and influence)  
   i. Population (density, movement and structure of the population)  
   j. Traffic (maritime traffic; maritime communications; harbours, naval bases)  
   k. Economy (tourism; ore deposits; economic development; mariculture)  
   l. Maritime military characteristics of the Mediterranean Sea  
   m. Maritime military characteristics of the Adriatic Sea |
| | Exercises:  
Cartometry:  
   a. Determining basic cartographic elements  
   b. Measuring lengths, determining angles  
   c. Determining geographical and rectangular coordinates on topographic maps  
Case studies:  
   a. Normandy Landing in 1944 |
b. Iwo Jima Landing in 1944
c. Gallipoli Landing in 1915
d. Dieppe Raid in 1942

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ lectures</td>
</tr>
<tr>
<td>☐ seminars</td>
</tr>
<tr>
<td>☒ exercises</td>
</tr>
<tr>
<td>☐ online in entirety</td>
</tr>
<tr>
<td>☐ field work</td>
</tr>
<tr>
<td>☒ individual assignments</td>
</tr>
<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☒ mentoring</td>
</tr>
</tbody>
</table>

Student responsibilities

Lectures and exercises are mandatory for students with a record of attendance. To get a required signature, students’ minimal attendance at lectures is 80% and 90% at exercises. In case of insufficient attendance, students will not obtain a signature and will lose the right to take an exam, and consequently shall enrol this course next academic year. A note of excuse cannot justify nor replace the class attendance.

In order to get a required signature students have to meet attendance requirements and have to finish three exercises.

Students who pass the midterm/end of term exams from the exercises and perform successfully all other required obligations will be released from taking the final written exam. Students who have not passed midterm/end of term exams and have obtained the signature shall take the final written exam.

Students that have enough points to pass the course have to apply for the exam during the first term in order to get their grade signed in, or to have an oral exam if they want a better grade.

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students’ work

Two mid-term exams are written per semester:
Midterm exam: Covers class material from the 1st to the 7th week lectures will be conducted in the 8th week of classes.
End of term exam: Covers class 9th to the 15th week lectures will be conducted in the 15th week of classes.

At midterm and end of term exam students are required to achieve the minimum 60% of points for a passing grade. Students who do not take one of the two or do not achieve the minimal percentage for passing grade do not have a possibility of retaking or correction. The final grade comprises attendance and active participation in lectures, a grade for exercises (practical training) and continuous evaluation of knowledge.

Students who fail midterm/end of term exam, but who obtained a signature, are obligated to take a final written exam within the examination period.

Same grading criteria are valid for written final exam as for continuous mid-terms exams.
### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance and active participation in class</td>
<td>80</td>
<td>10</td>
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<tr>
<td>Quizzes/ Midterm/End of term exams</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Exercises</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
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</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final written exam</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Attendance and active participation in class</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Exercises</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
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</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-60</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>61-70</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>71-80</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>81-90</td>
<td>Above-average achievement with a few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>91-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

### Required literature

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANAG 2211 – Geodetic datum, Projections, Grids, and Grid references (2016)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>STANAG 3600 - Topographical Land Maps and Aeronautical Charts for Joint Operations (1979)</td>
<td></td>
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<tr>
<td>Name of the Course</td>
<td>Military History</td>
<td></td>
</tr>
<tr>
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<tr>
<td>Code</td>
<td>VPO 111</td>
<td></td>
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<tr>
<td>Year of study</td>
<td>2nd</td>
<td></td>
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<tr>
<td>Course teacher</td>
<td>Ivan Matijević, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Zvonimir Forker, M.A.</td>
<td></td>
</tr>
<tr>
<td>Type of instruction (number of hours)</td>
<td>L S E F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 0 10 0</td>
<td></td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for all students</td>
<td></td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Course Description**

- To offer an overview of military history from antiquity to the modern age
- To emphasize the impossibility of studying military history without taking into account the political and economic history and other development processes
- Identify the causes and consequences of key events
- Establish a time sequence and characteristics of individual conflicts and their conditionality of space in which they took place
- Analyze the individual battles (eg. Marathon in 490 BC) as well as complex military operations (eg. Overlord 1944)
- Compare the equipment and the quality of the opposing military forces
- Expose the development of weapons and methods of warfare
- Recognize ways of coordinating activities of military branches during military operations
- Identify and evaluate the role of certain commanders
- Consider the main features of military operations during the war of independence of the Republic of Croatia (1991-1995)

### Course enrolment requirements and entry competences required for the course

- Explain the ways of functioning of the armies during all historical periods
- Notice the reasons for the restructuring of the army over time, learn about the scope of reforms and their consequences
- Notice the basic differences in the battle order of armies of the opposing sides
- Notice the occurrence of tactical innovations in the battle
- Realize the importance of geo-strategic circumstances of particular military conflicts
- Interpret the modes of functioning of society during the war

### Learning outcomes expected at the level of the course (4 to 10 learning outcomes)

### Lectures:

1. **Greece and Macedonia in the war against Persia.** Greek forces in the battle against the Persians: Marathon (490 BC), Thermopylae and Salamis (480 BC). The importance of choosing the place to face the enemy. Alexander the Macedonian, his innovations and organization of military campaigns. Using the phalanx and cavalry. The reasons and consequences of the Macedonian victory at Gaugamela 331 BC. The reasons for the failure of the Persian army.

2. **Roman army - the best war machine of the ancient world.** Roman army at the time of the Republic and the victory in the wars against Carthage. Military operations on Sicily and the Battle of Cannae 216 BC. The conquest of Gaul and Julius Caesar. The professionalization of the army and its structure (Legion, Auxiliary units and Navy) in the age of Empire. Roman disaster in the Teutoburg Forest 9 AD. Roman crackdown on uprisings: example of Judea (70 and 135). Siege and battlefield tactics. Romans as the greatest experts in fortification in the Ancient World. The transformation of the Roman army in the late antiquity. The importance of archeology in the study of military history.


4. **Europe in the wars against the Ottoman Empire.** Battle of Kosovo Polje (1389) and of Nicopolis (1396). Ottomans besiege and occupy Constantinople 1453. The appearance of artillery. Development of gunpowder weapons radically changed warfare in Europe. Organization of the Ottoman army as the most effective military force in the world of that time. The role of Croatian lands in the penetration of the Ottomans. Sigismund of Luxembourg and Matthias Corvinus in attempts to organize the defense. Significant battles: Krkava (1493), Mohács (1526), Jajce (1527), Klis (1537), Siget (1566), Gvozdanisko (1578), Bihać (1592). Krsto Frankopan in the clashes against the Ottomans. The withdrawal of the Ottomans and peace in Sremski Karlovci 1699.

5. **Characteristics of Warfare in the Early Modern Age.** The Uskok war (1615-1617). The reasons for the outbreak of the Thirty Years' War (1618-1648). Prevalence of fire infantry weapons and tactical innovation of the Swedish King Gustav II Adolf: example of the Battle of Lützen 1632. The development of European
armies of 17th and 18th centuries - Polish cavalry, Dutch foot soldiers, French musketeers, Prussian infantryman. Croatian troops across the European battlefields: War of the Austrian Succession (1740-1748). The unit of Baron Franjo Trenk in the first half of the 18th century. Systematic fortification of cities – the example of Tvrđa in Osijek. Army in the service of creating and maintaining overseas colonies. American War of Independence (1775-1783) and multiple significance of the American victory over the British at Saratoga (1777).

6. **The Napoleonic Wars and Europe in the early 19th century.** Wars of Napoleon Bonaparte and Europe in the early 19th century. Napoleon as a conqueror and one of the greatest generals in history. Napoleon's flexible and innovative strategic and tactical management of the army. Fast movement of forces, aggressiveness on the battlefield and coordinated use of cavalry, infantry and artillery. The Battle of Austerlitz (1805) as the pinnacle of French military power. The Battle of Wagram (1809) and Waterloo (1815). The reasons for the collapse of the French army. Croatian troops in Napoleon's Army. Croatian army under Ban Josip Jelačić in fighting in the Hungary and Austria in 1848: Battle of Pákozd and Schwechat. The key battles of the American civil war (1861-1865).

7. **The First World War (1914-1918).** The creation of a military-political alliances and the reasons the war broke out. Trench warfare and tactics to penetrate enemy defensive lines. Infantry of opposing sides with a focus on the activities and equipment of British and German troops. The German system of trenches. The use of armored vehicles, aircraft, submarines and battle gases. The battles with heavy losses in manpower: Verdun and the Somme (1916). Characteristics of the conflict in the Western and the Eastern Front. Kaiserschlacht. The entry of the United States in the war.


9. **The Cold War and the wars between 1945 and 1990.** The characteristics of the military forces of NATO and the Warsaw Pact. The arms race: nuclear arsenals and intercontinental ballistic missiles. The Cuban Missile Crisis. American intervention in Korea, Indochina, Latin America and Southwest Asia, the Soviet intervention in Afghanistan, the Israeli-Arab wars, Britain in the war for the Falklands.


**Exercises:**

1. **Greece and Macedonia in the war against Persia.** (Reading and analysis of selected passages from historical sources)

2. **Roman army - the best war machine of the ancient world.** (Reading and analysis of selected passages from historical sources)

3. **Wars in medieval Europe.** (Reading and analysis of selected passages from historical sources)

4. **The Ottoman army in the eyes of European chroniclers** (Reading and analysis of selected passages from historical sources)

5. **American Revolutionary War** (Reading and analysis of selected passages from historical sources)

6. **Napoleon: An example of great general** (Reading and analysis of selected passages from historical sources)
7. **Great battles of WW I** (Reading and analysis of selected passages from historical sources)  
8. **Great battles of WW II** (Reading and analysis of selected passages from historical sources)  
9. **The Cold war** (Reading and analysis of selected passages from historical sources)  
    (Testimonies of veterans of the Croatian Army)

### Format of instruction

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars and workshops</th>
<th>Independent assignments</th>
<th>Multimedia</th>
<th>Laboratory</th>
<th>Work with mentor</th>
<th>Other</th>
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</thead>
<tbody>
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</tbody>
</table>

### Student responsibilities

- Attendance, participation in discussions, writing essays, taking the quizzes and exams.

### Screening student work

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td></td>
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<td></td>
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<tr>
<td>Experimental work</td>
<td>Seminar essay</td>
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<tr>
<td>Essay</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

### Assessment and evaluation of full-time students' work

There are two tests and if the student does not pass (50% success), he/she must take the final exam (written and oral if necessary).

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Evaluation elements</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The presence in lectures and in exercises</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>I midterm exam</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>II midterm exam</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
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<td></td>
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### Final examination:

<table>
<thead>
<tr>
<th>Evaluation elements</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The presence in lectures</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>Exam (written and oral)</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Score Range</td>
<td>Description</td>
<td>Grade</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>0-49</td>
<td>Does not meet the minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets the minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable faults</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

### Required Literature (available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional Literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Quality Assurance Methods that ensure the acquisition of exit competences

Keeping records on the activities of students, attendance list, teaching supervision

### Other (as the proposer wishes to add)


### NAME OF THE COURSE

HYDROACOUSTICS AND SHIP PHYSICAL FIELDS

<table>
<thead>
<tr>
<th>Code</th>
<th>Year of study</th>
<th>Credits (ECTS)</th>
<th>Type of instruction (number of hours in a semester)</th>
<th>Status of the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPO112</td>
<td>2nd</td>
<td>3</td>
<td>L 30 S 0 E 15 F 0</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

To acquire knowledge about the onboard hydro acoustic systems. To learn about ship physical fields (SPF) and underwater explosion (UE).

**Course enrollment requirements and entry competencies required for the course**

Completed 2nd semester of the Naval Studies programme.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. To understand basic principles of hydroacoustics and learn how to use the ship's underwater detection systems
2. To understand the echolocation equation, and explain the wave phenomena of sound propagation in the sea
3. To understand the principles and characteristics of hydro acoustic transducers
4. To understand the principles of underwater transducers
5. To explain why ship emits the acoustic field, what its characteristics are, and its impact on mine weapons
6. To understand the cause and the nature of ships magnetic field, and its application in underwater mines.
7. To understand ships hydrodynamics, its application in underwater mines.
8. To understand the destructive forces of an underwater explosion.

**Lectures:**

1. Introduction, 1 (introduction to the subject, basic concepts)
2. Sound field, 1 (the concept of sound and sound field, the sound intensity, units)
3. Hydro location equations, 1 (active and passive hydro location)
4. Propagation of sound in sea, 2 (introduction, parameters, wave propagation laws and phenomena, bathythermography)
5. Hydroacoustic transducers, 2 (conversion of electrical energy to acoustic and vice versa, converters features)
6. Underwater detection systems, 2 (active and passive sonar, stationary detection systems, radio hydroacoustic buoys, echo sounders)
7. The definition of the system for underwater location, 2 (definitions, elements of the system)
8. The underwater search system PMS 2000, 2 (components, use, application in surveillance of waterways)
9. Ships detectability, 2 (detectability of modern vessels, detectability in mine warfare, important aspects of SPF for mine warfare, use of SPF in mine warfare)
10. Ships acoustic field, 4 (sea noise, vessels’ noise, methods for diminishing of vessels’ noise, the use of ships acoustic field in mine warfare)
11. Ships magnetic field, 5 (the Earth’s magnetic field, natural magnetic noise, the cause and nature of ships magnetic field, application in underwater mines)
12. Ships hydrodynamics, 4 (the cause of hydrodynamic pressure, forming of ships hydrodynamic field, the use of ships hydrodynamics in mine warfare, countermeasures for hydrodynamic triggered mines)
13. Underwater explosion, 2 (the physics of the underwater explosion, calculation of the radius of destruction, the causes of destructive effect)

Exercises:
1. Hydro acoustic transducers, 2
2. The use of ships hydro acoustic devices, 4
3. Features of ships acoustic field, 2
4. Features of ships magnetic field, 3
5. Features of ships hydrodynamics, 2
6. Features of UE, 2

Format of instruction:
- lectures
- seminars
- exercises
- on line in entirety
- field work
- individual assignments
- multimedia
- lab exercises
- mentoring

Student responsibilities
Class attendance is registered and obligatory for lectures and exercises. In order to take the exam and earn ECTS credits, full-time students are required at least 95% of lecture attendance and 100% of exercises attendance. Doctor’s note is not accepted as justification or replacement for class attendance. If students didn’t attend classes due to illness or any other justified reason and are missing 20% of class attendance, they can catch up the work in a form of additional tasks or consultations. All other students, i.e. the ones who have less than 50% of class attendance are not entitled to take the exam and have to enrol in the course again 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1.1 Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>1.9 Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

Grading and evaluating student work in class and at the final exam
Assessment and evaluation of full-time students’ work

There are two tests.
If the student does not pass the tests (min 50% of test score), then he/she takes the oral exam. If the student passes all tests, he/she gets the average grade.
For taking the exam and obtaining the professor’s signature, it is necessary to have 95% of lecture attendance and 100% of exercises.

Continuous evaluation of students’ performance
<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and exercises involvement</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>I TEST</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>II TEST</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>Exam (oral)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
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<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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


**Optional literature (at the time of submission of study programme proposal):**

As the lecturer instructs.

**Quality assurance methods that ensure the acquisition of exit competencies:**

Student feedback via questionnaires and surveys, student attendance list, faculty classes supervision.
<table>
<thead>
<tr>
<th>Other (as the proposer wishes to add)</th>
<th>-</th>
</tr>
</thead>
</table>
4.11.3.9 Physical Education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO113</td>
</tr>
<tr>
<td>Year of study</td>
<td>2nd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>0</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td></td>
<td>0 0 30 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course objectives</td>
</tr>
<tr>
<td>Learning outcomes expected at the level of the course (4-10 learning outcomes)</td>
</tr>
</tbody>
</table>
| Course content broken down in detail by weekly class schedule (syllabus) | Exercises:  
1. Regular testing of physical abilities  
2. The development of functional abilities  
3. The development of motor abilities  
4. Fitness programs  
5. Swimming  
6. Naval pentathlon (naval obstacles, navy skills training area)  
7. Navy skills training (rowing) |
| Format of instruction: | Lectures  
\[]  
Seminars  
\[]  
Exercises  
\[]  
On-line in entirety  
\[]  
Field work  
\[]  
Individual assignments  
\[]  
Multimedia  
\[]  
Lab exercises  
\[]  
Mentoring  
\[] |
| Student responsibilities | Students are required to participate in exercises. Records of student attendance are also kept. |
| Class attendance | Research  
\[]  
Practical training  
\[] |
### 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)*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Report</th>
<th>Independent study and homework (other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

**Assessment and evaluation of full-time students’ work**

During the academic year, students are required to take two regular physical fitness tests to meet the established norms.

### Required literature

*(available in the library and via other media)*

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)

- Quality assurance methods that ensure the acquisition of exit competencies
  - University survey and teaching supervision.

### Other (as the proposer wishes to add)
### NAME OF THE COURSE

<table>
<thead>
<tr>
<th>Code</th>
<th>Course teacher</th>
<th>Year of study</th>
<th>Credits (ECTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFP171</td>
<td>Adelija Ćulić-Viskota, Ph.D.</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Silvana Kokan, M.Ed.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Associate teachers</th>
<th>Type of instruction(number of hours in a semester)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davor Vodopija, M.Ed.</td>
<td>L S E F</td>
</tr>
</tbody>
</table>

#### Course description

**Course objectives**

- Acquiring basic and specialized English language skills and competencies in order to work efficiently in a specific environment of a navy as well as meeting the requirements necessary to work within the NATO system.
- Mastering presentation skills on navy topics.
- Acquiring communicative competencies in English for the purpose of ensuring safe sailing and sea environment protection.
- Encouraging and developing students' cognitive abilities as well as developing basic language skills: listening, reading, writing and speaking.
- Developing research skills and abilities of gathering, organizing and evaluating the information.

**Course enrolment requirements and entry competencies required for the course**

Successful completion of Naval English I

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

Upon completion of the course, students will be able to communicate in English, as follows:

- distinguish terminology in the area of ship's combat systems;
- categorize fleet support ships and service craft;
- categorize types of mine warfare ships;
- present mooring techniques;
- distinguish terminology related to towing;
- present ship safety systems;
- describe damage control.

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Missiles and Rockets</td>
</tr>
<tr>
<td>2. Mines and Torpedoes</td>
</tr>
<tr>
<td>3. Guns</td>
</tr>
<tr>
<td>4. Marlinspike Seamanship</td>
</tr>
<tr>
<td>5. Mooring</td>
</tr>
<tr>
<td>6. Towing</td>
</tr>
<tr>
<td>7. Revision</td>
</tr>
<tr>
<td>8. Fleet Support Ships and Service Craft</td>
</tr>
<tr>
<td>9. Mine Warfare Ships</td>
</tr>
<tr>
<td>10. Boats</td>
</tr>
<tr>
<td>11. Boat Crews and equipment</td>
</tr>
<tr>
<td>12. Security</td>
</tr>
<tr>
<td>13. Safety and Emergency Response</td>
</tr>
</tbody>
</table>
14. Damage Control  
15. Revision

**Exercises:**

1. Taking notes on different types of missiles  
2. Describing future events / Writing: Completing the Training exercise report  
3. Describing capabilities / Writing: Completing the notes on guns  
4. Identifying a problem / Writing: Officer's daily disciplinary log  
5. Describing past events / Writing: Mooring report  
6. Checking for completion / Writing: Towing operation checklist  
7. Offering solutions / Writing: the Lieutenant's report  
6. Midterm exam  
7. Describing upcoming events / Writing: the ship's UNREP report  
8. Stating uncertainty / Writing: An article on different types of boats  
9. Double-checking information / Writing: an article on boat crews and equipment  
10. Describing required actions / Writing: Security plan  
11. Describing success and failure / Writing: An article on safety procedures  
12. Stressing a point / Revision  
13. End of term exam

**Format of instruction:**

- Lectures  
- Seminars and workshops  
- Exercises  
- On line in entirety  
- Field work  
- Independent assignments  
- Multimedia  
- Laboratory  
- Tutorials

**Student responsibilities**

**Full time students' responsibilities**

Students are required to attend classes regularly and participate actively, bring class materials and prepare assignments on regular basis. The maximum of six hours of absence is allowed, including both, absence from the lectures or exercises. Class attendance is required in order to obtain the course teacher’s signature at the end of a semester. In case students are denied the course teacher’s signature, they are to re-enroll in the course the following 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*

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1.5</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Independent study and homework (Other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>1.5</td>
<td>Oral exam</td>
<td>1 (Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

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

**Assessment and evaluation of full-time students' work**

Final exam comprises two parts, a written and oral exam. The written exam may be successfully completed by taking a midterm/end of term exams. Tested content is based on class materials and it comprises professional terminology and grammar. Students have an option to complete the written exam before the beginning of the examination period. In this case, at the final exam, students shall take only the oral exam. If students fail the midterm or end of term exam but fulfill the minimum of class responsibilities, they are allowed to take the entire final exam in the allocated examination period. It is required to achieve at minimum 50% of the points at the midterm/end of term exams or written exam in order to access the oral exam. Students
have to apply for the final exam in the examination period in order to gain access to the exam and in order to have the grade entered into the system. Exam application and application withdrawal are done via Studomat, an online student portal.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and activity level at exercises</td>
<td>max. 6 hours of absence during a semester</td>
<td>10</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>50 – in this case student doesn't take written exam</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical exam (written)</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Pre-activities (including all elements of continuous evaluation)</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Fails to meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
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<td>65-79</td>
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</tr>
<tr>
<td>90-100</td>
<td>Outstanding achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Smith, S. i Howell M., (2005.): Navy Life Two „Pre-intermediate“, Istituto Tecnico Orion</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>
### NAME OF THE COURSE | TECHNICAL MECHANICS II
---|---
**Code** | VPS102
**Course teacher** | Damir Sedlar, Ph.D.  
| | Branko Klarin, Ph.D.
**Credits (ECTS)** | 4
**Associate teachers** | Živko Jurišić, M.Sc.Eng.
**Teaching methods (number of hours in a semester)** | L S E F  
| | 30 0 15 0
**Status of the course** | Mandatory
**Percentage of application of e-learning** | 

### COURSE DESCRIPTION

**Course objectives**
Familiarisation with basic principles of dynamics and their application in observing the influence of forces on body motion. Developing straightforward and logical way of thinking while analysing and solving practical engineering tasks in the area of dynamics of marine engineering elements and constructions. Recognising the fundamentals of the statics of the fluids and pressure forces on the walls surrounding inactive fluids. Familiarisation with the application of basic principles of the fluid dynamics of which will facilitate solving tasks related to fluids motion, which is essential in marine engineering practice.

**Course enrolment requirements and entry competencies required for the course**
Technical Mechanics I

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

**Student will:**
1. Define and understand the fundamentals of rigid body dynamics within various coordinate systems.
2. Explain the notion of work, power, mechanical energy, linear and angular impulse and momentum and mass geometry.
3. Solve and analyse simple examples the dynamics of translation, rotation and plane rigid body motion.
4. Distinguish physical properties of fluids and basic values in fluid statics.
5. Calculate the force exerted on the flat surface and force components on the curved surface in still liquid.
6. Understand the effect of buoyancy and calculate the buoyancy and stability of the floating body.
7. Apply the Bernoulli equation in solving practical examples of fluid flows and leak in simple hydrodynamic devices.
8. Formulate and calculate energy losses in laminar and turbulent flow of the fluids through pipelines and changed cross-sections of the pipelines.
9. Create prerequisites for understanding and acquiring new knowledge in other courses within the curriculum.
### Lectures:

2. Linear impulse and momentum. Angular impulse and momentum.
4. Rotation around fixed axis. Dynamic reactions in the bearing.
5. Plane motion. Vibrating spring mass system.
7. Pressure force on the flat and curved surfaces. Calculation of the wall thickness of the pipeline under pressure.
11. Discharge of the liquid through small and large openings.
14. Resistance during the flow of fluids. Calculation of all losses while fluids are passing through the pipeline.
15. Flow over body. Friction resistance, shape resistance and overall resistance while a body is passing through a fluid. Cavitation. Causes of cavitation. Cavitation number. Cavitation erosion. Types of cavitation during the flow of fluid or the motion of a body through a fluid.

### Exercises:

1. Application of the equations of motion and D'Alembert's principle at the forced motion of material particles. Examples of calculation work, power, kinetic and potential energy of particles.
2. Examples of the application of linear impulse and momentum and angular impulse and momentum.
4. Calculation of reactions in supports, kinetic energy and angular momentum at the rotation of the body.
5. Solving problems at planar motion of the rigid body using the equations of motion. Calculation of kinetic energy and momentum.
6. Basic dimensions and units in fluid mechanics. The units of viscosity. Pressure measurement and calculation of viscosity.
7. Calculation of forces fluid pressure on the horizontal and inclined surface. The action of the pressure forces on the curved surface. Determination of the thickness of the pipe wall.
9. Use the continuity equation. Determination of velocity and flow in the fluid flow through the pipeline.
10. Venturi tube.
11. Example of application of Bernoulli's equation at the flow of an ideal fluid.
12. Examples of discharge of liquid through the small and large opening.
13. Application of principle of impulse and momentum in determining the jet impact force on fixed and mobile plate or blades.
Example of calculations of characteristic values (speed, pressure, flow, losses) of simple pipe system.

Format of instruction:

- X lectures
- ☐ seminars and workshops
- ☐ exercises
- ☐ on line entirely
- ☐ mixed e-learning
- ☐ field lectures
- ☐ individual assignments
- ☐ multimedia
- ☐ lab exercises
- ☐ mentoring

Student responsibilities

Class attendance is compulsory for full-time students, which means that for obtaining the course teacher’s signature, the attendance of at least 95% at lectures and 100% at exercises is required. Students who have not attended 80% of lectures and/or exercises are allowed to, if they submit absentee note, compensate for the classes in the form of consultation and/or with seminar papers. In case of insufficient number of arrivals to class, students are not eligible for the signature and shall enrol in the course again next academic year.

Students have the opportunity to pass the exam through continuous evaluation during the semester by taking two midterm exams. The students are required to take both midterm exams. Students who do not pass the midterm exams, and have the signature, are required to take the written exam in the examination 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits 1</th>
<th>ECTS Credits 2</th>
<th>ECTS Credits 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance</td>
<td>1,2</td>
<td>Research</td>
<td>Practical training</td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
<td>Paper</td>
<td>Homework</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Insert other)</td>
</tr>
<tr>
<td>Midterm exams</td>
<td>2,8</td>
<td>Oral exam</td>
<td>(Insert other)</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Insert other)</td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students' work

Class attendance is compulsory for full-time students, which means that requirement for obtaining signature is a minimum 95% of lecture attendance and 100% of the exercises.

The student may be exempt from the written exam if she/he has taken successfully two (2) midterm exams that are written during the semester.

The first midterm exam includes the first to sixth week of lectures and it is taken in the 7th week of classes. The second midterm exam includes the seventh to the fourteenth week of lectures and is taken in the 15th week of classes. Sample questions for the students are available on the web. The midterm exams are necessary to achieve a minimum 50% of points. Students who do not join the first midterm exam for objective reasons or do not achieve the minimum percentage of points have the opportunity to take the written exam.

Students who do not pass the midterm exams and have obtained a signature are required to sit for written examination in the examination period.

The final evaluation includes attendance of classes, results of the midterm exam/ written exam and oral test. Same assessment criteria apply to tests as well as to continuous assessment.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures and active participation in exercises</td>
<td>min. 95% attendance of lectures, 100% attendance of exercises</td>
<td>10%</td>
</tr>
<tr>
<td>I Midterm exam</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>II Midterm exam</td>
<td>50%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Final examination:
<table>
<thead>
<tr>
<th><strong>Elements of evaluation</strong></th>
<th><strong>Achievement (min.%)</strong></th>
<th><strong>Portion of the final grade (%)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm exam or written exam</td>
<td>50%</td>
<td>65%</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Previous activities (including any indication of continuous assessment)</td>
<td>100%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>In total</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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


**Optional literature (at the time of submission of study programme proposal):**


**Quality assurance methods that ensure the acquisition of exit competencies:**

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

**Other (as the proposer wishes to add):**

---

**4.11.4.3 Elements of Maritime Transport II**

<table>
<thead>
<tr>
<th><strong>NAME OF THE COURSE</strong></th>
<th><strong>ELEMENTS OF MARITIME TRANSPORT II</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VP110</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>2nd</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Marko Katalinić, Ph.D.</td>
</tr>
<tr>
<td><strong>Credits (ECTS)</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Type of instruction</strong></td>
<td>L S E F</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>No e-learning</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

#### Course objectives

- The aim of the course is to introduce students to the:
  - intact stability
  - damaged stability
  - static and dynamic stability

#### Course enrolment requirements and entry competencies required for the course

- Establish initial transverse stability of the vessel and get to know the elements of transverse stability.
- Analyse the effects of different weight shifts to the elements of transverse stability of the ship.
- Define the impact of loading and unloading to ship transverse stability.
- Recognize the free surface effect and to know its impact on the elements of transverse stability.
- Analyse the stability of the ship according to different criteria.
- Explain and interpret the longitudinal stability of the ship and to know the elements of longitudinal stability.
- Examine the effect of loading and unloading to longitudinal stability of the ship.
- Define the elements of the dynamic stability of the ship and analyse the stability of the ship in damaged condition.

#### Learning outcomes expected at the level of the course (4-10 learning outcomes)

- Lectures
  01. Division of the ship’s stability according to different criteria, basic features and flotation conditions.
  02. Initial transverse stability of the ship.
  03. Effect of vertical horizontal and combined shifting of masses on-board on transverse stability of the ship.
  04. Effect of cargo loading on ship transverse stability.
  05. Effect of cargo loading and unloading with ship heavy lift cranes on transverse stability.
  06. Free surface effect on the initial transverse stability of the ship.
  07. Transverse stability at high angles of inclination, an indicator of stability at high angles of inclination.
  08. The construction of ship’s stability righting arm curve.
  09. Initial heel and trim, calculating the ship’s centre of gravity (transverse stability).
  10. The longitudinal stability of the ship.
  11. Impact of the weight shifts to the longitudinal stability, impact of loading and unloading to the longitudinal stability.
  12. Calculating the ship’s centre of gravity (longitudinal stability).
  13. Dynamic stability of the ship, the influence of the ship size and dimensions on stability.
  14. Stability of the ship in damaged condition and special cases.

- Exercises
  01. Ship documents (hydrostatic tables and diagrams).
  02. Using hydrostatic tables and diagrams.
  03. Numerical examples with shifting weights on-board.
  04. Numerical examples with loading and unloading of cargo.
  05. Numerical examples with loading by ship crane.
  06. Free surface effect calculation.
07. Stability at larger angles of inclination.
08. The longitudinal stability of the ship-elements. Midterm exam 01.
09. Numerical examples with influence of weight shifting on longitudinal stability.
14. Use of computers in the analysis ship stability.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>☑ lectures</th>
<th>☑ individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ seminars and workshops</td>
<td>☐ multimedia</td>
<td></td>
</tr>
<tr>
<td>☑ exercises</td>
<td>☑ lab exercises</td>
<td></td>
</tr>
<tr>
<td>☐ on line in entirety</td>
<td>☐ mentoring</td>
<td></td>
</tr>
<tr>
<td>☐ partial e-learning</td>
<td>☐ (other)</td>
<td></td>
</tr>
<tr>
<td>☐ field work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures and exercises are compulsory. The records of class attendance and practical exercises are kept continuously during the semester. Requirement for obtaining signatures is compulsory attendance of at least 80% of classes (lectures and exercises) and 100% of practical exercises. Obtaining a signature is a condition for taking an exam. Absentee notes cannot justify absence from class.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance 1,5 Research  Practical training</td>
</tr>
<tr>
<td>Experimental work  Report</td>
</tr>
<tr>
<td>Essay  Seminar paper 0,5</td>
</tr>
<tr>
<td>Tests 3 Oral exam</td>
</tr>
<tr>
<td>Written exam  Project</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment and evaluation of full-time students' work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance is compulsory. Students are required to attend at least 80% of lectures in order to obtain the course teacher’s signature. Testing includes 2 midterm exams. The first midterm exam that includes lectures 1-7 is in the eighth week of classes, and the other midterm exam with lectures 8-14 is in the 15th week of classes. Sample questions for the midterm exam are available. At each midterm exam it is necessary to achieve a minimum 60% of the points. Students that cannot sit for the midterm exam for objective reasons or do not achieve the minimum percentage, may retake the midterm exam in the 9th week. Students who do not pass the first midterm exam cannot access the second midterm exam. The final evaluation includes class attendance, test results and individual assignments.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Continuous evaluation students' performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluation</td>
</tr>
<tr>
<td>Attendance of lectures and active participation in exercises</td>
</tr>
<tr>
<td>Midterm exam I</td>
</tr>
<tr>
<td>Midterm exam II</td>
</tr>
<tr>
<td>Individual assignments</td>
</tr>
</tbody>
</table>
### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-59</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>60-69</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>70-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

Students who do not pass the midterm exams during the semester and have obtained the signature are required to take the exam in the examination period.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derrett &amp; Barrass: Ship Stability for Masters and Mates</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Croatian Register of Shipping: Part 4 Stability</td>
<td>2</td>
<td><a href="http://www.crs.hr">www.crs.hr</a></td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

1. C.S. Moore: Intact Stability, SNAME
3. Barrass, B: Ship Stability for Masters and Mates
4. Dokkum, K.: Ship Knowledge, Dokmar
5. Dokkum, K.: Ship Stability, Dokmar

### Quality assurance methods that ensure the acquisition of exit competences

- Questionnaires
- Evidence lists of the students
- Faculty supervision

### Other (as the proposer wishes to add)

**4.11.4.4 Work Organisation and Management On Board**

### NAME OF THE COURSE

**WORK ORGANISATION AND MANAGEMENT ON BOARD**

<table>
<thead>
<tr>
<th>Code</th>
<th>Year of study</th>
<th>Credits (ECTS)</th>
<th>Type of instruction (number of hours in a semester)</th>
<th>Status of the course</th>
<th>Percentage of application of e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPN111</td>
<td>2nd</td>
<td>4</td>
<td>L 30 S 0 E 15 F 0</td>
<td>Mandatory</td>
<td>30%</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

**Course objectives**

Introduction to organization of the multinational crew with regard to cultural and social differences. Learn to plan work on board. Provide insight into the correct behaviour in emergencies. Teach students leadership (issuing orders).

**Course enrolment requirements and entry competencies required for the course**

/  

**Learning outcomes expected at the level of**

Organize the crew, and plan activities and exercises on board.
the course (4-10 learning outcomes)

Identify specific dangerous situations as dangers on board (e.g., stress, alcohol, workload, distinct authority, etc.) and analyse the characteristics of seafarers (attitude, hard work, authoritativeness, positive initiative).

Develop a good or bad organizational structure of work on board ship.

Analyse cultural differences of multinational crews, and with this in mind optimally organize the crew.

Lectures
1. The management structure on board. Organization of duties and responsibilities on board.
2. Ergonomics and design of ships, human error due to automation
3. Attitudes, values, personality, attributes of crew members. The application of the ISM Code.
5. Organization of drills on board.
6. Fatigue on board, planning of working hours, the ILO convention.
7. Contracts for seafarers according to ITF.
8. Stress, fears, human limitations.
10. Short-term strategy, leadership, types of leadership, authority, positive initiatives.
12. Cultural differences, social differences (individualism, collectivism, parochialism, short and long power distance).
13. The study of cases of distress caused by errors.
14. MCRM software package.
15. Videotel software.

Exercises
2. Attitudes (positive and negative attitudes).
3. Situational and safety awareness.
4. Cultural differences (different nationalities crew management).
5. Communications and meetings (safety, pre-arrival and pre-departure etc.).
6. Authority (balance between authority and assertiveness).
7. Proper challenge and response.
8. Short-term strategy and planning.
9. Workload, planning working hours and hours of rest.
10. Human-Automation Interaction (human factors and ergonomics)
11. Teamwork (leadership and the importance of teamwork within a vessel)
12. Human error management (safe management and operation of ships and for the implementation of a safety management system (SMS)).
13. Leadership styles (Autocratic, bureaucratic, charismatic etc.).
14. Effective decision making.
15. Videotel (students result reports).

Format of instruction:

- lectures
- seminars and workshops
- exercises
- on line in entirety
- partial e-learning
- field work
- individual assignments
- multimedia
- lab exercises
- mentoring
- MCRM packages
- Videotel

Student responsibilities

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular attendance</td>
<td>95%</td>
</tr>
<tr>
<td>Exercise lessons</td>
<td>100%</td>
</tr>
<tr>
<td>MCRM software</td>
<td>100%</td>
</tr>
</tbody>
</table>
Grading and evaluating student work in class and at the final exam:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course attendance</td>
<td>95</td>
<td>20</td>
</tr>
<tr>
<td>MCRM CBT</td>
<td>95</td>
<td>20</td>
</tr>
<tr>
<td>Mid-term test (optional)</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td>Written exam (optional)</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td>Oral exam (optional)</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td>Videotel</td>
<td>80</td>
<td>20</td>
</tr>
</tbody>
</table>

1 or 2 or 3 optional requirement. In total 100.

Final examination:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written test (or oral optional)</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Videotel</td>
<td>80</td>
<td>20</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-80</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>80-85</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>85-90</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>90-95</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>
### 4.11.4.5 Marine Power Systems

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARINE POWER SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS103</td>
</tr>
<tr>
<td>Year of study</td>
<td>2nd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Nikola Račić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Karlo Bratić, M.Sc.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>45 0 15 0</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

Introduce students to the processes and designs of marine propulsion systems and marine auxiliary power systems. Clarify their features, management, and handling that is directly or indirectly in the domain of deck officer. Introduce students to the systems of remote control and monitoring of the main propulsion machinery from the bridge, and the alarm system and automatic protection of the main propulsion engine.

**Course enrolment requirements and entry competencies required for the course**

- Engineering Mechanics
- Marine Electrical Engineering and Electronics I

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

**Student will:**

1. Discern and describe the processes, elements and performance of marine propulsion systems.
2. Identify and describe the function and performance of marine auxiliary power systems for securing energy flows to propulsion system, safety and protection of the ship, and life and comfort on board.
3. Analyse and present procedures of preparation and management of systems that directly or indirectly make running of the main propulsion engine effective.
4. Analyse and describe the function of system pipeline and equipment necessary for safe navigation.
5. Connect basic knowledge of technical concepts of marine engineering and physical units to connect cause-effect dependence between the measured values and alarm system limit values and automatic protection of the main propulsion engine.

**Lectures:**
1. Ship's propulsion systems.
2. Propeller shaft and designs of ship's propulsion units.
5. Steam turbine propulsion system.
6. Auxiliary boilers.
7. Pumps.
8. General service pipeline systems.
10. Refrigeration plant, air-conditioning and ventilation.
11. Deck machines.
12. Steering gear.
14. Managing and controlling of ship power energetic complex.
15. Marine engineering expressions.

**Exercises:**
1. Analysis of marine propulsion systems
2. Analysis of diesel engine propulsion system on the engine simulator.
3. Analysis and handling of seawater and freshwater cooling systems.
4. Analysis and handling of fuel and lubricating oil systems.
5. Analysis and handling compressed air system. Preparing and starting main engine and auxiliary machinery.
6. Preparing and starting steam generator. Analysis of fuel, air, condensate and feed water systems.
7. Preparation for work and starting steam turbine.
8. Analysis of volumetric and dynamic pumps and elements of pipelines.
9. Analysis of the functionality of bilge and ballast systems.
11. Steering gear control system, control methods and emergency steering.
12. Steam compression refrigeration system, analysis and operation of the system.
13. Placing in the work generators - parallel operation of synchronous generators.
14. Automatic operation of the ship's machinery system, functioning in the event of failure and excessive circumstances.
15. Calculation of fuel consumption.

**Format of instruction:**
- ☑ lectures
- ☐ seminars and workshops
- ☑ exercises
- ☐ on line in entirety
- ☐ individual assignments
- ☐ multimedia
- ☐ lab exercises
- ☐ mentoring

---

Course content broken down in detail by weekly class schedule (syllabus)
Student responsibilities:

Students’ obligations:

Class attendance is compulsory for all students meaning that the requirement for obtaining the course teacher’s signature is attendance of 80% at lectures and exercises. Students who have not attended at least 80% at lectures and/or exercises are allowed to, if their absence is justified, attend compensation classes in the form of consultation and/or with seminar papers. In case of insufficient class attendance students are not eligible for signature and shall enrol in the course again next year.

Students have the opportunity to pass the exam through continuous evaluation during the semester by taking two midterm exams. Students who do not pass the midterm exams and have obtained a signature, are required to take the written exam within the examination period. Students who have obtained enough points during semester are required to apply for the exam in the examination 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Proportion of ECTS credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
</tr>
<tr>
<td>Seminar paper</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Midterm exams</td>
<td>1,5</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>1,5</td>
</tr>
<tr>
<td>Project</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

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

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

Assessment and evaluation of full-time students’ work

Active participation in classes and exercises is monitored during the semester. The student may be exempt from taking written exam if he/she has passed the two midterm exams written during the semester.

The first midterm exam includes the first to sixth week of lectures and is taken in the 7th week of classes. The second midterm exam includes the seventh to fourteenth week of lectures and it is taken in the 15th week of classes. Sample questions for the students are available on the web. Students must achieve a minimum 50% of points in order to pass the midterm exams. Students who do not take the first midterm exam for objective reasons or do not achieve the minimum percentage will have the opportunity to retake the exam in the 15th week, and the second midterm exam can be retaken within the final examination period.

The final evaluation includes the presence in the classroom and exercises, and the results of the midterm exams.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course attendance and participation</td>
<td>80% attendance</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam I</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>50</td>
<td>45</td>
</tr>
</tbody>
</table>

Final examination:
### Elements of evaluation

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written exam</td>
<td>50</td>
<td>65</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>Previous activities (including any indication of continuous assessment)</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>ISBN</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Quality assurance methods that ensure the acquisition of exit competences

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty

Other (as the proposer wishes to add)
# Marine Electrical Engineering and Electronics II

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARINE ELECTRICAL ENGINEERING AND ELECTRONICS II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPE102</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Igor Vujović, Ph.D.</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>2nd</td>
</tr>
<tr>
<td><strong>Credits (ECTS)</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Associate teachers</strong></td>
<td>Tomislav Peša, M. Eng.  Dean Sumić, M. Eng.</td>
</tr>
<tr>
<td><strong>Type of instruction (number of hours in a semester)</strong></td>
<td>L 45 S 0 E 1 F 5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status of the course</th>
<th>Percentage of application of e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>10</td>
</tr>
</tbody>
</table>

## COURSE DESCRIPTION

### Course objectives
Mastering of basic laws of alternate electric current circuits, applicable to other study courses and practical work. Particular attention will be paid to the application of acquired knowledge and competences to the operation of shipboard electric devices and systems.

Course objective is also to acquire knowledge of the operational principles of electrical circuits, generation units, accumulation, distribution and loads of electric energy aboard ships. Electronic components principles are studied. Planar technology is explained for manufacturing of electronic devices. The objective is also to master fundamentals of receiving, transmitting and propagation of electromagnetic waves, as well as parts of radiocommunication devices aboard.

### Course enrolment requirements and entry competencies required for the course
Marine Electrical Engineering and Electronics I

### Learning outcomes expected at the level of the course (4-10 learning outcomes)
Upon successfully mastering the course, the student is enabled to:
- Define and use all the laws of alternating electric current circuits.
- Analyse and calculate complex alternating current circuits.
- Plan and perform measurements in alternating, single-phase, and three-phase systems.
- Master safety measures at working with the alternating current.
- Present basic principles of electrical engines operations.
- Compare DC, single-phase, and three-phase AC systems of energy distribution aboard.
- Recognize safety components of ship’s electrical grid.
- Explain principles of operation of high-frequency electronic tubes.
- Explain advantages of the planar technology.
- Present fundamental principles of EM waves generation and propagation, and indentify impact factors for EM waves propagation.

### Course content broken down in detail by weekly class schedule (syllabus)

#### Lectures:
2. AC values expressed with complex numbers. Fundamental laws applied to AC circuits. Impedance, reactance, admittance. Phase angle.
8. Three-phase systems. Rotating magnetic field.
13. Physical fundamentals of electromagnetic waves. EM waves propagation.
15. IMO requirements.

**Exercises:**
2. AC quantities measurement by the oscilloscope.
3. Adjustment of various wave shapes by oscilloscope.
4. Serial connection of resistor, coil, and capacitor.
5. AC circuit power.
6. Resonance.
7. Power factor compensation.
8. Three-phase source.
9. Two port circuits.
10. Mono-phase transformer.
11. Loads’ star and triangle connections.
12. Simulation and animation of EM waves and oscillating circuits.
13. RLC serial oscillating circuit.
15. Full-wave rectification

**Format of instruction:**
- ☒ lectures
- ☐ seminars and workshops
- ☒ exercises
- ☐ on line in entirety
- ☐ partial e-learning
- ☐ field work
- ☐ individual assignments
- ☒ multimedia
- ☐ lab exercises
- ☐ mentoring
- ☐ (other)

**Student responsibilities**
Students have to attend 80% of lectures, and 100% of laboratory exercises. Students, who do not meet this requirement, need to make up for missing exercises in regular lecture calendar. If they do not do so, they have to re-enrol the course the following academic year in order to approach the exam. Students who have obtained enough points, have to apply for the exam by WEB service (“Studomat”) for the examination term. Students who do not pass midterm exams, have to sit for the final exam (if they have 80% attendance for lectures and 100% for lab).
Students may alone or in a team cover topics by e-learning material.

<table>
<thead>
<tr>
<th>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)</th>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Midterm exams</td>
<td>2</td>
<td>Oral exam</td>
<td>1</td>
</tr>
<tr>
<td>Written exam</td>
<td>1</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

In order to be allowed to sit for examination, students are obligated to attend at least 80% of lectures and 100% of laboratory exercises. Three midterm exams are written in the semester.

The first midterm exam covers topics from 1-4th week, and it is written in the 6th week.

The second midterm exam covers topics from 5-9th week, and it is written in the 9th week. The third midterm exam covers topics from the rest of the semester, and it is written in the last week.

Examples of the questions are available at the Faculty web page.

In order to pass the midterm exam, a student must obtain 40% of points.

Students who do not attend the midterm exam for objective reasons or do not obtain 40% of points, will have opportunity to retake the midterm exam.

The final grade is obtained by attendance and midterm (or final) exams.

### Continuous evaluation of students’ performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80 (100%)</td>
<td>10</td>
</tr>
<tr>
<td>Test I</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Test II</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Test III</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving – in writing</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Theory – in writing or oral</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Previous activities (including all measures of assessment)</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-39</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>Grade Range</td>
<td>Meeting Criteria</td>
<td>Grade Quality</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>40-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Literature (available in the library and via other media)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Lessons in Electric Circuits, allaboutcircuits.com/textbook</td>
</tr>
<tr>
<td>K.P. Mohandas, Basis of Electrical Engineering, ECReference Books</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional Literature (at the time of submission of study programme proposal)</th>
</tr>
</thead>
</table>

**Quality assurance methods that ensure the acquisition of exit competences**

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty

**Other (as the proposer wishes to add)**

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4.11.4.7 **Graphic Drawing in Marine Engineering**

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>GRAPHIC DRAWING IN MARINE ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPS104</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>2nd</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Luka Mihanović Ph.D.</td>
</tr>
<tr>
<td><strong>Credits (ECTS)</strong></td>
<td>3</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Tomislav Perić</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives
Master the principles and standards of technical sketching, drawing and creating documents. Familiarisation with technical drawing and independent creative production.

Course enrolment requirements and entry competencies required for the course
No requirements

Learning outcomes expected at the level of the course (4-10 learning outcomes)
1. Understand the elements of the technical drawing and to interpret it (ISO, DIN and HRN standards).
2. Familiarise with technical drawing.
3. Create a sketch, outline and technical drawing of an engineering element or system by using the calculation in orthogonal projection and its spatial visualisation as part of technical documentation (using technical accessories or AutoCAD).

Course content broken down in detail by weekly class schedule (syllabus)
1. Introduction to technical drawing. Rules, regulations and recommendations in accordance to ISO and DIN standards in technical drawing. Types and classification of technical drawing.
5. Sketching of elements in orthogonal and axonometric projection.
9. Scheme, symbols of electrical, pneumatic, hydraulic and thermal machines and elements.
10. Method of indicating surface texture in drawing – basic definition, symbols and additional indication for indication surface texture.
12. AutoCAD: setup of environment (grid, units, layers, commands, coordinate system). Drawing objects (point, line, ray, circle, arc, ellipse, text, polyline, polygon, hatch, spline, surfaces and solids)
15. Printing setup.

Format of instruction:
- lectures
- seminars and workshops
- exercises
- entirely online
- combined with e-learning
- field work
- individual assignments
- multimedia
- lab exercises
- mentoring
- (other)

Student responsibilities
Class attendance is obligatory.
Class attendance is confirmed by student’s signature on, for that purpose prescribed, record sheet. Students have to be present on classes at least 80% on lectures and 90% on exercises of prescribed hours. During the semester students are given program tasks which have to be completed individually at latest by the beginning of the next semester. Program tasks are considered to be done when they are positively evaluated. Obligations of students are fulfilled with the minimum percentage of class attendance and tasks completion. Students are not allowed to take final exam if they have not fulfilled subject obligations. Those students must re-enrol 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 | 1 | Research |
| Program tasks | 100 | (other) |
| Essay | Seminar paper | Program ming |
| Midterm exam | 1 | Oral exam |
| Written exam | Project | (other) |

Assessing and evaluating students’ performance:
Final evaluation includes class attendance, program tasks, midterm exams or written exam and oral exam. All components have to be evaluated positively, at least with minimum criteria met, in order to pass the final exam. Final exam consists of written and oral exam. During semester two midterm exams are taken. Students who pass both midterm exams are exempt from final written exam. Students who do not pass one of midterm exams may retake that exam in the final examination period. After, in addition to the written part of the exam or midterm exam, the student meets the minimum requirements in the oral part of the exam, the student has passed the exam. If the student has not solved two midterm exam with a positive grade, the student should take the entire exam.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80 - 100</td>
<td>28,125</td>
</tr>
<tr>
<td>Program tasks</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>1st Midterm exam</td>
<td>50</td>
<td>23,437</td>
</tr>
<tr>
<td>2nd Midterm exam</td>
<td>50</td>
<td>23,437</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-65</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>66-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-85</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95 -100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>
Required literature (available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Available via other media</th>
</tr>
</thead>
</table>

Quality assurance methods that ensure the acquisition of exit competences

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

Other (as the proposer wishes to add)

4.11.4.8 On-board Training II

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ON-BORAD TRAINING II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN112</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Tomislav Sunko, M.Eng. Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>2</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F 0 0 0 30</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives

The main objective of this course for students is to acquire practical knowledge and skills of ship handling in all conditions and gain experience of living and working on board a ship and learning how to be an active member of the crew in ship’s daily routine in accordance with STCW and SOLAS conventions.

Course enrolment requirements and entry competences required for the course

Seamanship III, Elements of Maritime Transport I and II, Work Organization and Management On Board

Learning outcomes expected at the level of the course (4 to 10 learning outcomes)

Naval Nautical students:

1. Participation in keeping a navigational watch and doing ship paperwork in a proper way.
2. Acquiring practical knowledge and skills of search and rescue procedures, life saving appliances and survival at sea techniques.
3. Acquiring skills of handling small boats, sailboats and yachts, propelled by engine, oars or sails.
4. Participation in bridge communication procedures, both in Croatian and English.
5. Learning how to be an active member of the crew in daily practices of maintaining a
ship and ship systems, berthing, unberthing, navigation, ship’s stay in port, etc.
6. Gaining experience of living and working on board a ship, within the group of people
in limited space.

**Marine engineering students:**
1. Acquiring practical knowledge and skills of the functioning and performance of marine
propulsion systems, marine auxiliary power systems, boiler steam systems, separator
filter plants, compression systems, hydraulic systems and steering gear control systems.
2. Learning how to apply this knowledge on board ships and simulators, according
to STCW convention management level requirements.

**Course content broken down in detail by weekly class schedule**

**Exercises for Naval Nautical students :**
1. Applying International Regulations for Preventing Collisions at Sea
2. Voyage planning, making a passage plan.
3. Determining position in navigation and its plotting onto a nautical chart using
navigational instruments and devices, RADAR, ARPA, AIS, ECDIS, GPS/DGPS
and other navigational systems.
4. Regular and emergency steering gear
5. Berthing and unberthing a ship, anchoring a ship, handling marine ropes and steel
cables.
6. Procedures of organizing the ship’s crew at sea and in port according to SOLAS
manual.
7. Maintaining bridge communication procedures, both in Croatian and English.
8. Determining search and rescue procedures, handling rescue crafts.

**Exercises for Naval Marine engineering students:**
1. Fire-fighting procedures, handling fire fighting systems and equipment,
   engine room fire fighting procedures using CO2 and handling a fire fighting
   water pump.
2. Handling personal fire fighting equipment, including a breathing apparatus
3. Familiarisation with the construction of a ship.
4. Following an efficient watchkeeping routine in the ship’s engine room.
5. Keeping the engine room log book record in a proper way.
6. Handling a ship separator system, maintaining a sanitary wastewater device,
   handling devices for separating oil from the bilges and interpreting oil record book.
7. Familiarization with design and principle of structural tanks and ways of measuring
   their contents.
8. Handling cooling and ventilation systems, steam-compression plant, air –
   compression plant.
9. Handling fuel and lubricating systems, bunkering procedures.Replenishing at sea
   (RAS).
10. Familiarization with design and principle work of individual elements of hydraulic
    systems, tanks, pumps, pipes, control valves, hydraulic motors and pipelines,
    steering gear system, requirements for emergency steering system, mode of
    switching from remote control to local controls of steering gear, maintaining the
    ship overall hydraulic system.
11. Handling different types of cargo winches, winches and anchor windlass.
12. Air motor-starting systems procedures, motor preparation for starting, propulsion engine reversing and handling coupling and reduction gear systems.
13. Familiarization with motor central cooling systems and their characteristics, sea and fresh water systems and lubricating oil system.
14. Maintaining the ship main engine system.
15. Familiarization with generators, alternators and electrical energy distribution, handling work of DC and AC generators, parallel work of two or more generators, handling work of a D.C. motor, handling induction motors, AC and DC distribution systems, battery maintenance, design and use of switches and fuses. Controlling and monitoring a ship power plant, handling propulsion engine automatic remote control systems and engine bridge control system, handling surveillance, warning and alarm systems.

### Format of instructions

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars and workshops</th>
<th>Independent assignments</th>
<th>Multimedia</th>
<th>Laboratory</th>
<th>Work with mentor</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Student obligations

Mandatory 100% attendance, log keeping. Students who do not achieve 100% attendance, i.e., miss boarding the school ship are required to re-enroll in the course next year. The schedule and program of the pratcite are realized during boarding on a school or some other appropriate ship, within a 24-hour stay on the ship for a minimum of 5 days.

### Screening student work (enter 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experimental work</th>
<th>Report</th>
<th>Standalone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay</td>
<td>Seminar essay</td>
<td>Demonstration of understandings 1,3</td>
</tr>
<tr>
<td>Tests</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

**Assessment and evaluation of full-time students’ work**

The exam is not taken. In order to obtain a signature, it is necessary to complete 100% of the planned voyage on the school ship, actively participate in the exercises, fill in the appropriate log and complete other set tasks. Students who have completed maritime high school and have more than 6 months of navigation as deck or engine trainees (or officers) in the last five years will be recognized as navigational practices. Evidence is obtained by inspecting the seaman’s book, and by reviewing the authorization of the officer of the navigational watch or by reviewing the log kept by the cadet.

**Continuous evaluation of the students’ performance:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Demonstration of skills and knowledge</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Required literature (available in the library and via other media)</td>
<td>Title</td>
<td>Number of copies in the library</td>
</tr>
<tr>
<td>------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>IMO: Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>MARISEC: Bridge Procedures Guide, 1998</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>IMO/ILO Reference Manual</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Hydrographic Institute publications and charts</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

| Optional literature (at the time of submission of study programme proposal) | Bridge Team Management, Second Edition, Captain A. J. Swift FNI, 2004 |

| Quality assurance methods that ensure the acquisition of exit competences | Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire |

| Other (as the proposer wishes to add) |                                                                      |  |
### 4.11.4.9 Physical Education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO115</td>
</tr>
<tr>
<td>Year of study</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>0</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

#### Course objectives
The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one’s health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.

#### Course enrolment requirements and entry competencies required for the course

#### Learning outcomes expected at the level of the course (4-10 learning outcomes)
- Use part of the basic kinesiological motor knowledge about a certain kinesiological activity that is important for successful studying.
- Develop the abilities, characteristics and positive attitudes defined within the educational area of physical education which contribute to successful studying.
- Recognize the need and importance of regular exercise in order to preserve one’s health and improve the quality of life.
- Perform basic kinesiological programs on one’s own.
- Conduct the testing of anthropological characteristics.
- Plan an active rest (an active break during periods of study in one’s free time).
- Develop tolerance, work habits and self-discipline.

#### Course content broken down in detail by weekly class schedule (syllabus)
- Exercises:
  1. Regular testing of physical abilities
  2. The development of functional abilities
  3. The development of motor abilities
  4. Fitness programs
  5. Swimming
  6. Naval pentathlon (naval obstacles, navy skills training area)
  7. Navy skills training (rowing, sailing)

#### Format of instruction:
- Lectures
- Seminars
- Exercises
- On-line in entirety
- Individual assignments
- Multimedia
- Lab exercises
- Mentoring
- Field work

#### Student responsibilities
Students are required to participate in exercises. Records of student attendance are also kept.
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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Tests</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

Assessment and evaluation of full-time students’ work
During the academic year, students are required to take two regular physical fitness tests to meet the established norms.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

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


Quality assurance methods that ensure acquisition of learning outcomes

University survey and teaching supervision.

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


4.11.5 3rd Year, V Semester

4.11.5.1 Mathematics III

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MATHEMATICS III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO116</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Nikola Koceić-Bilan, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Type of instruction (number of hours in a semester)</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Course objectives</td>
<td>Basic knowledge of the mathematics areas that is necessary for studying and student performance in other courses within the curriculum.</td>
</tr>
<tr>
<td>Course enrolment requirements and entry competencies required for the course</td>
<td>Successful completion of Mathematics I and Mathematics II</td>
</tr>
</tbody>
</table>

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<tr>
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<td>Credits (ECTS)</td>
<td>4</td>
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<tr>
<td>Associate teachers</td>
<td>Type of instruction (number of hours in a semester)</td>
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</tr>
<tr>
<td>Course objectives</td>
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</tr>
<tr>
<td>Course enrolment requirements and entry competencies required for the course</td>
<td>Successful completion of Mathematics I and Mathematics II</td>
</tr>
</tbody>
</table>
Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Explain and calculate double and triple integrals
2. Apply them in solving problems
3. Express definitions and explain the meaning of the fields scalar and vector fields
4. Use differential operators
5. Explain and calculate curve and surface integrals
6. Solve practical problems with the aid of complex functions, Fourier's order and integrals
7. Describe Laplace's transformations and apply them in solving differential equations.

Course content broken down in detail by weekly class schedule (syllabus)

- **Lectures:**
  1. Introduction.
  2. Double integrals and applications.
  3. Triple integrals and applications.
  4. Scalar and vector field.
  5. Differential operators.
  6. Curve integral of the first order.
  8. Surface integral of the first order.
  10. Complex functions.
  11. Fourier's order.
  12. Fourier's transformation.
  13. Laplace's transformation.
  15. Reviewing and revision.

- **Exercises:**
  1. Revision of defined integrals.
  2. Double integrals and application.
  3. Triple integrals and application.
  4. Scalar and vector field.
  5. Differential operators.
  6. Curve integral of the first order.
  8. *Midterm exam*
  9. Surface integral of the first order.
  11. Fourier's order.
  12. Fourier's transformation.
  13. Laplace's transformation.
  15. *Final exam*

**Format of instruction:**
- Lectures
- Seminars and workshops
- Exercises
- *On line* in entirety
- Partial e-learning
- Field work
- Individual assignments
- Multimedia
- Lab exercises
- Mentoring
- (Other)

**Student responsibilities:**
- Attending lectures and auditory exercises for at least 80% of provided hours.
- Active participation in lectures and regular attendance. There are two
midterm exams (midterm and end of term exam). Passing both exams exempts the student from attending the final written exam. After passing the written part of the exam the student must take the oral exam. In case the student does not attend lectures regularly he/she is obligated to enrol in the course again next academic year.

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Test</td>
<td>Oral exam</td>
<td>0.9 (Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students' work
Each student must take the written and oral exam. Written part of the exam consists of two midterm exams (midterm test during the 8th and End of term test during the 15th week of the course) and of the final written exam (during the examination term). After passing the written part of the exam the student must take the oral exam. In case the student was extremely active during the lectures and is content with his or her grade of the written exam, he or she may be exempt from taking the oral part of the exam. The student must have at least 50% of points to pass the midterm/end of term exam. The student must pass both exams to be exempt from taking the final written exam. If the student passes only one of the two exams, he or she will be exempt from that part of the curriculum in the final written exam. The grade of the written part of the exam is based on the average value of the midterm/end of term exam points or the final written exam points.

The students' attendance and activity are monitored during the course and are added to the final grade of the course.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and activity during the course</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>The most active students gain 5-10 points, depending of the activity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>2nd Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>70 - in this case the student can attend the oral exam</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
</table>
Written exam | 50 | 60
Oral exam | 50 | 30
Previous activities (include all indicators of the continuous assessment) | 80 | 10
In total | 100

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal">https://www.pfst.hr/hr/component/intranet/?view=sskolegijmaterijal</a></td>
<td>yes</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. Jerri: “Introduction to Integral Equations with Applications”, John Wiley &amp; Sons, 1999</td>
<td>yes</td>
<td></td>
</tr>
</tbody>
</table>

Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of students attendance, Teaching process monitoring by Faculty.

Other (as the proposer wishes to add)

4.11.5.2 Military Psychology

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY PSYCHOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO117</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Darko Hren, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>3</td>
</tr>
</tbody>
</table>
### Associate teachers

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katija Kalebić</td>
<td>Associate</td>
</tr>
<tr>
<td>Jakupčević, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Boris Milavić, Ph.D</td>
<td></td>
</tr>
<tr>
<td>Vesna Trut, M.Sc.</td>
<td></td>
</tr>
</tbody>
</table>

### Type of instruction (number of hours in a semester)

<table>
<thead>
<tr>
<th></th>
<th>L</th>
<th>S</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>0</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
</table>

### Status of the course

<table>
<thead>
<tr>
<th>Mandatory</th>
</tr>
</thead>
</table>

### Percentage of application of e-learning

| 20 |

### COURSE DESCRIPTION

**Course objectives**

Students will be able to identify, describe and explain basic terms in the area of general and military psychology. They will know how to apply and integrate them in the process of general and commanding military duties. Students will be able to identify, predict and partially modify behaviour and experience of individuals and groups in military surrounding.

**Course enrolment requirements and entry competencies required for the course**

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. To integrate the knowledge from the general and military psychology into professional work.
2. To identify, explain and modify behaviour and experiencing of individuals and groups in military surrounding.
3. To recognize and acknowledge inefficient professional functioning and demonstrate efficient models of behaviour.
4. Identify individuals at risk, and organize and plan resolving interpersonal problems in fulfilling military duties.
5. To identify and predict the influence of professional stress at the individual and group (military unit) level.
6. To prepare and create a system of psychological prevention and support in the military unit.
7. To describe, prepare and organize basic tenets of psychological military preparedness.
8. To predict, prepare and organize cooperation with psychologist in a military unit.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures**

1. Introduction to military psychology, 2L
2. Psychology of soldier personality, 2L
3. Psychological selection and classification in the military, 2L
4. Psychological specifics of commanding behaviour, 2L
5. Motivational activities in the military, 2L
6. Adjusted and unadjusted behaviour in the military, 2L
7. Psychological preparedness for combat, 2L
8. Attention in the military, 2L
9. Tiredness and military efficiency, 2L
10. Emotions and military efficiency, 2L
11. Stress management, 2L
12. Psychological specifics of international military operations, 2L
13. Psychological specifics of international military operations, 2L
14. Psychological crisis interventions, 2L
15. Psychological preparedness of soldiers, 2L
### Exercises
1. Introduction to military psychology,
2. Psychology of soldier personality,
3. Psychological selection and classification in the military
4. Psychological specifics of commanding behaviour,
5. Motivational activities in the military,
6. Adjusted and unadjusted behaviour in the military,
7. Psychological preparedness for combat,
8. Attention in the military,
9. Tiredness and military efficiency,
10. Emotions and military efficiency,
11. Stress management,
12. Psychological specifics of international military operations,
13. Psychological specifics of international military operations,
14. Psychological crisis interventions,
15. Psychological preparedness of soldiers

#### Format of instruction:
- ☑ lectures
- ☐ seminars and workshops
- ☐ tutorials
- ☐ completely online
- ☑ mixed e-learning
- ☐ field teaching
- ☐ individual assignments
- ☐ multimedia
- ☐ practical work
- ☐ lab exercises
- ☐ mentoring
- ☐ (other)

#### Student responsibilities
Attending lectures and practical training is compulsory and the attendance list is kept. Students must attend at least 90% of all classes (lectures and practical training) or they are denied the lecturer's signature and cannot pass the course. Students who have missed classes and thus are denied the lecturer's signature because of health issues or other acceptable reasons will be given an opportunity to make up for missing classes through additional independent work after consultation with course coordinator.

#### 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,5</td>
<td>Term paper</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Experimental work</td>
<td>Seminar paper</td>
<td>0 (other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Oral exam</td>
<td>(other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>Project</td>
<td>(other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>0</td>
<td>Project</td>
</tr>
</tbody>
</table>

#### Grading and evaluating student work in class and at the final exam
Students can pass the course by passing two midterm exams (at least 50% success on each). In case they do not pass one or both midterm exams they need to take the final exam.

#### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade ( %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and activity in class</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>I Midterm exam</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>II Midterm exam</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>
### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>90</td>
<td>20</td>
</tr>
<tr>
<td>Exam (written and oral)</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail(1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient(2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good(3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
</tr>
</thead>
</table>

### Quality assurance methods that ensure acquisition of learning outcomes

| Student evaluation, attendance list, University class monitoring |

### Other (as the proposer wishes to add)
4.11.5.3 Military Pedagogy

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY PEDAGOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO118</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Ivana Batarelo Kokić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>3</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Andrija Kozina, Ph. D.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>0 %</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
The course goal is to develop students’ critical understanding and evaluation of the following: the term and subject of (military) pedagogy, methodology and area of research; military education curriculum theory; adult education theories; area and content of educational standards in military pedagogy; didactic and methods of lifelong teaching and learning in military education.

**Course enrolment requirements and entry competences required for the course**

**Learning outcomes expected at the level of the course (4 to 10 learning outcomes)**

*Students will be able to:*
1. Explain characteristics of the pedagogical science and its relation towards other disciplines
2. Critically think about military education curriculum
3. Define and formulate goals and outcomes of learning
4. Define and explain basic andragogic terms
5. Define particularities of the educational work in military education
6. Explain didactic models, educational systems, teaching methods and approaches
7. Explain the lifelong learning phenomena in military education
8. Conduct practical pedagogical, didactic and methodological work

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**
1. Theoretical and methodological basis of pedagogy, its subject and area of research
2. Theoretical and methodological basis of pedagogy, its subject and area of research
3. Military education curriculum, structural characteristics, competencies and outcomes
4. Taxonomy of learning objectives
5. Relation between learning outcomes and competencies
6. Theory and practice of adult education
7. Theory and practice of adult education
8. Educational standards of military pedagogy
9. Didactic models and strategies, educational systems, teaching methods, forms and teaching principles
10. Didactic models and strategies, educational systems, teaching methods, forms and teaching principles
11. Planning, organizing, realization and evaluation of military education
12. Planning, organizing, realization and evaluation of military education
13. Specific methodological approaches in work with military learners
14. Lifelong learning in military education
15. Future of military pedagogy

**Exercises:**
1. Student teaching and critical-methodical participation in classes.
2. Learning styles (visual, reading, auditory, kinaesthetic).
3. Analysis of practical military training.
4. Evaluation of the teaching activity implementation.
5. Educational management (autocratic, democratic, emotional, laissez-faire)
6. Problem solving approaches.
7. Definition of the military education standards.
8. Modern educational systems.

<table>
<thead>
<tr>
<th>Format of instruction</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>Seminars and workshops</td>
<td>Independent assignments</td>
</tr>
<tr>
<td>Exercises</td>
<td>On line in entirety</td>
<td>Multimedia</td>
</tr>
<tr>
<td></td>
<td>Partial e-learning</td>
<td>Laboratory</td>
</tr>
<tr>
<td></td>
<td>Field work</td>
<td>Work with mentor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are expected to regularly attend lectures and other course activities (2.0 ECTS points). Students are allowed to miss 30% of the lectures/exercise (the absence is not an excuse for non-completion of the current tasks). Students that miss more than 30% of the lectures/exercises and do not complete the course exercises will not be allowed to take the final exam. Students are expected to contribute to the creation of positive and pleasant work environment. Also, students are obliged to respect the norms of the University Code of Ethics and Code of Ethics for students.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
<th>Class attendance 1.125</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar essay 0.43</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>Oral exam 0.43</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

| Assessment and evaluation of full-time students' work | Exercise evaluation through portfolio; written exam; oral exam |

<table>
<thead>
<tr>
<th>Final examination:</th>
<th>Evaluation elements</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course attendance</td>
<td>95</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Completed exercises</td>
<td>80</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Exam (written)</td>
<td>60</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Exam (oral)</td>
<td>60</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| Grading scale: | | |</p>
<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet the minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets the minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average achievement with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
<tr>
<td>Required literature (available in the library and via other media)</td>
<td>Title</td>
<td>Number of copies in the library</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

|---|---|---|---|

| Quality assurance methods that ensure the acquisition of exit competences | The quality of the performance themes/lectures will be monitored continuously and systematically recorded during teaching. The suggestions and reactions of participants will be monitored during the semester. At the end of the course, participants will complete an anonymous questionnaire (evaluation questionnaire). Comments, suggestions and information from the survey and valorisation methods (the exercise results, written and oral exams) will be used in order to improve teaching, lectures and other forms of work. |  | YES |

| Other (as the proposer wishes to add) |  |  | YES |

---

### 4.11.5.4 Military Training II

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY TRAINING II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Year of study</td>
</tr>
<tr>
<td>VPO142</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Credits (ECTS)</td>
</tr>
<tr>
<td>Luka Mihanović, Ph.D.</td>
<td>2</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Type of instruction (number of hours in a semester)</td>
</tr>
<tr>
<td>Hrvoje Šimleša</td>
<td>L S E F</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Percentage of e-learning application</td>
</tr>
<tr>
<td>Mandatory for all students</td>
<td>0 0 0 30</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
- To develop skills and train cadets in leading the squad/platoon during various tactical mission tasks in winter conditions.
- To teach cadets about leadership and command duties in different tactical missions and situations as a squad/platoon leader.
- To develop military virtues needed for naval officers, such as endurance, courage, resourcefulness and competence.

**Course enrolment requirements and entry competences**
- Prerequisite for this course is passing grade in Professional Military Practice I, and cadets should also enrol the 3rd year of study.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)

1. Apply specific skills in communication, organization and of planning of activities for the squad/platoon leadership.
2. Making decision independently and lead the squad/platoon.
3. Develop, guide and implement creativity in daily squad/platoon tasks.
4. Know concepts, elements, factors and methods of preparations and executing tactical movement and employing fires.
5. Know concepts and methods of supporting the team before, during and after combat functions.
6. Know concepts, functions and procedures of engineering support and explosive ordnance disposal for force protection.
7. Know basic parts of personal weapons, using „4 golden rules”, and handling of personal weapons.
8. Define, explain and link basic terms of leadership “BE”, “KNOW”, “DO”, and command duties of squad/company leader during peacetime as well as in combat.
9. Define, explain, and link basic terms, organization, structure, scope of work and duties of command elements of platoon/company.
10. Identify, explain and link basic terms, elements and procedures during forming military topography, and procedures for leading units.

Course content broken down in detail by weekly class schedule (syllabus)

Field work:
1. Team/squad/platoon/company tactics, techniques and procedures.
2. Infantry weapons handling techniques and firing practice.
3. Team/squad/platoon/company Command and Control.
4. Leading the units.

Format of instructions

1. ☐ lectures
2. ☐ seminars and workshops
3. ☒ exercises
4. ☐ on line in entirety
5. ☐ partial e-learning
6. ☒ independent assignments
7. ☐ multimedia
8. ☐ laboratory
9. ☐ work with mentor
10. ☐ (other)

Student responsibilities

Attendance: 100 %

<table>
<thead>
<tr>
<th>Screening student work (enter 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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance 0,7</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Tests</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>

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

There will only be a practical test of knowledge and skills:
Cadet will assume the role of team/squad leader; cadet will demonstrate knowledge on personal and infantry weapons handling, first aid emergency treatment and tactical combat casualty care, the use of protective gas masks, map orienteering as well as in real environment, use of communication devices.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>Demonstration of knowledge and skills during classes, keeping logs</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th><strong>Number of copies in the library</strong></th>
<th><strong>Availability via other media</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>FM 3-90 – Tactics</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>FM 3-21.8 – The Infantry Rifle Platoon and Squad</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>STANAG 2014</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Mladen Pahernik, Stanislav Frangeš, Robert Župan, Military Topography I – Topographic Land Objects and Military Topography II – Orientation and Topographic Maps</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>APP-6 – Military Symbols for Land Based Systems (1986)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>APP-6(A) – Military Symbols for Land Based Systems (1998)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>APP-6(B) – Joint Symbology (2008)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>APP-6(C) – NATO Joint Military Symbology (2011)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>MIL-STD-2525 manuals from Defense Information Systems Agency (DISA)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>FM 101-5-1/MCRP 5-2A OPERATIONAL TERMS AND GRAPHICS (1997)</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Reeves, Ira L., The A B C of Rifle, „Revolver and Pistol Shooting“. Kansas City, MO, USA</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>„NRA Gun Safety Rules“. The National Rifle Association of America. 2018.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Terzuolo, E.; “NATO and Weapons of Mass Destruction: Regional Alliance, Global Threats”, 2006.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>FM 24-18: Tactical Single Channel Radio Communications Techniques</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Optional literature (at the time of submission of study programme proposal)</strong></th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM 3-06 – Urban Operations</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Quality assurance methods that ensure the acquisition of exit competences</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of students’ attendance, evidence of professors’ attendance, students’ questionnaire, Faculty class inspection.</td>
</tr>
</tbody>
</table>
### 4.11.5.5 Physical Education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO120</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one’s health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.

**Course enrolment requirements and entry competencies required for the course**

/  

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

- Use specific exercises for a certain kinesiological activity.  
- Combine the basic elements of a certain kinesiological activity.  
- Learn the rules to perform a certain kinesiological activity.  
- Demonstrate the proper performance of new elements and skills of a certain kinesiological activity.  
- Organize physical training in order to spend one’s free time actively.  
- Take care of one’s health by exercising regularly.  
- Explain some osteomuscular disorders and exercises for their prevention.

**Exercises:**

1. Regular testing of physical abilities  
2. The development of functional abilities  
3. The development of motor abilities  
4. Fitness programs  
5. Swimming  
6. Naval pentathlon (naval obstacles, navy skills training area)  
7. Navy skills training (rowing, sailing)

**Format of instruction:**

- Lectures  
- Seminars  
- Exercises  
- On-line entirety  
- Field work  
- Individual assignments  
- Multimedia  
- Lab exercises  
- Mentoring
### Student responsibilities

Students are required to participate in exercises. Records of student attendance are also kept.

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>

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

**Assessment and evaluation of full-time students' work**

During the academic year, students are required to take two regular physical fitness tests to meet the established norms.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)

- Kineziološki priručnik za pripadnike OSRH, Zagreb 2005.

### Quality assurance methods that ensure acquisition of learning outcomes

- University survey and teaching supervision.

### Other (as the proposer wishes to add)

4.11.5.6 Maritime Meteorology and Oceanology

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARITIME METEOROLOGY AND OCEANOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPN113</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>3rd</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Nenad Leder, Ph.D.</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Associate teachers</strong></td>
<td>Ivica Šantić</td>
</tr>
<tr>
<td><strong>Type of instruction (number of hours in a semester)</strong></td>
<td>L: 45, S: 0, E: 15, F: 0</td>
</tr>
<tr>
<td><strong>Status of the course</strong></td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td><strong>Percentage of application of e-learning</strong></td>
<td>10%</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**
| Course objectives | Ability to understand and interpret synoptic charts and to forecast local weather taking into account local weather conditions and data obtained by weather chart receiver. Understanding characteristics of diverse weather systems and patterns, including tropical storms and avoiding the centres of storms and dangerous quadrants. Knowledge of ocean current system. Ability to calculate tides. Use of appropriate navigational publications. |
| Course enrolment requirements and entry competencies required for the course | / |
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | 1. Analyze meteorological and oceanological elements and phenomena significant for safe and economical navigation.  
2. Observe, cipher and decipher marine meteorological and oceanological elements and phenomena.  
3. Use navigational publications in planning, during and after navigation.  
4. Distinguish and interpret weather and oceanological conditions, understand predicted situations, including local conditions.  
5. Use weather forecast in passage planning, follow real conditions in the course of voyage, and be able to analyze their influence on safety, timely arrival and economics of voyage. |
| Course content broken down in detail by weekly class schedule (syllabus) | Lectures: 
1. History of meteorology.  
2. Position of the Earth in the universe.  
3. Atmosphere.  
4. Meteorological elements and phenomena.  
5. Forecast of weather and oceanological conditions.  
6. Synoptic charts and weather forecasting.  
7. Global wind and pressure systems.  
8. Relatedness of weather to the main types of air masses.  
9. Synoptic and prognostic charts and forecasts from any source.  
10. Code for ship weather report  
11. Receivers of meteorological and oceanological information.  
12. Characteristics of weather systems.  
13. Forming, structure and weather in relation to main frontal systems.  
14. Forming and weather characteristics of non-frontal cyclones.  
15. Tropical revolving storms.  

Practical work: 
1. Actual ocean systems.  
2. Surface circulation of the sea water in the oceans and adjacent seas.  
3. Forming of wind waves in the sea and swell.  
4. Main types of floating ice, their sources and movement.  
5. Main principles of safe ice navigation.  
6. The most important conditions of accumulation of ice on superstructure, risks and possibilities of prevention.  
7. Meteorological navigation.  
8. Principles of planning passage and selection of optimum routes taking into account meteorological and oceanological conditions. |
| Format of instruction: | ☐ lectures  ☐ individual assignments |
### Student responsibilities

Lectures and exercises are mandatory for students and records of attendance are kept. In order to get a signature, students must attend a minimum of 80% of classes (lectures and exercises). In case of insufficient attendance at classes, no signature or the right to take the exam will be given.

### 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1.5</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td>0.5</td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
</tr>
<tr>
<td>Seminar paper</td>
<td>0.5</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Tests/Midterm exams</td>
<td>1.5</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

### Continuous evaluation of students' performance:

Class attendance is mandatory for students, i.e., the condition for obtaining a signature is attendance at a minimum of 80% of lectures and auditory exercises. 2 mid term tests are written in the semester.

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80 (95%)</td>
<td>40</td>
</tr>
<tr>
<td>Midterm exam 1</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam 2</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>
### Optional literature (at the time of submission of study programme proposal)

- Guidelines for ships operating in polar waters, IMO, 2010.

### Quality assurance methods that ensure the acquisition of exit competences

- University survey
- List of student attendance
- Faculty teaching supervision

### Other (as the proposer wishes to add)

#### 4.11.5.7 Terrestrial Navigation

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>TERRESTRIAL NAVIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN114</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Zvonimir Lušić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>6</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Tomislav Sunko, M.Eng.</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 45, S 0, E 45, F 0</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10%</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**
- Master different methods of determining position of a ship at sea, in all conditions.
- Recognize the symbols and abbreviations on nautical charts (Croatian and English), and assess risk on the basis of charts and nautical publications.
- Be able to construct Mercator charts, and charts in perspective projection (gnomonic and stereographic).
- Determine the elements of tides, detect and correct errors of the compass, and elements of loxodromic (rhumb line) and ortodromic (great circle) navigation.

**Course enrolment requirements and entry competencies required for the course**
- Seamanship III
- Mathematics I

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**
- Explain and interpret basic concepts of maritime navigation.
- Describe and analyse the foundations of orientation at sea, dead reckoning navigation, sailing triangles.
- Independently plot course and safely conduct the ship in all conditions using knowledge of different methods of positioning and maritime kinematics.
- Plan courses and routes using knowledge of the essential features of charts, marks and abbreviations on nautical charts (paper and electronic; Croatian and English) and information from nautical publications.
- Analyse errors in positioning and critically assess usability of electronic positioning systems, particularly radar systems (ARPA) and the ECDIS system.
- Confirm basic chart projection used in maritime navigation, as well as numerical and graphical methods of construction of Mercator chart (mercator plotting sheet), gnomonic and stereographic projections.
- Calculate elements of tides using Croatian and English tables and compare different ways of solving problems, including determination of tide currents.
- By applying spherical and planar trigonometry show problem solving in loxodromic (rhumb line), orthodromic (great circle) and combined navigation.
- Describe and explain the elements of earth and ship magnetism, and confirm the total approximate formula of deviation.
- Interpret methods of determining the magnetic compass deviation, compensation methods and methods of demagnetization.

### Lectures

1. Fundamental concepts in maritime navigation, basic units and their conversion.
2. Orientation at sea, horizons, navigation instruments, sailing triangles: plane sailing triangle, mid latitude triangle, Mercator triangle.
4. Methods for creating tables and curve of deviation, compensation and demagnetization methods.
5. Cartographic projections; cylindrical, perspective and conical. Construction of Mercator chart (construction of Mercator grid for specific Latitude), gnomonic and stereographic charts. UTM projection.
7. Symbols and abbreviations used on charts, IALA system.
12. Determining tidal currents. Rhumb line and Great circle. Rhumb line navigation, calculation of courses and distances.
13. Great circle and combine navigation, calculation of initial/final course, distance, vertex, waypoints. Use of spherical trigonometry. Use of gnomonic chart.
15. ECDIS, navigation without paper charts.

### Exercises

2. Sailing triangles-plane sailing triangle, mid latitude triangle. Determination of course and distance between two positions. Dead reckoning navigation.
5. Cartographic projections, construction of Mercator plotting sheet (grid of meridians and parallels) graphically and computationally.
6. Work on navigation paper chart-plotting courses, bearings, distances, positions.
8. Work on navigation paper chart-fix, running fix.
11. Use of navigation publications, auxiliary and informative charts. Use of Notices to mariners, update of navigation charts and publications.
14. Great Circle navigation- calculation of initial/final course, distance, vertex, waypoints. ETA.
15. Great Circle/Combine navigation (for limited latitude). Use of ECDIS and professional marine software.

Format of instruction:

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Criterion</th>
<th>Specific activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance</td>
<td>Min 80%</td>
<td>Presence of students</td>
</tr>
<tr>
<td>Exercise attendance</td>
<td>Min 80%</td>
<td>Presence of students</td>
</tr>
<tr>
<td>Special Course training: Week 9,14 and 15.</td>
<td>Min 95%</td>
<td>Presence of students</td>
</tr>
<tr>
<td>Log of exercise</td>
<td>100%</td>
<td>Review of log</td>
</tr>
<tr>
<td>Self-study and homework assignments</td>
<td>100%</td>
<td>Review of log</td>
</tr>
</tbody>
</table>

Student responsibilities

Lectures and exercises are obligatory; there is a record of attendance. To obtain a signature min 80% of attendance at lectures and exercises is required, for specific course training minimum is 100 (95) %. In case a student fails to acquire minimal hours of attendance, student will not get a signature and accordingly has no right to apply for the exam.

No absentee notes can justify or replace attendance.

In case of sickness or any other justified reason, students who have more than 80% of attendance, but do not have 100(95)% attendance of special course training, can get extra hours in other, additional terms during semester or later, but not later than one month after regular teaching part of semester.

All other students, i.e. students with less than 80% of attendance have no right to signature and must enrol in the course again 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Self-study and homework assignments</td>
</tr>
</tbody>
</table>
Assessment and evaluation of full-time students' work

Midterm exams-time schedule:
I. – exercise (different small tasks, use of nav. Triangles), 5<sup>th</sup> week
II. – exercise (work on nav. chart), 10<sup>th</sup> week
III. exercise (great circle/rhumb line, tides, chart projections), 15<sup>th</sup> week
IV. theory (theory and basic terms/chart), 14/15<sup>th</sup> week

After successfully passing midterm exams, i.e. having fulfilled all required obligations, students can take the exam from theory. Students with all passed midterm exams are exempt from final exam from theory. The requirement for other students to take final examination is signature. Final examination has two parts: work on chart and all other.

Midterm exams (parts of final exam) are available only during class attendance period, and final exam only during examination period at the end of semester.
Requirements for the 3<sup>rd</sup> midterm exam is passing the 1<sup>st</sup> and 2<sup>nd</sup> midterm exam. If a student failed to pass all exams regarding exercise (I, II, III), but passed some of them, may be credited on this way: work on chart (II.) as independent part, all others as second part (I. and III.). It means that student will need to pass only one of these two main parts, during final examinations.

The 3<sup>rd</sup> midterm exam can be replaced by some independent work (project), but only during class attendance period.

Final written exam (or one of his two main parts) is valid until end of semester. Midterm exams or other parts of final exam are not valid in next academic year.

Maximum time allowed for final written exam is 3 school hours
Maximum time allowed for one of two main parts of the final written exam is 2 school hours
Maximum time allowed for midterm exams-from 1 to 2 school hours
Maximum time allowed for midterm exams, theory- up to 1 school hours

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance</td>
<td>95</td>
<td>15</td>
</tr>
<tr>
<td>Midterm exam I</td>
<td>75</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam III</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam IV-theory (included basic definition and nav, charts)</td>
<td>50 (95%)</td>
<td>20</td>
</tr>
<tr>
<td>Homework assignments/projects</td>
<td>100%</td>
<td>5</td>
</tr>
</tbody>
</table>

Final examination:
### Elements of assessment

<table>
<thead>
<tr>
<th></th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous activity (including all elements of a continuous assessment)</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Work on nav. chart</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Other tasks-written</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Basic definitions and chart work * (written and/or oral)</td>
<td>95</td>
<td>5</td>
</tr>
<tr>
<td>Theory (written and/or oral)</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

### Grading scale:

**Minimum to pass is 50%**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

**Minimum to pass is 75%**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>-74</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>75-84</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>85-89</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>90-94</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowditch, N.: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002.</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>Nautičke tablice (Nautical Tables), HHI, Split.</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>Navigation (paper) charts, HHI: 200-20; 100-21</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>Tide tables, UKHO&amp;HHI</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>Symbols and Abbreviations used on Admiralty/CRO charts, UKHO and HHI</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competences</td>
<td>University survey, list of student attendance, Faculty teaching supervision</td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### COURSE DESCRIPTION

**Course objectives**

The aim of the course is to introduce students to international rules, regulations, and standards recommendations relating to the handling, stowage, lashing and transport of cargo, characteristics cargo in maritime transport.

**Course enrolment requirements and entry competencies required for the course**

Successful completion of Seamanship I and II, and Means of Maritime Transport.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Explain and interpret the concept of cargo capacity of a ship taking into consideration different types of ships and different cargos.
2. Define the concept of deadweight and influential factors.
3. Use ship tables and diagrams.
4. Analyse and interpret the impact the types of cargo ship constructions train and stability of the ship.
5. Define and explain the features of loading equipment and means of dunnaging and lashing.
6. Explain the preparation of ship’s holds for receiving certain types of cargo.
7. Determine the amount of loaded/unloaded cargo according to draft and name factors affecting the accuracy of the calculation.
8. Make cargo plan, calculate stability, mean draft and calculation of cargo weight using draft (Draft Survey).
9. Analyse the principle and procedures for transport of dangerous goods by sea.

**Lecturers:**

Introduction to the course and international regulations, Displacement, Deadweight and use of ships tables and diagrams, Ship Capacity and use of ships tables and diagrams

Loading the ship in salt, brackish and fresh waters, Changing the draft and displacement, Intact stability

Inclining test, Stability Weather Criterion, drawing Stability Curves

Damage stability - Deterministic approaches, Probabilistic approach

Ship stress/strain on structure in exploitation

Analysis of the characteristics of the equipment for loading and discharging cargo.

Analysis of the characteristics of the equipment for loading and discharging cargo.

Impact of the type of cargo and cargo operations with the transverse and longitudinal stability of the ship.

Characteristics of equipment for the lining, fastening and securing of cargo and lashing system calculation.

Damage to cargo in maritime transport (IMDG 2 class hours)
Preparation of the ship's holds for cargo loading  (IMDG 2 class hours)
Determination of loaded / discharged cargo quantities, checking procedures.
Transportation of hazardous and harmful cargo  (IMDG/IMBSC 1+1 class hours)
Transportation of hazardous and harmful cargo  (IMDG/IMBSC 1+1 class hours)
Determination of loaded / discharged cargo quantities (Draft Survey)

Exercises:
1. Displacement, Deadweight and use of ship’s tables and diagrams
   Ship Capacity and use of ships tables and diagrams
2. Loading the ship in salt, brackish and fresh waters, Intact stability
3. Inclining test, Stability Weather Criterion, drawing Stability Curves
4. Damage stability - Deterministic approaches, Probabilistic approach
5. Ship stress/strain on structure in exploitation
7. Calculating examples loading equipment stress, Stowage and securing cargo.
8. Stowing, lining and cargo securing/lashing
9. Planning the loading different cargoes + dangerous cargo (IMDG/IMBSC 1+1 class hour)
10. Planning the loading different cargoes + dangerous cargo (IMDG/IMBSC 1+1 class hour)
11. Planning the loading different cargoes + dangerous cargo (IMDG/IMBSC 1+1 class hour)
12. Planning the loading different cargoes + dangerous cargo (IMDG/IMBSC 1+1 class hour)
13. Planning the loading different cargoes + dangerous cargo (IMDG/IMBSC 1+1 class hour)
14. Determination of loaded / discharged cargo quantities (Draft Survey)
15. Determination of loaded / discharged cargo quantities (Draft Survey)

Format of instruction:
- **Lectures**: seminars and workshops
- **Exercises**: online in entirety
- **Partial e-learning**: field work
- **Individual assignments**
- **Multimedia**: lab exercises, mentoring, simulator practice (other)

Student responsibilities
- Lectures and exercises are compulsory and records of class attendance shall be kept.
  To get the signature students must attend a compulsory minimum of 80% of instructions (lectures and exercises) and 100% (95%) on the set, which includes training.
  In case of insufficient number of class attendance students will not be given a signature or the right to take an exam.
  Excuse cannot justify or replace attendance.
  Students who, due to illness or other good reasons do not meet conditions for signature and have more than 80% of attendance, will be able to achieve up to 100% (95%) in additional terms, during the semester and after, but not later than one month after the end of the classes.
  All other students, i.e., those who have achieved less than 80% of class attendance are not eligible for signature and shall re-enrol in the course next year.

Class attendance | Research | Practical training | 1
### Screening student work

*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*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Type</th>
<th>(Homework)</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Tests/Midterm exams</td>
<td>Oral exam</td>
<td>1.0 (Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Assessment and evaluation of full-time students’ work

After passing the written exam of practical training, students can take the oral exam. Students who have passed the midterm exams during lectures are exempt from taking the oral exam.

Students who have not passed the midterm exams have to take the final exam that consists of two parts.

The first part refers to the specified resolution of the problem of stability and load, the ship's construction, equipment for cargo handling and securing of cargo, determining the amount of load draft of the ship. The second part refers to the theoretical part and work on the simulator for cargo handling. In order to apply for the final exam, students need to obtain the course teacher’s signature.

Midterm exams shall be held exclusively during classes, and the final exam within the official examination period.

If a student does not pass all midterm exams relating to practical training (but only some) and obtains the course teacher’s signature, may be credited with work on the simulator applications (as a whole), and given the other two tests with exercises. In this case, the final written exam comprises only the unit that a student has not passed, as well as the assessment of the operation on simulator applications (first or second unit).

Midterm exams I and II relating to practical training can be substituted by appropriate individual assignments only during the semester. It does not apply to work on the simulator for cargo handling. Individual units are considered as passed only in the course of the current academic year, i.e. until the end of scheduled examination periods. If students re-enrol in the course next academic year these units shall not be accepted as passed.

This rule may be exempt if a student has passed the written exam of practical training in entirety, than he/she may be given the opportunity to take the oral exam within one year.

Allocated time for practical training written exam is 3 class periods.

Allocated time for midterm exam of exercises is 2 class periods.

Allocated time for theoretical midterm exam is 2 class periods.

### Continuous evaluation of students’ performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures and participation in the training</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>I midterm exam (MERLIN) L x 1+ E x 1</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>II midterm exam (MERLIN) L x 1+ E x 1</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Continuous assessment in the training on Cargo Handling Simulators</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>Individual Tasks</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

---

165
### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The theoretical exam (written and/or oral)</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>Numerical tasks-written</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>*Elementary knowledge (written or oral)</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Demonstration work on simulator</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>Theoretical exam (written/oral)</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Individual Tasks</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

*Basic concepts of ship stability and cargo loading - a prerequisite for listening to Cargo Handling. Repetition of knowledge and skills acquired at the Naval High School or in the subject “Knowledge of Ship and Cargo”. Questions available under course material for “Cargo Handling I”.

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-60</td>
<td>Does not meet the minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>61-71</td>
<td>Meets the minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>72-82</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>83-94</td>
<td>Above-average success with some errors</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

***On-line MERLIN SYSTEM + VIDEOTEL training and testing based on the agreement between PFST - VIDEOTEL on the use of all VIDEOTEL modules for training PFST students.***

***Minimum for pass 75%***

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-74</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>75-84</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>85-89</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>90-94</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belamarić G.: Cargo Handling I – Authorized Lectures, TextBook &amp; PPT presentation, Faculty of Maritime Studies, Split, October 2018.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Martin A. Rhodes (BSc. Hons), Ship Stability for Mates/Masters, Glasgow College of Nautical Studies, Witherbys Seamanship International Ltd. 2008.</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>
**4.11.5.9 Maritime Communications**

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARITIME COMMUNICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPN116</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>3rd</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Lea Vojković, Ph.D.</td>
</tr>
<tr>
<td><strong>Associate teachers</strong></td>
<td>Dean Sumić, M.Eng. Tomislav Perić, M.Eng.</td>
</tr>
<tr>
<td><strong>Type of instruction</strong></td>
<td>Credits (ECTS) 4</td>
</tr>
<tr>
<td><strong>Number of hours in a semester</strong></td>
<td>30 0 45 0</td>
</tr>
<tr>
<td><strong>Percentage of application of e-learning</strong></td>
<td>10%</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Familiarizing with and mastering relevant knowledge required by STCW and IMO Model Course for service on ships. Special attention is paid to the Global Maritime Distress and Safety System (GMDSS) and handling and use of radio equipment in different situations.

Independently perform all tasks in the domain of maritime communications provided by GMDSS system in all categories of sailing. Acquire competence according to STCW and IMO Model Course 1.25 General Radio Operator Certificate GOC. Handle all ship’s GMDSS equipment. Use devices in the appropriate manner practically exercising at Polaris Poseidon GMDSS simulator. Describe the physical features of propagation of electromagnetic waves depending on the frequency band (MF, HF and VHF). Define and describe the parts of the GMDSS. Present functioning of GMDSS in a practical way in cases of distress, urgency, safety or for routine communications. Use compulsory and additional literature for ship's radio station, and take radio log and other documents in the correct manner. Be eligible for General Operator Certificate GOC radio permit approved by Ministry of the Sea, Transport and Infrastructure.
Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Demonstrate all tasks referring to Maritime communications in accordance with GMDSS in all Sea areas.
2. Produce all needed competencies in accordance with STCW i IMO Model Course 1.25 GOC.
3. Demonstrate handling with all equipment related to GMDSS.
4. Use the devices in the prescribed manner by practicing on a Polaris Poseidon GMDSS simulator. Summarize devices in the prescribed manner practically rehearsing at DNV-GL approved simulator.
5. Demonstrate physical descriptions of EM waves propagation depending on frequency band used (MF, HF or VHF).
6. Define and describe GMDSS subsystems.
7. Compile, compose and compare GMDSS subsystems in case of distress, urgency, safety and routine communications.
8. Infer proper compulsory and additional bibliography of ship’s radio station, maintain log book and other documentation properly.
9. Acquire the right to the authorization of the Radio Operator with the general authorization of the Ministry of Maritime Affairs, Transport and Infrastructure.

Course content broken down in detail by weekly class schedule (syllabus)


Lectures:
1. Introduction, GMDSS main features
2. Marine communications principles
3. GMDSS DSC calls types
4. Priority lists and call categories
5. NBDP general features
6. MSI purpose and use
7. IAMSAR
8. Terrestrial alerting and procedures
9. Routine communications procedures
10. Midterm exam
11. Satellite communications principles
12. Visit to Coast Radio Station
13. Inmarsat system principles
14. Satellite alerting and procedures
15. Satellite locations systems

Exercises:
1. Intro to radio station & simulator
2. Introduction to Digital Selective Call - DSC
3. Procedures for DSC
4. NBDP features and principles
5. VHF ship radio station
6. MF/HF ship radio station
7. MSI receivers
8. DSC alerting
9. Distress procedures using terrestrial systems
### 10. Midterm exam
11. Inmarsat systems terminals
12. Visit to Coast Radio Station
13. Satellite systems alerting
14. Routine satellite communications
15. Emergency radio equipment COSPAS - SARSAT, SART & VHF - AIR

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ lectures</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
</tr>
<tr>
<td>☑ exercises</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
</tr>
<tr>
<td>☑ field work</td>
</tr>
<tr>
<td>☐ individual assignments</td>
</tr>
<tr>
<td>☑ multimedia</td>
</tr>
<tr>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

### Student responsibilities

Class attendance is compulsory for full-time students, which means that for obtaining the signature the attendance of at least 95% at lectures and 100% at exercises is required.

Midterm exams are taken during the semester. The first midterm exam includes 1st-9th week of instruction and it is taken in the 10th week of classes. Sample questions for exam are available on the web. In order to pass the midterm exam it is necessary to achieve at least 50% of points. Students who do not take a midterm exam for objective reasons or do not achieve the minimum percentage have the opportunity to take the oral exam.

The students independently or in a team can handle the default theme using e-learning materials.

The final evaluation includes the presence in the classroom, the results of the midterm exams/oral exam and written test. Students who do not pass the midterm exams, and have obtained the signature, are required to take the oral exam in the examination period. The same assessment criteria apply to continuous assessment and to the final exam.

### Monitoring student performance

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credit Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1.8</td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
</tr>
<tr>
<td>Tests/Midterm exams</td>
<td>1.2</td>
</tr>
<tr>
<td>Written exam</td>
<td>1</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
</tr>
<tr>
<td>Seminar paper</td>
<td></td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

### Screening student work

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credit Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course attendance and participation</td>
<td></td>
</tr>
<tr>
<td>Midterm exam in lab exercises-Midterm exam</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>50 - in this case the student is exempt</td>
</tr>
</tbody>
</table>

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course attendance and participation</td>
<td>min. 95% attendance of lectures, 100% attendance of exercises</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam in lab exercises-Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
</tbody>
</table>

| Total | 50 - in this case the student is exempt |
## Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course attendance and participation</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Oral exam or Midterm exam</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Written exam</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Previous activities (including any indication of continuous assessment)</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

## Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

## Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>
4.11.5.10 Technology of Materials

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>TECHNOLOGY OF MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS105</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Dražen Živković, Ph.D.</td>
</tr>
<tr>
<td>Nikša Kričić, PhD.</td>
<td></td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Zvonimir Dadić, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Jure Krolo, mag.ing.</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives
Familiarisation with the fundamentals of material technologies, including welding, casting and scraping, and their application

Course enrolment requirements and entry competencies required for the course

Learning outcomes expected at the level of the course (4-10 learning outcomes)
1. Distinguish the material properties.
2. Perform the independent testing of material properties and interpret them.
3. Distinguish procedures and establish parameters of welding with regard to the welded materials.
4. Select adequate heat processing of the material with regard to the requirements the specimen is expected to meet.
5. Identify the causes of corrosion and adequately protect the material against corrosive effects.
6. Distinguish the basics of casting technology.
7. Familiarise with scraping procedures.

Course content broken down in detail by weekly class schedule (syllabus)

Lectures:
1. Material division, atoms, crystal lattices, cooling curves.
2. Formation of alloy diagram, types of diagrams.
4. Production and division of steels, castings and their properties and applications.
5. Light and heavy non-ferrous metals, production, properties and applications.
8. Thermal chemical processing: cementing, nitriding, boriding.
11. Welding, built-up welding, soldering, metallization.
15. Casting: Models, cores, molding, drip-molding faults.

**Exercises:**
1. Allotropic modification, Curie point, metallography.
2. Calcination, releasing, improving, cementing.
3. Tensile strength test.
4. Charpy Toughness Test.
5. Hardness test.
7. Magnetic testing, RTG.
8. Testing by penetration colors and ultrasound testing.
10. REL, MIG / MAG welding, friction welding.
11. TIG, gas welding, electrical welding.
13. Turning, milling.
15. Design of models, cores and molds.

**Format of instruction:**
- \( x \) lectures
- \( \square \) seminars and workshops
- \( \square \) exercises
- \( \square \) entirely online
- \( \square \) combined with e-learning
- \( \square \) field work
- \( \square \) independent tasks
- \( \square \) multimedia
- \( \square \) laboratory
- \( \square \) mentoring

**Student responsibilities**
Class attendance (80%) and exercises (100%), going to field classes (100%).

**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)
- Attendance: 1,5
- Research: 1
- Practical training: 1
- Experimental work: 1
- Report: 1
- Homework: 1
- Essay: 1
- Seminar work: 1
- (other)
- Midterm/End of term exams: 2,5
- Oral exam: 2,5
- (other)
- Written exam: 2,5
- Project work: 2,5
- (other)

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

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement(min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>80</td>
<td>37,5</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>31,25</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>31,25</td>
</tr>
</tbody>
</table>

**Continuous evaluation of students' performance**

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available through other media</th>
</tr>
</thead>
</table>
4.11.5.11 Thermodynamics and Heat Transfer

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>THERMODYNAMICS AND HEAT TRANSFER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS106</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Zdeslav Jurić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>7</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Živko Jurišić, M.Sc.Eng.</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 60</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives
Distinguishing the properties of ideal and real gases (vapours) and mixtures in the thermodynamic analysis of the processes and cycles of converting heat energy into useful work and vice versa. Decomposition of a cycle into processes. Assessment of the conversion cycle (efficiency). Analysis of humid air properties and related processes. Calculation of losses during conversion of energies or heat exchange. Analysis of heat transfer means.

Course enrolment requirements and entry competencies required for the course

Learning outcomes expected at the level of the course (4-10 learning outcomes)
1. Analyse processes and cycles (ideal and real) involving ideal and real gases (vapours) and mixtures of ideal gases and vapours.
2. Calculate the conversion and level of conversion (efficiency) of heat into useful work on the basis of the First and Second principles of thermodynamics.
3. Calculate the maximum available work and available technical work (exergy).
4. Analyse and solve the processes involving humid air.
5. Analyse and calculate the lower and upper heat value of (fossil) fuel and the combustion products according to their composition.
6. Calculate the amount of heat exchanged and the capacity of heat exchangers.
7. Independently assess and take measures aimed at increased energy efficiency.
# Course content broken down in detail by weekly class schedule (syllabus)

<table>
<thead>
<tr>
<th>Lectures and exercises:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction and definitions. Basic thermodynamic values. Conservation of mass and energy.</td>
</tr>
<tr>
<td>3. Main principles of thermodynamics. Internal energy, enthalpy, entropy and heat.</td>
</tr>
<tr>
<td>7. Open systems with ideal gas.</td>
</tr>
<tr>
<td>8. Operative ability of the thermodynamic system (maximum work, exergy).</td>
</tr>
<tr>
<td>11. Humid air and processes involving humid air.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ lectures</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
</tr>
<tr>
<td>☑ exercises</td>
</tr>
<tr>
<td>☐ entirely online</td>
</tr>
<tr>
<td>☐ combined with e-learning</td>
</tr>
<tr>
<td>☐ field work</td>
</tr>
<tr>
<td>☐ individual assignments</td>
</tr>
<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance is obligatory for all students. Class attendance is confirmed by students’ signature on, for that purpose, prescribed record sheet. Students have to attend at least 80% of lectures and 80% of exercises of prescribed hours. During the semester, for the purpose of continuous self-evaluation, students get tasks which have to solve till next lectures (independently or with help from lecturer/assistant). Students fulfill the course requirements when minimum class attendance is satisfied. Students who do not fulfill the course requirements, can not take the oral exam. Those students must enrol in the course the next academic year.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance 2,25 Research Practical training</td>
</tr>
<tr>
<td>Experimental work Report</td>
</tr>
<tr>
<td>Essay Seminar paper</td>
</tr>
<tr>
<td>Midterm/End of term exams 4,5 Oral exam 0,25 (other)</td>
</tr>
<tr>
<td>Written exam Project</td>
</tr>
</tbody>
</table>

**ECTS: 8**
Assessing and evaluating student performance in class and at the final exam

Assessment and evaluation of full-time students' work

Final evaluation includes class attendance, midterm exams or written exam evaluation and oral exam evaluation. All components have to be evaluated positively, at least with minimum criteria met in order to pass the final exam. The Final exam consists of the written and oral exam.

During semester three midterm exams will be carried out. If all midterm exams are positively evaluated, student is exempt from taking the written part of the first final exam. If one of the midterm exams is not positively evaluated, student, on the first final exam, has a possibility to write the midterm exam which was not positively evaluated.

Students pass the final exam when all criteria are met with minimal requirements: class attendance, written or midterm exams and oral exam.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>Lecture 80%</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Exercises 80 %</td>
<td></td>
</tr>
<tr>
<td>1st midterm exam</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>2nd midterm exam</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>3rd midterm exam</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>Lecture 80%</td>
<td>32,143</td>
</tr>
<tr>
<td></td>
<td>Exercises 80 %</td>
<td></td>
</tr>
<tr>
<td>Written or midterm exam</td>
<td>50 %</td>
<td>50</td>
</tr>
<tr>
<td>Oral exam</td>
<td>70 %</td>
<td>17,857</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-65</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>66-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-85</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95 -100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
</tr>
</thead>
</table>
Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

Other (as the proposer wishes to add)

4.11.5.12 Strength of Materials

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>STRENGTH OF MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS107</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Marko Vukasović, Ph.D.</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
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<tr>
<td>Associate teachers</td>
<td>Milan Perkušić, Ph.D.</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L S E F</td>
</tr>
<tr>
<td>(number of hours in a semester)</td>
<td>30 0 15 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
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</table>

COURSE DESCRIPTION

Teaching students to observe, in an adequate and critical way, the elements of engineering constructions in marine engineering, shipbuilding and maritime trade. Making conclusions on interdependence of their loads, shapes, dimensions, strains, stresses, strength, rigidity and stability. This basic knowledge is essential for understanding and performing other tasks in marine engineering practice.

Course objectives

Successful completion of Technical mechanics I

Course enrolment requirements and entry competencies required for the course

1. Define basic terminology in the mechanics of deformable bodies, types of load, stress and strain of construction elements.
2. Explain relationship between stresses and strains, nominal and allowed stress, stress concentration, as well as initial and thermal stresses.
3. Describe stress states (uniaxial, biaxial, triaxial) and explain principal stresses.
4. Define the conditions of strength, rigidity and stability of construction elements.
5. Determine geometrical characteristics of flat cross-sections.
6. Analyse and calculate stresses and strains under basic types of load (axial, shear, torsion, bending, buckling).
7. Understand the ways of solving statically indeterminate problems.
8. Explain the failure theories. Determine equivalent stresses under combined loading.
9. Apply the acquired knowledge in solving concrete tasks within marine engineering practice and make necessary conclusions.

Lectures:

1. Introduction. Types of load. Stress.

Course content broken down in detail by weekly class schedule (syllabus)
8. Torsion. Stress and strain analysis in bars of circular section. Dimensioning of bars subjected to torsion.
10. Symmetrical bending of forces. Stress analysis of bar. Calculation of strength.

**Exercises:**
1. Types of load. Stress.
7. Geometric characteristics of flat sections
8. Torsion. Stress and strain analysis in bars of circular section. Dimensioning of bars subjected to torsion.
10. Symmetrical bending of forces. Stress analysis of bar. Calculation of strength.
11. Elastic line.

**Format of instruction:**
- lectures
- seminars and workshops
- exercises
- on line entirely
- mixed e-learning
- field lectures
- individual assignments
- multimedia
- lab exercises
- mentoring

**Student responsibilities**
Attending lectures (min 80%) and exercises (100%). In case of insufficient attendance (up to 20% of excused absences), students will be required to carry out additional tasks to compensate for missing lectures in order to obtain the lecturer’s signature. Students, who due to illness cannot attend classes, are required to bring a valid doctor’s note. Students, who have less than 50% of class attendance, are not eligible for signature and shall enrol in the course again next year. Students who pass two midterm exams are exempt from taking final exam. Students can retake only one midterm exam they have not passed. If students do not pass both midterm exams, they are required to take the final exam (written and oral).
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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits</th>
</tr>
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<tbody>
<tr>
<td>Lecture attendance</td>
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</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td></td>
</tr>
<tr>
<td>Independent study and homework</td>
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</tr>
<tr>
<td>(other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
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</tr>
<tr>
<td>Seminar paper</td>
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</tr>
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<td>Midterm exams</td>
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<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>(Insert other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
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</tr>
<tr>
<td>Project</td>
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<tr>
<td>(Insert other)</td>
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Grading and evaluating student work in class and at the final exam

<table>
<thead>
<tr>
<th>Continuous evaluation of students’ performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluation</td>
</tr>
<tr>
<td>Achievement (min.%)</td>
</tr>
<tr>
<td>Portion of the final grade (%)</td>
</tr>
<tr>
<td>Lecture attendance</td>
</tr>
<tr>
<td>Midterm exam I</td>
</tr>
<tr>
<td>Midterm exam II</td>
</tr>
</tbody>
</table>

Final examination:

| Elements of evaluation                      |
| Achievement (min.%)                         |
| Portion of the final grade (%)              |
| Written exam                                | 50           | 60                                   |
| Oral exam                                   | 50           | 30                                   |
| Previous activities                         |
| (including any indication of continuous assessment) |
| 100                                           |
| Total                                        |              | 100                                  |

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
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<tr>
<td>50-64</td>
<td>Meet minimum criteria</td>
<td>Sufficient (2)</td>
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<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
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</table>

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

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of copies in library</td>
</tr>
<tr>
<td>Availability via other media</td>
</tr>
<tr>
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</tr>
<tr>
<td>yes</td>
</tr>
<tr>
<td>yes</td>
</tr>
</tbody>
</table>
### 4.11.5.13 Onboard Electric Power System

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ONBOARD ELECTRIC POWER SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPE103</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>3rd</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Maja Krčum Ph.D.</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Type of instruction</strong></td>
<td>(number of hours in a semester)</td>
</tr>
<tr>
<td><strong>L</strong></td>
<td>45</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>30</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Percentage of application of e-learning</strong></td>
<td>45 0 30 0</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

After successfully mastering the course the student will be able to define and explain the basic requirements placed before the ship's electrical machines and devices as well as the entire ship's power system. Explain the basic working principle, basic equations and equivalent schemes of the current machine. They will fully understand the electrical panels and electrical equipment. Compare the effect of different types of electrical machines and analyse simple tasks related to the operation of electrical machines and simulate the actual machine at the appropriate simulator. They will be able to predict the production, distribution and consumption of electrical vessel and analyse the stability of the operation of marine power stations. It will be able to predict the precautions that are necessary for the management of energy systems voltages over 1000 V. The sketch will explain the basic scheme of action in the circuit. Effective will act as team work (according to the requirements of STCW).

**Course enrolment requirements and entry competencies required for the course**

Marine Electro Technology – basic principles of electro technology and electromagnetism.

Mathematics – vector analysis, derivations and integrations.

### Learning outcomes expected at the level of the course (4-10 learning outcomes)

**Student will be able to:**

1. Analyse the conditions in which the ship's power systems set up and operate.
2. Analyse notions, values and principles in the area of on-board low and high voltage technologies ((production and consumption).
3. Draw basic layouts of operation within the electric circuit.
4. Envision distribution of electricity and management of individual power systems high and low voltage.
5. Measure the fifth largest in the electrical part of the power plant.
6. Provide load distribution in the ship's power network.
7. Prepare synchronous generators for parallel operation and regulate the load in the ship's electrical network.
8. Propose electric machine and method of managing the selected machine to meet technological requirements in electric propulsion (synthesis).
9. Solve problems using an engineering approach and the acquired knowledge from the areas of physics, mathematics, essential electrical technology, fundamentals of electric machines, information science (*evaluating*).

### Course content broken down in detail by weekly class schedule (syllabus)

**LECTURE:**

1. The introductory lecture that provides students with introduction to teaching units, learning outcomes, allocation of ECTS credits, method of lecture, evaluating and mode of examination (midterm exam / exam).

   Fundamentals of on board electrical machines: basic classification; theory of el. machines (the law of electromagnetic flow; force to conductor the magnetic field, the flow law); working principle of the elementary electric machine; basic parts of el. machine; magnetic circuits of el. machine; electric coils of machine; heating and cooling of el. machinery; operating conditions of el. machines.

2. Three Phase Synchronous Generators: the basic principle of synchronous generator (equivalent scheme, vector); operating conditions of synchronous generators; armature reaction of synchronous generators; the impact of power factor, voltage, power and frequency to select the number of generator; unloading generator; voltage drop in the electric. networks (impact factors).

3. Three Phase Synchronous Generators excitation: independently excited synchronous generator; basic working principle of self-excited generator; independent work of synchronous generators; parallel operation of synchronous generators; putting generators in operation; unloading generator; losses and efficiency of synchronous generators. Working principle of synchronous machine as a motor and as compensator.

   Tree Phase Synchronous Motor - construction, principle of operation and load characteristics. Fault diagnosis a synchronous generator (el. value) and a plan for their removal; analysis of power factor with synchronous generators.

4. Three Phase Asynchronous Machines: three-phase induction squirrel cage / ring motors working principle; equivalent electrical diagram of the asynchronous motor; vector diagram; the concept of slip with asynchronous motors; drawing the torque characteristics of the asynchronous motor; motor starting; speed control; three-phase asynchronous ring motors - speed control; losses and efficiency of three-phase asynchronous motors; single-phase of asynchronous motors. Protection and maintenance of asynchronous motors.
MIDTERM EXAM I

5. Influence of on board conditions on electric machines and devices: requirements due to the material, volume, mass, requirements due to the climatic and operating conditions; safety and environmental impact of the ship; influencing factors; autonomy and size of the system; technical and technological characteristics. Electrical regulations.

Graphical symbols: identification and their meaning; electrical schematics, plans, diagrams and tables; current scheme; layout of the devices; project and technical documentation.

6. Distribution of marine electrical networks: the need to source of el. energy; distribution of direct current; distribution of alternating current; grounded and non-grounded electrical network; distribution of marine electrical network due to the electric supply energy (radial or complex electrical network). Electrical schemes, schemes of distribution of el. energy.

7. Production of electricity on board. The main sources of el. energy: turbo-generator, diesel -generator, shaft generator. Sources of el. energy in case of emergency; uninterruptible power supply; connection from land. Consumers of electricity on board: generally about electrical drives, lighting, thermal loads, other consumers of el. energy.

8. The balance of electricity: power factor for determining the characteristic loads (lighting, load power, engines); connection between the power factor and line current; disadvantages of working with low power factor; vector diagram power (kW, kVA, kVAR); simple examples of improving the power factor. Ship power plant: load calculations; mode distribution centres; installed and peak power the ship's electrical switchboard; examples of calculation. Distribution boards power in the ship's electrical network: distribution boards, additional circuitry; switchgear; the structure of the ship's electrical switchboards; the principle of selective protection.

9. Electrical equipment for power distribution: fuses; circuit breakers; disconnectors; overvoltage protection; relays; contactors, devices for monitoring insulation.

10. Electrical equipment for power distribution: explain the structure of circuit breakers, contacts; methods for extinguishing arc, explanation of dynamic forces that can generate on the contacts; overvoltage and formation overvoltage; voltage and current transformers; the determination of short circuit current and determination the protective equipment to short-circuit current.

MIDTERM EXAM II

11. High voltage technology: conditions that introduce application of high voltage on vessels; description of high voltage equipment (HV) and function (circuit breakers, SF6 - arcing, fuses, over - current protection, etc.); electrical machines; motors, generators and transformers; marine high-voltage electrical switchboards and instrumentation; overvoltage protection, insulation coordination.


The combined dielectrics - in general.
13. Electric propulsion: the advantages and disadvantages of electric propulsion; examples of classical and electric propulsion; primary electric motors used in electric propulsion; converters; cycloconvertor

14. Electric propulsion: PODDED propulsion system; remote control PODDED system; rpm operation and steering angle; harmonics distortion (THD factor) and the application of harmonic filters; examples.

15. Safety Precautions needed to operate the power plant voltage above 1000 V. Security measures and technologies applied in the installation of high voltage.

MIDTERM EXAM III

EXERCISES

2. Measurement of the electrical power system.
8. Example calculation of the balance of electricity. Determination of cos $\Phi$ and the parameters that affect the calculation.

PRELIMINARY EXAM IV – numerical tasks

11. Protection of electrical circuits

15. Demonstration Exercise IV on a High Voltage Distribution Circuit with a High Voltage Switch, Ground Disconnect Bus, Protective Relay and Control Circuits.

Format of instruction:
- lectures
- seminars and workshops
- exercises
- on line entirely
- mixed e-learning
- field lectures
- individual assignments
- multimedia
- lab exercises
- mentoring
**Student obligations**

Attendance at lectures is obligatory and records are continually kept (Form F04). Full-time students do not fulfil their obligations if they are absent from more than 20% at lectures and auditory exercises. Lab exercises / practical training required attendance is 100%. In case of lectures/exercises complying with the STCW Convention, full-time students do not fulfil their obligations if they are absent for more than 5% from lectures and auditory exercises. Attendance at lab exercises must be 100%.

In case of insufficient class attendance, students cannot obtain the course teacher’s signature and shall enrol in the course again in the next academic year.

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Tests/Midterm exams</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>

**Assessment and evaluation of full-time students’ work**

Student can qualify for the final grade in two ways:

1. The first one - continuous assessment:

   Based on actual and estimated points from continuous monitoring, evaluation of class attendance, work on the simulator and evaluation of the midterm exams. During the semester, there are three midterm exams - theoretical knowledge and one midterm exam - practical application (tasks, balance of electrical equipment, electrical schematics). It is important to note that during continuous monitoring each task is awarded two points. A midterm exam is positively evaluated when 50% of test items from different course teaching materials are correct (knowledge of all teaching materials, not just individual parts).

   Students who do not take the first / second midterm exam cannot take the second / third midterm written exam. Midterm exam on the tasks is scheduled several times during the semester. The final assessment evaluates a learning activity that involves attendance at lectures, auditory and laboratory exercises and results of the midterm exams.

   *

2. *Studying is in accordance with the STCW Convention*

   In case of insufficient number of class attendance, students are not eligible for signature and shall enrol in the course again in the next academic year.

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Points (%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance</td>
<td>80-100 (95-100)*</td>
<td>12</td>
</tr>
<tr>
<td>Work in lab-preparation of midterm</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>Midterm</td>
<td>50-100</td>
<td>20</td>
</tr>
<tr>
<td>Midterm</td>
<td>50-100</td>
<td>20</td>
</tr>
<tr>
<td>Midterm</td>
<td>50-100</td>
<td>20</td>
</tr>
</tbody>
</table>
**IV mid term - calculation, el. scheme**

*In accordance with STCW convention.*

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 - 61</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>62 - 74</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>75 - 87</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>88 - 100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

**Another method:**

It is based on actual and estimated points awarded for class attendance, monitoring students’ performance as well as final written and oral exam achievement. If students do not obtain a positive grade in continuous assessment or fail in continuous testing of knowledge during the semester they cannot take the exam in regular examination period. An exam in regular examination period consists of written and oral part. Students who obtain a positive grade in written exam can take the oral exam. The oral part of the exam will be held, at the latest, within five days of the written exam.

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Points (%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical part (written)</td>
<td>50-100</td>
<td>40</td>
</tr>
<tr>
<td>The theoretical exam (written and / or oral)</td>
<td>50-100</td>
<td>50</td>
</tr>
<tr>
<td>Previous activities</td>
<td>50-100</td>
<td>10</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borstlap, R.; Katen, Hans ten: Ship's Electrical systems, DOKMAR, Maritime Publisher BV P.O.Box 360, 1600 AJ Enkhuizen The Netherland, ISBN 978-90-71500-17-6, 2011.</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competences</td>
<td>Student surveys, records of teaching, occasional teaching supervision, Analyses at the end of the academic year</td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

185
### 4.11.6 3rd Year, VI Semester

#### 4.11.6.1 Ship Construction and Combat Resilience

<table>
<thead>
<tr>
<th>Name of the Course</th>
<th>Ship Construction and Combat Resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO121</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Andrija Ljulj, Ph.D. Ana Karaman</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 30 S 0 E 30 F 0</td>
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<tr>
<td>Status of the course</td>
<td>Mandatory for all students</td>
</tr>
<tr>
<td>Percentage of e-learning application</td>
<td></td>
</tr>
</tbody>
</table>

#### Course Description

- **Course objectives**: The main objective of this course is to introduce students with basic dimensions and measures of a ship, construction elements of a ship, basic concepts of a ship’s strength, constructional characteristics of various kinds of ships, international regulations on construction. Also, another objective is to master the fundamental knowledge in fire fighting and preventing fires on-board, and to be qualified to prevent flooding of a ship and prevent flooding on-board.

- **Course enrolment requirements and entry competences required for the course**

- **Learning outcomes expected at the level of the course (4 to 10 learning outcomes)**

  1. Describe and explain development of ships through history, and familiarization with international regulations on the construction of ships.
  2. Explain and analyse ways and types of constructing a ship, elements of the longitudinal and lateral strength of a ship, and acquiring knowledge of structural elements of a ship.
  3. Describe and explain cargo systems and ship equipment for handling cargo.
  4. Analyse and demonstrate knowledge and application of main measures and dimensions of a ship.
  5. Demonstrate knowledge application of different ship schemes and plans.
  6. Describe and explain classification of ships, based on different criteria.
  7. Define and explain classification of ships based on: purpose, cargo type, sail category, building material, transport types...
  8. Define and explain technical and technological characteristics of different ship types.
  9. Define elements of combat resistance of a ship, types of damage on warships when subject to different means of combat and measures the crew should take to maintain ship damage resistance.
  10. Describe ways of fighting flooding of water on ships and demonstrating means for fighting flooding.
  11. Describing preventive fire fighting measures and demonstrating fire fighting equipment.
Course content broken down in detail by weekly class schedule (syllabus)

Lectures:
1. International regulations on construction of ships, historical development of ships.
2. Construction materials, welding, bulkheads and subdivision of a ship, watertight integrity and tightness of doors.
3. Types of ship construction, elements of longitudinal and lateral strength of a ship, structural elements of a ship.
4. Strength and strain of ship construction.
5. Position and characteristics of cargo space, tank space, crew quarters, command bridge and engine room.
6. Cargo systems on different categories of ships, dry cargo ships, liquid cargo ships, special ships.
7. Ship cargo-handling equipment.
8. Ship devices and equipment.
9. Rudder distribution, characteristics of certain types of rudders, screw designs, characteristics of certain types of screws, alternative types of rudders and screws.
10. Geometrical representation of a ship, main dimensions and measures.
11. Plan of a ship and ship lines, general plan of ships of different technologies, determining areas and volumes, centres of gravity of areas and volumes, waterlines methods, ribs, diagonals.
12. Classification of ships based on purpose, type of cargo, waters in which they sail, navigation categories, construction material, nature of transport services, modern technologies ships.
13. Constructional and technological characteristics of dry cargo ships.
15. Combustion theory.
16. Fire safety principles.
17. Ways of detecting fire.
18. Fire fighting devices and ship’s fire fighting equipment.
19. Ways of extinguishing fire.
20. Types of damages on hull.
21. Ways of detecting and protection against flooding of water.
22. Devices for reducing the effects of flooding.
23. Impact of the amount of flooding on the ability of stopping it.
24. Devices for preventing flooding.
25. Ship’s organization for preventing flooding.

Exercises:
1. Building ships, basics in building, different types of ships, construction materials, welding, visit to a shipyard.
2. Building ships, familiarization with construction of different types of ship, familiarization with structural elements of a ship, types of ship building, elements of longitudinal and lateral strength, subdivision of a ship, visit to a shipyard.
3. Arrangement of spaces on a ship, arrangement of cargo spaces, Command Bridge, crew quarters, engine room, etc., visit to Croatian Navy warships.
4. Rudders and thrusters types of rudders and screws, different types of thrusters, visit to Croatian Navy warships.
5. Ship’s deck equipment and devices, deck equipment, anchors, anchor chains, anchor winches, tethering devices and equipment, visit to Croatian Navy warships.
6. Ship’s dimensions and measures, identification of freeboard, scales of draught, other dimensions of a ship, practical application, visit to Croatian Navy warships.
7. Different technologies ships, familiarization with ships of different technologies and their systems, visits to ships in the port.
8. Fire fighting protection (extinguishing fire in an open area using extinguishers and other means on the damage control training area)
9. Extinguishing fire in an indoor area, without fresh air (flash over), and with fresh air (back draft) in “Brodosplit” training area in Split.
10. Protection against flooding of water (preventing flooding, repair work on the damage control training area)
11. Training students in preventing flooding of water and fire fighting on a Croatian Navy ships.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>lectures</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>seminars and workshops</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>exercises</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>on-line in entirety</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>partial e-learning</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>field work</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>individual assignments</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>multimedia</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>lab exercises</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>mentoring</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>

Student responsibilities

Lecture attendance is mandatory (there is a record of attendance), and it is 70% of lectures and 100% of exercise in order to get the right of signature.

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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>1</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Self-study and homework assignments</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(other)</td>
<td></td>
</tr>
<tr>
<td>Midterm/End of term exam</td>
<td>Oral exam</td>
<td>1</td>
<td>(other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(other)</td>
<td></td>
</tr>
</tbody>
</table>

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

Lecture attendance is mandatory (condition for obtaining the course teacher’s signature is attendance of at least 80% at lectures). There is a midterm written exam in the 8th week and end of term exam in the penultimate week of the semester. The first one includes learning outcomes from 1 to 3, whereas the second one includes learning outcomes from 4 to 8. At least 50% is required for passing the midterm/end of term exam. Students who, for objective reasons, cannot take one of the exams or fail to obtain the minimum percentage, may retake the test. The final grade includes attendance, midterm/end of term exam results, written and oral exam. Students who fail the midterm or end of term exam and have obtained the signature shall take the written exam in the examination period. The same grading criteria shall be applied to final exam as well as to continuous evaluation of knowledge.

**Continuous evaluation of students’ performance**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average achievement with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available through other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen M. Bissell, E. James Oertel, Donald J. Livingston, Shipboard damage control, Naval Institute Press (1976)</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

**Optional literature (at the time of submission of study programme proposal)**
- Ship Operation Manuals, SOLAS Training Manuals, SOPEP & BWMP

**Quality assurance methods that ensure the acquisition of exit competences**
Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire, Faculty teaching supervision.

**Other (as the proposer wishes to add)**

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### 4.11.6.2 Military Communication and Information Systems

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY COMMUNICATION AND INFORMATION SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO122</td>
</tr>
<tr>
<td>Year of study</td>
<td>3\textsuperscript{rd}</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Antonio Šarolić, Ph.D.</td>
</tr>
<tr>
<td>Associate teacher</td>
<td>Tomislav Perić, M.Eng.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L S E F</td>
</tr>
</tbody>
</table>
COURSE DESCRIPTION

Course objectives

The aim of the course is to introduce students to the organization, concept and documentation of military communication-information systems (CIS) in the Croatian Armed Forces (CAF) and NATO; to understand and use military terminology, documentation and communication devices used in the Armed Forces; and to get an insight in the protection of CIS at a hardware and software level.

Course enrolment requirements and entry competences required for the course

No special requirements.

Learning outcomes expected at course level (4-10 learning outcomes)

1. Learn the characteristics of military information-communication system in the CAF
2. Learn the characteristics of military information-communication system in the NATO environment
3. Get an insight in the methods of CIS planning and management within the CAF
4. Understand the concept of CIS in the Croatian Navy (HRVN).
5. Learn standards and procedures of CIS within the NATO environment
6. Use CIS documentation of the HRVN
7. Acquire the knowledge of characteristics of radio-communication systems and devices used in the HRVN
8. Get an insight in the methods of protecting CIS.

Course content broken down in detail by weekly class schedule (syllabus)

Lectures:

1. Use of civilian telecommunication (TC) systems for defence purposes, (CIS for general and special purposes; Frequency distribution range for civilian and military purposes, Standardisation; Use of fixed public TC networks for defence purposes (structure and organisation of work, possibilities); Use of mobile public TC networks for defence purposes (structure and organisation of work, possibilities)
2. Organisation of CIS in the CAF (Principles of organising a military communication system (Structure of CIS, Data management in CIS, Efficient use of CIS, Interoperability, Flexibility...); Classification of military CISs (according to kinds of devices, connecting leads, mobility, strength, etc.); Elements of military CIS (stationary, mobile, signal posts, nodes, etc.); Management and execution bodies of a military communication system (management bodies, units); Frequency management; Concept of CIS in the CAF)
3. Organisation of CIS in the HRVN [types of communications (command and control, coordination, notifying, safety of sailing/flying); Organisation of the CI support on the mainland (coast) and at fleet forces; the CIS concept in the HRVN]
4. Organisation of CIS in NATO (Principles of setting up CIS; Organisational structure in NATO headquarters; Support of agencies; CIS units; NATO standards and procedures of CIS)
5. Organisation of communication traffic in the navy CIS (Types of communication traffic; Planning of communication traffic, Rules for setting up of communication; CI support documents)
6. Planning of communications and CIS management in naval operations (Principles of communications planning in naval operations; Contents of documents regulating communications in a naval operation; CIS management in a naval operation)
7. Communication devices and systems on a warship, [Organisation of CIS on a warship (communication within a ship, communication within a waterway system,
communication with other participants in maritime traffic, communication with other participants within a sailing safety system; Structure of a typical ship combat system; Maritime tactical data systems on a ship (links)

8. **Protection of CIS** [Protection of CIS from intentional jamming (technical, tactical and organisational protective measures); TRANSEC, COMSEC, INFOSEC, work in an extended range, strength and frequency management, application of tactical and organisational measures (EMCON, surveillance of own traffic); Protection of message contents (encoding techniques, message encoding); cyber defence; Implementation of information security measures in CIS, (principles, legal framework); Protection of information in maritime CIS]

**Exercise:**
1. Fabrication of CIS planning documents for naval operations (traditional and non-traditional): OPLAN, Annex of CIS along with OPORD,
2. Fabrication of a codebook and communication log
3. Telecommunication devices and systems on a ship: radio communication ones for conveying speech, images and data; ship satellite systems and devices: underwater communication systems,
4. Information systems in the CAF: services and servicing
5. Civilian information systems: services and servicing
6. Signal light communication in a waterway system
7. Fabrication of documents pursuant to NATO procedures
8. Fabrication of tasks pursuant to NATO procedures.

<table>
<thead>
<tr>
<th>Format of instruction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ lectures</td>
<td>☐ independent assignment</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ exercises</td>
<td>☐ laboratory</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
<td>☐ work with mentor</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
<td>☐ other</td>
</tr>
<tr>
<td>☒ field work</td>
<td></td>
</tr>
</tbody>
</table>

**Student responsibilities**
Lecture attendance is mandatory (a record of attendance is kept), and it is 90% of lectures and 100% of exercises in order to obtain the course teacher’s signature. In case of justified absence, students will have the opportunity to compensate for the missing classes during consultation hours and by doing seminar papers in order to meet the required attendance criteria. If the attendance requirement is not met, students shall re-enrol in the course in the next academic year.

There will be a midterm and end of term written exams. For the passing grade, it is required to achieve at least 50% of points on each midterm/end of term exam. Students who do not pass the midterm exam are not allowed to take the end of term exam. Students that have obtained the course teacher’s signature, but have not passed midterm/end of term exam, are obligated to take a final written and oral exam. Students who have fulfilled their obligations, have to apply for the exam during the first examination period in order to get their grade entered, or to take the oral exam if they want a better grade.

**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)**

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>0,8</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar essay</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>1,2</td>
<td>Oral exam</td>
<td>2</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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Assessment and evaluation of full-time students’ work

Active attendance of lectures and seminars is monitored. The exam consists of two parts, written and oral. Students can take the written part of exam through two (midterm and end of term) exams. Students don’t need to take written exam if they pass the two midterm exams during the semester. The midterm exam comprises chapters 1 to 4 and is taken after completed chapter 4, and the end of term exam comprises chapters 5 to 8 and is taken after the end of lectures and exercises. At least 50% of points are required for passing the midterm/end of term exam. Students who do not take one of these exams or fail to obtain a minimum percentage shall take the written and oral exam in the first examination period. The final grade includes attendance at lectures and results of the midterm/end of term exams. The same grading criteria shall be applied for the examination period and for continuous evaluation of knowledge, as well.

Continuous evaluation of students’ performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance and activity level at exercises</td>
<td>90/100</td>
<td>20</td>
</tr>
<tr>
<td>Midterm/End of term exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

In this case student does not need to take a written exam.

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written exam (or midterm/end of term exams)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Oral exam (theory)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Other activity (including all continuous assessment factors)</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (min.%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail 1</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient 2</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good 3</td>
</tr>
<tr>
<td>80-89</td>
<td>Above -average achievement with few mistakes</td>
<td>Very good 4</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent 5</td>
</tr>
<tr>
<td>Required literature (available in the library and via other media)</td>
<td>copies in the library</td>
<td>via other media</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>NATO documentations for CIS:</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>- AJP-6 - “Allied joint doctrine for communication and information systems”, 2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- STANAG 2014 “Formats For Orders And Designation Of Timings, Locations And Boundaries”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- STANAG 5042 “Military Telecommunications - Diagrams Symbols”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jose Escalona, M., Aragon, G., Linger, H., Lang, M., Barry, C., Schneider, C. (Eds.), Information System Development, Springer International Publishing (2014)</td>
<td>YES</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional literature (at the time of submission of study programme proposal)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Quality assurance methods that ensure the acquisition of exit competences</th>
<th>Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire, Faculty teaching supervision.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
</tr>
</tbody>
</table>
### 4.11.6.3 Physical Education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO123</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>0</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td></td>
<td>0 0 30 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one's health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.

**Course enrolment requirements and entry competencies required for the course**

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**
- Use specific exercises for a certain kinesiological activity.
- Combine the basic elements of a certain kinesiological activity.
- Learn the rules to perform a certain kinesiological activity.
- Demonstrate the proper performance of new elements and skills of a certain kinesiological activity.
- Organize physical training in order to spend one's free time actively.
- Take care of one's health by exercising regularly.
- Explain some osteomuscular disorders and exercises for their prevention.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Exercises:**
1. Regular testing of physical abilities
2. The development of functional abilities
3. The development of motor abilities
4. Fitness programs
5. Swimming
6. Naval pentathlon (naval obstacles, navy skills training area)
7. Navy skills training (rowing, sailing)

**Format of instruction:**
- Lectures
- Seminars
- Exercises
- On-line in entirety
- Field work
- Individual assignments
- Multimedia
- Lab exercises
- Mentoring

**Student responsibilities**
Students are required to participate in exercises. Records of student attendance are also kept.
### 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.

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Essay</th>
<th>Seminar paper</th>
<th>Independent study and homework (other)</th>
<th>Oral exam</th>
<th>Report</th>
<th>Written exam</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required work in class and at the final exam</td>
<td>Essay</td>
<td>Seminar paper</td>
<td>Independent study and homework (other)</td>
<td>Oral exam</td>
<td>Report</td>
<td>Written exam</td>
<td>Practical training</td>
</tr>
<tr>
<td>Grading and evaluating student work in class and at the final exam</td>
<td>Essay</td>
<td>Seminar paper</td>
<td>Independent study and homework (other)</td>
<td>Oral exam</td>
<td>Report</td>
<td>Written exam</td>
<td>Practical training</td>
</tr>
<tr>
<td>During the academic year, students are required to take two regular physical fitness tests to meet the established norms.</td>
<td>Essay</td>
<td>Seminar paper</td>
<td>Independent study and homework (other)</td>
<td>Oral exam</td>
<td>Report</td>
<td>Written exam</td>
<td>Practical training</td>
</tr>
</tbody>
</table>

### Required literature

(available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maršić, T. Dizdar, D.: Osnove treninga izdržljivosti i brzine, Zagreb 2008.</td>
<td>Other</td>
<td>Other</td>
</tr>
<tr>
<td>Kineziološki priručnik za pripadnike OSRH, Zagreb 2005.</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

- Other (as the proposer wishes to add)
# 4.11.6.4 On-board Training III

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ON-BOARD TRAINING III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPN117</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>3rd</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Jakša Mišković, M.Eng.</td>
</tr>
<tr>
<td></td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Associate teachers</strong></td>
<td>Nenad Sikirica</td>
</tr>
<tr>
<td><strong>Type of instruction (number of hours)</strong></td>
<td>L  S  E  F</td>
</tr>
<tr>
<td></td>
<td>0  0  0  30</td>
</tr>
<tr>
<td><strong>Status of the course</strong></td>
<td>Mandatory for Nautical engineering module</td>
</tr>
<tr>
<td><strong>Percentage of application of e-learning</strong></td>
<td>30</td>
</tr>
</tbody>
</table>

## COURSE DESCRIPTION

### Course objectives
The main objective of this course is to acquire practical knowledge and skills of ship handling in all conditions and gain experience of living and working on board a ship.

### Course enrolment requirements and entry competences required for the course
Terrestrial Navigation, Cargo Handling I

### Learning outcomes expected at the level of the course (4 to 10 learning outcomes)
1. Participation in keeping a navigational watch and communication procedures and practical use of navigational and communication instruments and devices.
2. Learning how to be an active member of the crew in daily practices and maintain the ship and ship systems, berthing, unberthing, navigation, ship's stay in port, etc.
3. Gaining experience of living and working on board a ship, within the ship’s crew in a limited ship’s space.
4. Familiarisation with ship's proper log book record and doing ship paperwork in a proper way.

### Exercises:
1. Bridge watch keeping procedures
2. Applying International Regulations for Preventing Collisions at Sea
3. Determining position in navigation and its plotting onto a nautical chart using navigational instruments and devices, RADAR, ARPA, AIS, ECDIS, GPS/DGPS and other navigational systems.
4. Regular and emergency steering gear
5. Berthing and unberthing a ship, anchoring a ship, handling marine ropes and steel cables.
6. Procedures of organizing the ship's crew at sea and in port according to SOLAS manual.
7. Determining the ship's position using terrestrial and astronomical navigation.
8. Maintaining bridge communication procedures, both in Croatian and English.
9. Determining search and rescue procedures, handling rescue crafts, emergency activities and handling lifesaving equipment.
10. Maintenance of ship and marine equipment.

### Course content broken down in detail by weekly class schedule (syllabus)

### Format of instructions
- Lectures
- Seminars and workshops
- Exercises
- On line in entirety
- Partial e-learning
- Field work
- Independent assignments
- Multimedia
- Laboratory
- Work with mentor
- (other)

### Student responsibilities
Student obligations
Mandatory 100% attendance, log keeping. Students who do not achieve 100% attendance, ie. miss boarding the school ship are required to re-enroll in the course next year. The schedule and program of the practicite are realized during boarding on a school or some other appropriate ship, within a 24-hour stay on the ship for a minimum of 5 days.

| Screening student work (enter 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 | 0.7             | Research        | Practical training |
| Experimental work | Report          | Skills demonstration | 1.3 |
| Essay            | Seminar essay   | (Other)         |
| Tests            | Oral exam       | (Other)         |
| Written exam     | Project         | (Other)         |

The exam is not taken. In order to obtain a signature, it is necessary to complete 100% of the planned voyage on the school ship, actively participate in the exercises, fill in the appropriate log and complete other set tasks. Students who have completed maritime high school and have more than 6 months of navigation as deck or trainees (or officers) in the last five years will be recognized as navigational practices. Evidence is obtained by inspecting the seaman's book, and by reviewing the authorization of the officer of the navigational watch or by reviewing the log kept by the cadet.

Continuous evaluation of the students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Demonstration of skills and knowledge</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMO: Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs)</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>MARISEC: Bridge Procedures Guide, 1998</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>IMO/ILO Reference Manual</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Hydrographic Institute publications and charts</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

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


Quality assurance methods that ensure the acquisition of exit competences

Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire

Other (according to the proposer)

4.11.6.5 Electronic Navigation
<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ELECTRONIC NAVIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN118</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Lea Vojković, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Filip Bojić</td>
</tr>
<tr>
<td>Type of instruction</td>
<td></td>
</tr>
<tr>
<td>(number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10%</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
Master various methods of using electronic navigational devices. Recognize devices and evaluate risks based on knowledge of maritime safety information.

**Course enrolment requirements and entry competencies required for the course**
Terrestrial Navigation

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Correctly explain and interpret important elements of conducting a ship with the use of electromagnetic waves.
2. Affirm principles of work of echo sounder, speed log and other electronic navigation devices.
3. Describe and interpret the work of non-magnetic compass, radar use in navigation, the use of electronic charts - ECDIS.
4. Independently use ARPA and ECDIS systems in all conditions.
5. Describe and interpret the work of hyperbolic navigation systems, inertial systems, satellite navigation systems, and other electronic navigation systems of high accuracy.
6. Describe and interpret the use of VDR, AIS, TV in maritime navigation as well as integrated navigation systems.
7. Identify and analyse the errors of electronic navigation systems and critically assess their usability.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**
1. The principle of operation and measurement errors of gyro, electronic, laser and satellite compass.
2. The principle of operation and measurement errors of depth sounders and speed logs.
3. Technological development of electronic navigation system.
4. Satellite navigation systems GPS, DGP, GLONASS, Galileo and development directions.
5. Hyperbolic navigation systems..
7. ENC .The division into raster and vector..
8. ECDIS system, use and accuracy.
9. Procedures of correction of charts and nautical publications..
10. Inertial navigation, operation principle, accuracy and error..
11. ARPA navigation radar, operating principles, errors, connection with other systems..
13. Voyage Data Recorder - VDR. Television in navigation..
14. Integrated navigation systems..
15. High-accuracy navigation systems.

**Exercises:**
1. Familiarization with all electronic navigation instruments and devices on navigational bridge.
2. Measuring ships speed and depth, reading gyro and magnetic course, measure errors and calculate corrections. Work with hyperbolic (LORAN C) and goniometric systems.
3. Measure gyro errors, start-up instruments, switch on autopilot from manual mode, dead reckoning. GPS, DGPS – use, route planning using GPS, setting alarms, orthodromic and locosodrome navigation.
4. The orientation of the ARPA image, the true and relative motion. Elimination of interference. Fix position.
5. Calculate targets elements, graphical manual and automatic plotting, collision avoidance simulation. Use of ARPA in heavy traffic condition.
6. The principle of operation and usage of Automatic Identification System-AIS, connecting with ARPA and VDR.
7. Use ARPA radars, alarms, collision avoidance simulation, ARPA in search and rescue, SART.
9. ECDIS system, use and accuracy, operating principles, connection with other systems.
10. Route planning by ECDIS system and creating a voyage plan.
11. Route planning by ECDIS system, using alarms, route checking.
12. Voyage monitoring, joint task ARPA/ECDIS/AIS system.
13. Voyage monitoring, log keeping and data recording in ECDIS system.
15. Integrated navigation system-Integrated Bridge system INS-IBS. Instruments ergonomic and maintenance. Check lists.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>☒ lectures</th>
<th>☐ individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ seminars and workshops</td>
<td>☐ multimedia</td>
</tr>
<tr>
<td></td>
<td>☒ exercises</td>
<td>☐ lab exercises</td>
</tr>
<tr>
<td></td>
<td>☐ on line in entirety</td>
<td>☐ mentoring</td>
</tr>
<tr>
<td></td>
<td>☐ partial e-learning</td>
<td>☒ nautical simulator practice</td>
</tr>
<tr>
<td></td>
<td>☐ field work</td>
<td></td>
</tr>
</tbody>
</table>

| Student responsibilities | Regular lectures attendance, min 95%
|                          | Practical tasks done 100%.
|                          | Irregular lectures attendance will result in a student not obtaining a signature in his/her “Indeks” (Student Transcript Book).
|                          | Absence of 20% can be compensated with extra tasks through consultations.
|                          | All other students under 80% of lecture attendance will not get a signature and must enrol in the course again the next academic year.
|                          | Implemented STCW parts (STCW certificates) in course will have special requirements - 100% of exercises and min. 95% of lectures attendance.
|                          | If a student has not completed the tasks, he/she cannot obtain the STCW certificate D6C(ARPA -management level). No exemption for this part of course.
|                          | Exemption applies only for a student owning the STCW certificate D6B (ARPA -working level).

<table>
<thead>
<tr>
<th>Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is</th>
<th>Class attendance</th>
<th>1,5</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
equal to the ECTS value of the course)

<table>
<thead>
<tr>
<th>Equal to the ECTS value of the course</th>
<th>Essay</th>
<th>Seminar paper</th>
<th>(Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests</td>
<td>2</td>
<td>Oral exam</td>
<td>1,5</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

Assessing and evaluating student performance

2 Midterm exams in the 10th and 14th week of the semester.
If a student does not pass midterm exam/s (50%), he/she will have the opportunity to take the oral exam and obtain the STCW certificate (ARPA management level)
If a student has passed 2 midterm exams he/she will get a positive grade.
The requirement for signature in the “Indeks” (Student Transcript Book) is 95% regular class attendance and 100% exercise attendance.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance, active in exercises</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>I Midterm exam</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>II Midterm exam</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kjerstad, Norvald: Electronic and acoustic navigationsystems for maritime studies, NTNU, Alesund, 2016</td>
<td>1</td>
<td>/</td>
</tr>
<tr>
<td>Optional literature (at the time of submission of study programme proposal)</td>
<td>ECDIS passage planning and watchkeeping, 2018 Edition, Witherby Seamanship, 2018</td>
<td>1</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Bowditch, N.: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002.</td>
<td>1</td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td>University survey, list of student attendance, Faculty teaching supervision</td>
<td></td>
</tr>
</tbody>
</table>
### COURSE DESCRIPTION

**Course objectives**

The aim of the course is to familiarize students with the characteristics of cargoes in maritime transport, the principles of handling all types of cargo, planning cargo loading on ships of different technologies, safety measures in the transport of cargo.

**Course enrolment requirements and entry competencies required for the course**

Cargo Handling I

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Explain and interpret the principles cargo planning, and the requirements in the transport of various types of dry, liquid, hazardous, and other types of cargo.
2. Plan the loading / discharging, stowing, lashing various types of cargo.
3. Recognize the dangers with specific types of cargo (dry bulk, containers, liquid, etc.).
4. Confirm safeguards for cargo transportation by sea, particularly hazardous cargo, and procedures in case of leakage, capsizing, falling, failure, etc.
5. Knowledge and use of computer programs applicable to planning and transport of various types of cargo.

**Lecturers:**

1. Principles of making cargo plan.
2. Transport of containers by sea by container vessels. (IMDG 2 class hour)
3. Transport of bulk cargo. (IMDG/IMBSC 1+1 class hour)
4. Transport of grain and minerals in bulk by sea
5. Transport of grain and minerals in bulk by sea (IMDG/IMBSC 1+1 class hour)
6. Transport of various types of cargo by sea (IMDG/IMBSC 1+1 class hour)
7. Transport of liquid cargo – general consideration (IMDG 2 class hours)
8. Transportation of crude oil and products by sea. (IMDG 2 class hours)
9. Transport of liquefied gases by sea. (IMDG 2 class hours)
10. Transport of chemicals by sea. (IMDG 2 class hours)
12. Transport of refrigerated cargo.
13. Transport of cargo by RO / RO ships
14. Transport of heavy lift.
15. Transport of various types of cargo by sea, Cargo Liquefaction - Nickel and Iron Ores - final consideration

**Exercises:**
1. The principles of making cargo plan.
2. Planning of loading dangerous goods in bulk (IMDG/IMBSC 2+1 hours)
3. Plan of loading containers on a container ship, plans cargo
4. Plan for loading containers on a container ship (Macs3 Loading - Stability)
5. Plan for loading containers on a container ship (Macs3 Loading - Stability)
6. Plan of loading bulk cargo for sea transportation (grain, ore, cement, minerals, coal, etc. (Macs3 Loading - Stability-BULK) (IMBSC 3 class hours)
7. Plan for loading of liquid cargo by sea (Macs3, LCHS) (IMDG/IMBSC 2+1 hours)
8. Plan for loading crude oil and products by sea (Macs3 Loading - Stability, LCHS/VLCC) (IMDG/IMBSC 2+1 hours)
9. Plan of loading liquefied gas for sea transportation (Macs3 Loading - Stability, LCHS/LNG, LPG) (IMDG/IMBSC 2+1 hours)
10. Plan of loading chemicals for sea transportation (LCHS/CHEMICAL) (IMDG/IMBSC 2+1 hours)
11. Plan of loading timber for sea transportation (Macs3 Loading - Stability, bulk carriers)
12. Plan of loading refrigerated cargo by sea
13. Plan of loading RO / RO on board of the ships (Macs3 Loading - Stability/Ro-Ro) (IMDG 2 hour)
14. Plan of loading heavy cargo for sea transportation (Macs3 Loading - Stability/Heavy Lift)
15. Plan of loading various types of dangerous goods for sea transportation - Radioactive cargo, explosives (Macs3) (IMDG 2 class hours)

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ lectures</td>
</tr>
<tr>
<td>☑ seminars and workshops</td>
</tr>
<tr>
<td>☑ exercises</td>
</tr>
<tr>
<td>☑ on line in entirety</td>
</tr>
<tr>
<td>☑ partial e-learning</td>
</tr>
<tr>
<td>☑ field work</td>
</tr>
<tr>
<td>☑ individual assignments</td>
</tr>
<tr>
<td>☑ multimedia</td>
</tr>
<tr>
<td>☑ lab exercises</td>
</tr>
<tr>
<td>☑ mentoring</td>
</tr>
<tr>
<td>☑ simulator practice (other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures and exercises are compulsory for students and records of class attendance shall be kept. To get the signature students must attend a compulsory minimum of 80% of lectures and exercises and 100% (95%) on the set, which included training. In case of insufficient number of class attendance students shall neither be given a signature nor will be entitled to take an exam. Absentee notes cannot justify or replace absence from class. Students who, due to illness or other justified reasons, do not meet requirements for obtaining a signature training and have more than 80% of class attendance, will be able to rest up to 100% (95%) do in the additional terms, during the semester and after, but not later one month after the end of classes. All other students, i.e., those who have achieved less than 80% of class attendance, are not eligible for signature and shall enrol in the course next year.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Tests/Midterm exams (L2+E2)</td>
</tr>
</tbody>
</table>

203
Grading and evaluating student work in class and at the final exam

Assessment and evaluation of full-time students’ work

After passing the written exam of exercises, i.e. having assumed all regular requirements, students can take the oral examination. Students who pass the exam or midterm exam during lectures are exempt from taking oral exam. Students who do not pass midterm exam during exercises have to take final exam which consists of two parts.

After passing the written exam of practical training, students can take the oral exam. Students who have passed the midterm exams during lectures are exempt from taking the oral exam.

Students who have not passed the midterm exams have to take the final exam that consists of two parts.

The first part refers to the specified resolution of the problem of stability and load on the ship's construction, equipment for cargo handling and securing of cargo, determining the amount of load draft of the ship. The second part refers to the theoretical part and work on the simulator for cargo handling. In order to apply for the final exam, students need to obtain the course teacher’s signature.

Midterm exams shall be held exclusively during classes, and the final exam within the official examination period.

If a student does not pass all midterm exams relating to practical training (but only some) and obtains the course teacher’s signature, may be credited with work on the simulator applications (as a whole), and given the other two tests with exercises. In this case, the final written exam comprises only the unit that a student has not passed, as well as the assessment of the operation on simulator applications (first or second unit).

Midterm exams I and II relating to practical training can be substituted by appropriate individual assignments only during the semester. It does not apply to work on the simulator for cargo handling. Individual units are considered as passed only in the course of the current academic year, i.e. until the end of scheduled examination periods. If students re-enrol in the course next academic year these units shall not be accepted as passed.

This rule may be exempt if a student has passed the written exam of practical training in entirety, than he/she may be given the opportunity to take the oral exam within one year.

Allocated time for practical training written exam is 3 class periods.
Allocated time for midterm exam of exercises is 2 class periods.
Allocated time for theoretical midterm exam is 2 class periods.

Allocated time for all exams is, as follows:
- Final exam (written) max up to 100 min.
- Midterm exams (one of the two main units of exercises): max up to 100 min.
- Exercise writing time (only during class): max up to 100 min.
- Midterm exam (theoretical part): max up to 100 min.

Continuous evaluation of students’ performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures and participation in the training</td>
<td>80</td>
<td>10</td>
</tr>
</tbody>
</table>

204
| I midterm exam (MERLIN) L x 1 + E x 1 | 75  | 30 |
| II midterm exam (MERLIN) L x 1 + E x 1 | 75  | 30 |
| Continuous assessment in the training on Cargo Handling Simulators | 100 | 15 |
| Individual Tasks | 100 | 15 |
| In total | | 100 |

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The theoretical exam (written and/or oral)</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>Numerical tasks-written</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>*Elementary knowledge (written or oral)</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Demonstration work on simulator</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>Theoretical exam (written/oral)</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Individual Tasks</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

*Basic concepts of ship stability and cargo loading - a prerequisite for listening to Cargo Handling. Repetition of knowledge and skills acquired at the Naval High School or in the subject “Knowledge of Ship and Cargo”. Questions available under course material for “Cargo Handling I & II”.

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-60</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>61-71</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>72-82</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>83-94</td>
<td>Above-average success with some errors</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

***On-line MERLIN SYSTEM + VIDEOTEL training and testing based on the agreement between PFST - VIDEOTEL on the use of all VIDEOTEL modules for training PFST students.

***Minimum for pass 75%
### Required literature (available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belamarić G.: Cargo Handling I – Authorized Lectures, TextBook &amp; PPT presentation x 13 Volumes, Faculty of Maritime Studies, Split, October 2018.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Vranić, D., Komadina, P. I dr.: Transport by Chemical Tanker: Safety and environmental protection, Faculty of Maritime Studies Rijeka, 1997.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>IMBSC CODE 2014.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Komadina, P. i dr.: Carriage LNG by Sea, Faculty of Maritime Studies Rijeka, 1995.</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

2. Komadina, P., Vranić, D., Prijevost sirove nafte morem”, Faculty of Maritime Studies Rijeka.
4. Vranić, D., “Tereti u pomorskom prometu”, Faculty of Maritime Studies Rijeka

### Quality assurance methods that ensure the acquisition of exit competences

- University survey, list of student attendance, Faculty teaching inspection.

### Other (as the proposer wishes to add)

#### 4.11.6.7 Ship Handling Techniques

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SHIP HANDLING TECHNIQUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN120</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Marijan Zuzić, M.Sc.Eng. Dario Medić, Ph.D.</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L  S  E  F</td>
</tr>
<tr>
<td>(number of hours in a semester)</td>
<td>30 0 45 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

Course objectives

Introduce students to the factors affecting the ship manoeuvring, manoeuvring characteristics of the ships, manoeuvring different types of vessels in all conditions.
including exceptional circumstances, security measures when manoeuvring and during the ship’s stay in a place of mooring. Detailed knowledge and analysis of the International Regulations for Preventing Collisions at Sea. Practical work on exercises and a sailing practice, students should acquire skills in accordance with the STCW Convention.

<table>
<thead>
<tr>
<th>Course enrolment requirements and entry competencies required for the course</th>
<th>Terrestrial Navigation</th>
</tr>
</thead>
</table>
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | 1. Know in detail, analyse and practically apply the International Regulations for Preventing Collisions at Sea.  
2. Describe and analyse the factors that affect ship manoeuvring.  
3. Know and interpret the manoeuvring characteristics of the ship.  
4. Explain the principles of manoeuvring of different types of ships in all conditions, including emergencies.  
5. Confirm the safety precautions when manoeuvring during the ship’s stay at the mooring.  
6. Being able to steer the ship in the navigation simulators and on a sailing practice.  
7. Acquire skills in ship handling. |

| Lectures |  
1. Introduction, term and division techniques of handling the boat.  
2. Loading / unloading pilot.  
3. Mooring and unmooring ships.  
4. Modern propulsion systems.  
5. Deck equipment, ships mooring equipment, lines, winches, bollards.  
7. Sailing in severe and bad weather conditions –rolling, surging, pitching, swaying, yawing and heaving.  
8. Use manoeuvring system.  
9. International Regulations for Preventing Collisions at Sea - manoeuvring in reduced visibility zones and traffic separation schemes.  
10. Anchoring.  
11. Ships squat - change the trim and draft of the ship.  
12. Sailing in bad weather and wind effects.  
13. Sailing in severe weather conditions - navigation in ice.  
14. Manoeuvring in different conditions.  
15. Manoeuvring and navigation in traffic separation schemes, narrow channels and emergency situations. VTS.  
|  
| Exercises: |  
1. The International Regulations for Preventing Collisions at Sea-lights.  
2. Boarding/ disembarking pilot.  
3. Mooring and unmooring ships.  
4. Procedure of preparing ships for entering Ports, “Arrival at port” and “Departure from port”  
5. International Regulations for Preventing Collisions at Sea - a manoeuvre to avoid a collision.  
6. The technique of handling a variety of conditions.  
7. Interaction. Types of manoeuvres and safety while manoeuvring the ship.  
8. Ship’s propulsion - characteristics.  
9. International Regulations for Preventing Collisions at Sea - manoeuvring in reduced visibility.  
10. Anchoring.  
11. Docking. Safety during the ship's stay in the dock. |
12. Sailing in severe weather conditions: towing, change of course, landing rafts, etc.
13. Manoeuvre MOB- “Man Over Board”
14. Ice navigation - sailing in or near the ice.
15. Use Regulations for Preventing Collisions at Sea and manoeuvring in separated zones.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>🗣 lectures</td>
</tr>
<tr>
<td>🗣 seminars and workshops</td>
</tr>
<tr>
<td>🗣 exercises</td>
</tr>
<tr>
<td>🗣 <em>on line</em> in entirety</td>
</tr>
<tr>
<td>🗣 partial e-learning</td>
</tr>
<tr>
<td>🗣 field work</td>
</tr>
<tr>
<td>🗣 individual assignments</td>
</tr>
<tr>
<td>🗣 multimedia</td>
</tr>
<tr>
<td>🗣 lab exercises</td>
</tr>
<tr>
<td>🗣 mentoring</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures and exercises are compulsory for all students and attendance records are kept. To get the signature students must attend the compulsory minimum of 80% of classes (lectures and exercises) and 100% (95%) of classes that include work on the simulator/ship and training. In the case of insufficient class attendance, students shall not be given the right to take the exam. Absentee notes cannot justify or replace attendance. Students who due to illness or other justified reasons do not meet requirements for the training signature and have 80% or higher attendance, will be able to complete the rest of 100% (95%) in additional terms, during the semester and after, but not later than one month after the classes end. All other students, i.e., those who have achieved less than 80% of class attendance are not eligible for signature and are obligated to take the course the following year.</td>
</tr>
</tbody>
</table>

| 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 | 1.8 | Research |
| Experimental work | Report |
| Essay | Seminar paper | (Other) |
| Tests/Midterm exam | Oral exam | 1 | (Other) |
| Written exam | Project | (Other) |

<table>
<thead>
<tr>
<th>Grading and evaluating student work in class and at the final exam</th>
</tr>
</thead>
</table>
| **Assessment and evaluation of full-time students’ work**
| After passing the practical midterm exams from training, students can take the oral part of the exam. Students who do not pass the midterm exams may take the final exam; the requirement is the course teacher’s signature. The midterm exams (part of the final exam) are taken only during the classes and the final (entire) exam during the official exam schedule. If students do not pass all midterm exams (but only some of them), and have obtained the signature, the midterm exams they passed are accepted. In that case, in the final written exam they can take only the part they have not passed. The recognition of the entire practical training written exam or one of its two main parts without limitations is valid until the end of the academic year, i.e., until the end of the examination period. |
For students who enrol in the course again the following year, the parts of the exam they have passed are not accepted. The allocated time for writing the midterm exam (only during classes) is 1 to 2 school classes/hours.

**Continuous evaluation of students' performance:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and participation in the training</td>
<td>100</td>
<td>35</td>
</tr>
<tr>
<td>Continuous assessment of laboratory practice</td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td>Continuous lecture verification</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Continuous assignment of term papers</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical exam (written)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50 (100)</td>
<td>70</td>
</tr>
<tr>
<td>Past activities (involve continuous assessments)</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Procedures Guide, International Chamber of Shipping, Witherby&amp; Co. Lt., London.</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>D.Jašić, G.Belamarić,A.Gundić, Međunarodna pravila o izbjegavanju pravila na moru</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competencies</td>
<td>University survey, list of student attendance, Faculty teaching inspection</td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### COURSE DESCRIPTION

#### Course objectives
The aim of the course is to acquire general and specific knowledge of international relations, international organizations, globalization with regard to international law and policy. Furthermore, the goal is to gain knowledge about the system of international rules on marine and submarine area, delimitation, exploitation, legal regimes that apply in certain parts of the sea, seabed and subsoil, the rights and duties of the state in relation to the different uses of the sea, exploring the structure and content regulations in the field of international law of the sea in armed conflict and acquire skills in better understanding and interpretation of the relevant sources of Croatian and international law in general.

#### Course enrolment requirements and entry competencies required for the course

<table>
<thead>
<tr>
<th>Learning outcomes expected at the level of the course (4-10 learning outcomes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguish the basic concepts of international law.</td>
</tr>
<tr>
<td>Analyze the functioning of the major international organizations.</td>
</tr>
<tr>
<td>Identify and compare the legal regimes applicable in certain parts of the sea.</td>
</tr>
<tr>
<td>Distinguish between legal institutions of settlement of disputes in international law.</td>
</tr>
<tr>
<td>Discern the sources of international law in peacetime and in war.</td>
</tr>
</tbody>
</table>

#### Course content broken down in detail by weekly class schedule (syllabus)

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Definition and nature of international law.</td>
</tr>
<tr>
<td>2. Sources of international law (general principles; customs in international law).</td>
</tr>
<tr>
<td>3. Sources of international law (law of treaties, a unilateral act).</td>
</tr>
<tr>
<td>4. The State as a subject of international law.</td>
</tr>
<tr>
<td>5. International organizations.</td>
</tr>
<tr>
<td>6. International law of the sea</td>
</tr>
<tr>
<td>8. Parts of sea under the sovereignty of the coastal state.</td>
</tr>
<tr>
<td>9. Sea area where the coastal State enjoys sovereign rights.</td>
</tr>
<tr>
<td>10. Straits and maritime channels</td>
</tr>
<tr>
<td>11. Marine areas beyond national jurisdiction of the states.</td>
</tr>
<tr>
<td>13. Peaceful Settlement of International Disputes.</td>
</tr>
<tr>
<td>14. The armed conflict (generally, an international armed conflict).</td>
</tr>
<tr>
<td>15. The right of armed conflict (war at sea; neutrality in the war).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exercises:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The relationship between international and domestic law.</td>
</tr>
<tr>
<td>2. Customs in international law.</td>
</tr>
<tr>
<td>4. The State as a subject of international law.</td>
</tr>
<tr>
<td>5. Types of international organizations.</td>
</tr>
</tbody>
</table>
8. Internal water and territorial sea of the Republic of Croatia.
10. Meaning of the straits and channels for international navigation.
12. Protection and preservation of the marine environment and UNCLOS
14. Sources of war and humanitarian Law.
15. International conventions on warfare at sea.

### Format of instruction:
- ☒ lectures
- ☐ seminars and workshops
- ☒ exercises
- ☐ on line in entirety
- ☐ partial e-learning
- ☐ field work
- ☐ individual assignments
- ☐ multimedia
- ☐ lab exercises
- ☐ mentoring
- ☐ (other)

### Student responsibilities
Students must attend lectures. Their presence shall be registered and kept in a record.
In order to get the signature, students must attend at least 80% of the lectures.
In case of insufficient attendance, the students will not be granted a signature and shall be obliged to enrol in the course the following year.
Students may take the oral part of the exam through continuous evaluations during the semester, by taking mid term tests.
Students who do not pass the mid term test and have obtained the signature must take the written exam during the exam period.
Students who have passed the exam via mid term tests must register for the exam via Studomat for the first exam period after the lectures and during that time must have their grade entered or be tested for a better grade.

### 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1.5</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
</tr>
<tr>
<td>Seminar paper</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td>2.5</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

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Assessment and evaluation of full-time students' work

Class attendance is compulsory for regular students and a precondition for obtaining a signature is attendance at 80% of the lectures. Mid term tests are organized during the semester. The first mid term test covers lectures 1 to 5 and is taken in week 6 of the lectures. The second mid term test covers lectures from 6 to 10 is taken in week 11 of the lectures. The third mid term test covers lectures from 11 to 15 is taken in week 15 of the lectures. The example questions are at the end of all lectures. To pass the test, one must have at least 50% of the points. Students who for objective reasons do not take the mid term test or do not pass the minimum, have to repeat the exam. The final mark is given based on presence at lectures and on the mid term test. Students who do not take the mid term test during the semester but have been granted a signature may take the written exam in the exam period. The same rules and criteria apply for the exam period evaluation as for continuous knowledge testing.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures and active participation in exercises</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exams I</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exams II</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exams III</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test or mid term test (written)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Previous activity (including all continuous test indicators)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49,9</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 - 61,9</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>62 - 74,9</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>75 - 87,9</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>88 - 100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
<tr>
<td>Required literature (available in the library and via other media)</td>
<td>Title</td>
<td>Number of copies in the library</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Optional literature (at the time of submission of study programme proposal)</td>
<td>United Nations Convention on the Law of the Sea Croatian Maritime code</td>
<td></td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competences</td>
<td>Survey carried out by the University of Split, List of student attendance, Teaching process monitoring by the Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001).</td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.11.6.9 Simulator and On-board TrainingIII

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SIMULATOR AND ON-BOARD TRAININGIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS108</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>2</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Engineering Studies</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>0</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

**Course objectives**

Prepare students for onboard practice, in accordance with STCW and SOLAS conventions.

**Course enrolment requirements and entry competencies required for the course**

Upon successful completion of the course, the students will have general knowledge and master basic methods, techniques, and skills that are necessary for handling marine engine systems, main engines, auxiliary engines and generators, boilers, separators, compressors, steering gear and other machinery onboard vessels at management level, in accordance with the requirements of STCW. All these systems are accessible in the existing simulators and onboard available vessels.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

- Familiarisation with marine engine simulator, its purpose and objectives.
- Description of the plant (list of machinery and associated systems – storage tanks, valves, pipeline systems, pumps, heat exchangers, fuel system, filters, electric generators, steam plant, main propulsion plant, control from the engine room, remote control of the propulsion unit).
- Measurement gauges (pressure, temperature, level, volume-mass, flow, engine speed, power, voltage and electric power, CO₂ and NOₓ contents, indicator diagram). Description of the simulated alarms. Emergency generator startup. Connecting consumers to the emergency generator switchboard.
- Preparation and start-up: auxiliary seawater cooling system, auxiliary freshwater cooling system, compressor of start air in emergency.

**Exercises:**

- Course content broken down in detail by weekly class schedule (syllabus)

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- Preparation of the fuel system, preparation and starting of diesel generator No.1 or No.2, check of all switches on the main and auxiliary switchboard 220V, starting of engine room fan.
- Preparation and starting of auxiliary fresh water circuit cooling system of low and high temperature; preparation and starting of the start air main compressor.
- Preparation and starting of the compressor of service air, preparation and starting of the freezer.
- Preparation and launching of stoked ship’s boiler.
- Putting in parallel operation of diesel generator and the load distribution. Switching the boiler from MDO to HFO.
- Unplanned maintenance - detection and dealing with malfunction and failures in steam generating systems.
- Turbines for driving cargo pumps. Preparation, starting and operation of the turbines for driving cargo pumps. Cargo pumps operation. Unplanned maintenance - detection and dealing with malfunction and failures in turbines for driving cargo pumps.
- Main propulsion engine. Checking the system of the cooling sea water system (through heat exchangers). Checking the system of the cooling fresh water system (through the engine and heat exchangers). Checking the lubricating system (through the engine and heat exchangers). Checking the fuel system. Checking the compressed air system. Checking the system of cylinder liner lubrication. Engine revolution with open indicator cocks.
- Preparation procedures, including: checking the closed indicator cocks, checking the fuel system operation, checking the bridge commands, setting the fuel lever to the desired position. Starting the engine and monitoring the operational parameters of the running engine, including: lubricating oil temperature, cooling water temperature, exhaust gases temperature in individual cylinders, checking the temperature at the inlet and outlet of the turbo-charger, engine speed and shaft torque, regular check of level in fuel tanks, regular check of fuel viscosity and fuel temperature, following the orders from the bridge and recording changes in operational conditions. Unplanned maintenance - detection and dealing with malfunction and failures in the above systems.
- Principle of evaporator operation. Types of deposits in the evaporators (caused by high and low temperatures). Operation of the evaporator at temperatures above and below 80°C and with working medium density above 96,000 ppm. Principles of decreasing deposits on the evaporator (low pressure including vacuum, magnetic purification-treatment, flexible elements, constant chemical treatment). Use of demister in the evaporator. Control of density in the two-stage evaporator. Automatic operation of the two-stage evaporator. Preparation and treatment of water and protection measures in preparing drinking water from the evaporator. Unplanned maintenance - detection and dealing with malfunction and failures in the evaporator.

Format of instruction:
- Lectures
- Seminars and workshops
- Exercises
- Entirely online
- Combined with e-learning
- Field work
- Independent tasks
- Multimedia
- Laboratory
- Mentoring
- On board training

Student responsibilities
- Attendance at exercises (minimum 95%), attendance at on-board training 100%

<p>| Attendance | 1,1 | Research | Practical training |</p>
<table>
<thead>
<tr>
<th>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)</th>
<th>Experimental work</th>
<th>Report</th>
<th>Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay</td>
<td>Seminar work/paper</td>
<td>0,9</td>
<td>(other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>Oral exam</td>
<td>(other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>Project work</td>
<td>(other)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Continuous evaluation of students' performance</th>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>95</td>
<td>56,25</td>
<td></td>
</tr>
<tr>
<td>Seminar work/paper</td>
<td>100</td>
<td>43,75</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required literature (available in the library and via other media)</th>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available through other media</th>
</tr>
</thead>
</table>

| Optional literature (at the time of submission of study programme proposal) | Instruction manuals on marine 2-stroke and 4-stroke engines. Instruction manuals of the ship simulator Konsberg ERS MAN B&W 5L90MC-C L11 VLCC |

| Quality assessment methods ensuring the desired learning outcomes | Survey carried out by University of Split, List of student attendance, Teaching process monitored by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001). |

| Other (as considered necessary by the syllabus proposer) | |

4.11.6.10 Marine Engine Elements

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARINE ENGINE ELEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS109</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Nenad Vulić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Assistant teachers</td>
<td>Karlo Bratić</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>45</td>
<td>0 30 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering Percentage of application of e-learning</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION
<table>
<thead>
<tr>
<th>Course objectives</th>
<th>Acquiring basic knowledge about the types, load, design-technological and exploitation characteristics of machine elements and constructions, in particular elements of Marine engine systems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course enrolment requirements and entry competencies required for the course</td>
<td>Knowledge of Technical Mechanics, Strength of Materials and Engineering Graphics.</td>
</tr>
</tbody>
</table>
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | 1. Explain the notions, purpose and categorisation of machine elements.  
2. Describe and analyse the types of load, allowed stresses and materials of Marine engine elements.  
3. Explain the design-technological characteristics of the elements for connecting, transfer of power and motion, and for flow.  
4. Define the way of calculating and sketch the elements for connecting (welded joints, soldered and glued joints, clamping joints, screwed joints, keys and springs).  
5. Define the ways of calculating and sketch the elements for the transfer of power and motion (axles and shafts, bearings, gears and gear drives, belt and chain drives, clutches).  
6. Define the ways of calculating and sketch the elements of flow (pipes and pipe closures).  
7. Apply the acquired knowledge in solving concrete tasks within marine engineering practice and make necessary conclusions. |
| Course content broken down in detail by weekly class schedule (syllabus) | Lectures:  
1. Introduction. Basic concepts and classification of machine elements.  
Exercises:
1. Loads and stresses of machine elements.
3. Welded joints.
5. Setting of program task.
7. Screwed joints.
15. Receiving of program task.

Format of instruction:

Student responsibilities

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)

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

Continuous evaluation of students’ performance

Grading scale:
### Points (%)

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)


### Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split. List of student attendance. Teaching process monitored by Faculty.

### Other (as the proposer wishes to add)

#### 4.11.6.11 Fuels, Lubricants, and Water

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>FUELS, LUBRICANTS, AND WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Year of study</td>
</tr>
<tr>
<td>VPS110</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
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<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L  S  E  F</td>
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<tr>
<td>30 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Mandatory for Naval Marine Engineering</td>
<td>Percentage of application of e-learning</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

Course objectives

Familiarisation with the features of fuels, lubricants and water and their application on board vessels.
<table>
<thead>
<tr>
<th>Course enrolment requirements and entry competencies required for the course</th>
<th>/</th>
</tr>
</thead>
</table>
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | 1. Define the categorisation of fuels and describe the composition and characteristics of crude oil.  
2. Analyse basic processes in crude oil processing.  
3. Perform the categorisation of liquid and gaseous fuels, their composition, structure and properties.  
4. Analyse the types of fuels for on-board use.  
5. Analyse and define the fuel combustion process.  
6. Analyse and explain the fuel systems onboard ships and boats.  
7. Define the importance of lubrication and the ways of lubricant production.  
8. Analyse the categorisation and properties of lubricants.  
9. Describe the application of lubricants and lubricant systems onboard vessels.  
10. Analyse the use of water, physical and chemical properties of water and difficulties in using water. |
| Course content broken down in detail by weekly class schedule (syllabus) | 1. Fuels. Types of fuel. Production of petroleum products from crude oil: asphalt in residual fuels and its impact on internal combustion engines; general composition of oil; 4 main types of hydrocarbons in oil; complexity of the chemical structure and molecular of hydrocarbons; influence of molecular structure on the physical state of product; line diagram of a simple distillation process with the indicated points of separation of kerosene, gas oil, residual fuel, heavy fuel and lubricants. Marine fuels. Types. Characteristics and problems of use of different types of marine fuel. Standards of the quality of the marine fuel. Adding additives marine fuels; types and properties of the additive.  
2. Physical and chemical properties of fuels and lubricants. The density, viscosity, flash point, pour point temperature and turbidity, temperature flash point, the temperature of burning, auto-ignition temperature. The minimum value of the lower flash point for marine fuels (66 °C). The range of the flash point or approximate point of lower flash point for gasoline, kerosene, diesel oil, heavy fuel and lubricants. Ignition and its relationship to point the flash point.  
6. Purification of fuel. Settling tank and its adjusting. Settling tank setting. Filtration methods and possibility of filtration of different sizes particles. Usual |
problems of fuel properties. Standards of quality marine fuels and comparison with other fuels.

7. Fuel system on board: general definitions and rules of fuel system, basic elements of system, fuel storing, transferring and treatment process on board.

8. Lubricating. Importance of lubrication, lubrication places on board, production and composition of lubricants, lubricants division. Lubricants production of paraffin and asphalt base crude oil. Typical values of lubricant lower flash point. The complex oil and their use.


10. Lubricants for marine purposes; marine engine oils, gear oils, hydraulic oils, compressor oils, greases. System oils; oil for low and middle speed engines, oil for auxiliary engines, lubrication systems and their characteristics.

11. Lubrication of marine engines cylinder: conditions, oil consumption, lubrication problems, running cylinder liner, cylinder lubrication with and without crosshead. Lubrication thermal turbines, compressors and other machinery; conditions and requirements. Handling lubricants (oils and greases), waste lubricants. Quality control of oil, oil treatment, recommendations for replacement of lubricating oil.


14. Water test. Tests using salinometers and litmus paper as rough indicators of water status - satisfactory rough information. Use of litmus paper. Desirability of precise information for boilers of low output and their importance for boilers of higher performance. Importance of avoiding sea water for boiler feed except in cases of extreme necessity. Procedures of density regulating of sea water if it is used as feed water for low pressure boilers.


<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✅ lectures</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
</tr>
<tr>
<td>☐ exercises</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
</tr>
<tr>
<td>☐ field work</td>
</tr>
<tr>
<td>☐ individual assignments</td>
</tr>
<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance is obligatory for all students. The attendance is confirmed by students’ signature on, for that purposes, prescribed record sheet. Students have to attend at least 80 % lectures and 100 % exercises of prescribed hours.</td>
</tr>
</tbody>
</table>
In case of insufficient attendance, the course teacher’s signature may be obtained by completing additional tasks (the so-called enhanced independent work). Students who have not attended the classes due to illness must bring a valid doctor’s note. Students with less than 80% of their attendance are not eligible to signature and are required to enrol the course again next year. Students may take the exam by passing two midterm exams. Students may retake only one midterm exam which they have not passed. If students do not pass the midterm exams, they are obliged to take the written and oral part of the exam.

| 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       |
| Experimental work               |                | Practical training |
| Essay                           |                | Report          |
| Tests                           | 1,25           | Oral exam       |
| Written exam                    |                | Project         |

Assessment and evaluation of full-time students' work

Attendance is compulsory for full-time students, i.e. a minimum 80% of attendance is required.

There are 3 written midterm exams in the semester. The first midterm exam is written in the eighth week of teaching and covers the first to sixth learning outcomes; the second is written in the penultimate week of teaching and covers the 7th to 9th learning outcomes, and the third is written in the last week of teaching and covers 10th learning outcomes.

Examples of midterm exam questions are available on the faculty website and at the end of each class.

At each midterm exam, a minimum 50% of points is required. Students who do not attend one of the exams for objective reasons or do not achieve a minimum percentage will have the opportunity to retake the midterm exam.

Students can take the final exam by passing three midterm exams. Students may retake only one midterm exam which they have not passed.

If student do not pass the midterm exams, they shall take the written and oral part of the exam.

The final grade includes class attendance, midterm exams results, written exam, seminar paper, and oral exam. Students who do not pass the midterm exams during the semester and have the course teacher’s signature are required to take the written exam within the examination period. The same assessment criteria apply to the examination period and to the continuous assessment.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>Lecture 80</td>
<td>37,5</td>
</tr>
<tr>
<td></td>
<td>Exercises 100</td>
<td></td>
</tr>
<tr>
<td>1st midterm exam</td>
<td>50</td>
<td>20,83</td>
</tr>
<tr>
<td>2nd midterm exam</td>
<td>50</td>
<td>20,83</td>
</tr>
<tr>
<td>3rd midterm exam</td>
<td>50</td>
<td>20,83</td>
</tr>
</tbody>
</table>
Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
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<td>50-64</td>
<td>Meets minimum criteria</td>
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</tr>
<tr>
<td>90 -100</td>
<td>Extraordinary success</td>
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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
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</table>

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

<table>
<thead>
<tr>
<th>Title</th>
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</thead>
</table>

Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty.

Other (as the proposer wishes to add)

4.11.6.12 Marine engines

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARINE ENGINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS112</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Nikola Račić, Ph.D., Gojmir Radica, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
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</tr>
<tr>
<td>Type of instruction</td>
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<tr>
<td></td>
<td>60</td>
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<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives
Familiarisation with basic principles of operation of marine diesel engines, their exploitation, failure detection and repair, efficiency of the plant. Understanding the importance of combustion monitoring, maintenance and compliance with international requirements with regard to marine environment protection. Familiarisation with the engine construction elements, engine systems, and their application.

Course enrolment requirements and entry competencies required for the course
Mathematics I, Technical mechanics I, Thermodynamics and heat transfer
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | Upon attending the course and passing the exam, it is expected that the students will be able to:  
1. Understand basic principles of operation of the internal combustion engines (ICE)  
2. Identify and explain the main components of the ICE  
3. Understand the exchange of media in the ICE  
4. Distinguish the ways of turbocharging the ICE  
5. Understand the systems of creating internal mixture in the ICE  
6. Define and explain the external characteristics of the ICE  
7. Identify and explain the main maintenance procedures of the ICE  
8. Describe and compare various types of drive based on the ICE  
10. Define and describe the levels of alarm and describe their effect on the operation of the ICE |
|---|---|
| Course content broken down in detail by weekly class schedule (syllabus) | 1. Introduction: The historical development of ICE, engine definition, the principle of obtaining power, fundamentals of energy conversion in the ICE, types of ship's ICE, comparison of efficiencies, the benefits of low-speed engines for propulsion purposes. Production of ships propulsion ICE, type of modern engines, manufacturers and market coverage. The division of marine diesel engines: by style, speed, stroke, position of the cylinder axis, according to the motor mechanism. Performance and cycle of the marine diesel 2-stroke and 4-stroke engine. Analysis of the basic elements of the engine, particularly elements of the piston and piston assembly mechanism.  
3. The kinematics and dynamics of the motor mechanism: Basic measurement of the crank shaft. Stroke, speed and acceleration of the piston depending on the ratio of linkage. The harmonic components of the acceleration of the piston (their view). The forces in the crank mechanism (force pressure, translational inertial force, centrifugal force). Forces on the example of a cylinder and balancing them. The forces on the example of multicylinder engine. Arrangement of the crank web and firing order.  
8. Electronically controlled engines - general management procedures in cases of emergency.


10. Cylinder block (design, materials, connection). Tie rods (function, performance, materials, assembly processes, tightening, problems due loose or cracks . Cylinder liners (materials, cooling, fitting for lubrication, lubrication reason, abnormal lubrication - too much oil, running in new liner, the consequences of excessive wear, wear limits, measuring wear, impact L / D ratio on power and thermal load). lubricating (types, construction, operation, phase). the cylinder head (valves, construction, maintenance), the exhaust (and inlet) valves, drive, and the elimination of the causes of failure, the impact of sodium, vanadium and sulfur in the fuel, cooling valve, the valve seat material, the principle of rotation of the exhaust valve).

11. Connection rod (function, materials, bearings). X- head (function, constructive characteristics, alignment, lubrication. Piston rod (materials, structural design, stuffing box, connecting with a piston). The piston (performance, 2-stroke, 4-stroke, materials, cooling, circulation of the cooling medium, the temperature on a piston, alignment of the piston mechanism). Piston rings (function, materials, types, running in, defects and damages, reasons, Corrective Actions, wear measurement, inspection, diagnostics, the factors that influence the frequency of inspection and maintenance, maintenance intervals). Safety system to prevent an explosion inside the crankcase (graviner, safety valves). Fire alarm system scavenge space. Camshaft (construction, operation). the exhaust manifold. scavenge air collector. air coolers (performance, diagnostics). Turbochargers (performance, lubrication, diagnostics). centering engine - shafting - stern tube, vibration, transverse forces, side brackets. vibration (reasons).

12. Marine engine systems: The system of lubricating oil for marine diesel engine (2 stroke and 4 stroke engine, lubricating characteristics of the oil). The manner of lubrication of the bearing on the ship's slow speed-diesel engines. Lubrication of motor bearings (hydrodynamic lubrication. The impact of bearings clearances, viscosity, speed and pressure on the bearing. Lubrication of the Michell thrust bearing, the conditions for the formation of the oil film, the typical pressures of lubricating oil). The consequences and the way to prevent contamination of lubricating oil (wear, pitting, emulsification, oxidation, varnishing). Lubrication during running-in a new engine or after the procedure of the maintenance Maintenance of lubricating oil (abrasive particles, oxidation, water). Diagnostics in lubrication (oil analysis).

13. Engine starting system (the guiding principle of operation of starting air valves, materials, safety elements of the system, the working principle of the starting air distributor). Engine reversing r (elements of the system reversing, reversing mode). Safety measures in the reversing and starting system . Air control system. Quality control air (dryer, filters, instrumentation, automatic drainage, pressure control).

14. Sea water cooling system (fresh water central cooling system, cylinder cooling, Cylinder cower, exhaust valve, air cooler, turbocharger, pistons). Cooling oil system (overheat effect on the cooling oil, diagnostics and maintained system). Maintenance of cooling water (additives).

15. Safety systems - fire and influential factors of fire in the exhaust gas boiler. Fire in scavenging air space (symptoms, procedures firefighting) systems for
prevent explosions in the starting air system. The causes of the explosion inside the crankcase. Detection and safety systems.

**Exercises:**

1. Basic parameters of the cylinder unit mechanism. Stroke, speed and acceleration of the piston depending on the ratio of linkage. The harmonic components of the acceleration of the piston (their view). The forces in the crank mechanism (force pressure, translational inertial force, centrifugal force).


3. Analysis of thermodynamic efficiency in relation to the compression of process of bringing the heat. Analysis of the relationship pressure ratio pmax / pm and compression ratio for different processes of bringing the heat. Analysis of the relationship pressure ratio pmax / and compression ratio for different processes of bringing the heat. The real process and 2-stroke and 4-stroke Engine.


6. Taking and analysis of indicator diagrams of the working process of the engine. Analysis of changes in pressure and temperature in the cylinder. Indicated and effective engine power and efficiency, engine braking. Estimation of the effective engine power without the indicator chart based on matriculation book of the HP pumps and turbocharger speed.

7. Emissions of the internal combustion engine. Reducing emissions of NOx. Emulsification. SCR.

8. Main and crank pin bearings clearance measurement and analysis

9. Measurement and analysis of the crank shaft deflection

10. Measuring and adjusting the clearances of the intake and exhaust valves

11. Measuring and adjusting the timing of the start of fuel injection into the engine cylinder.

12. Measurement and analysis of wear of piston rings. Piston ring, wear and damage, examination, diagnosis, factors that affect the frequency of inspections and maintenance, and maintenance intervals), and cylinder liner.

13. The system of cooling sea water (central cooling system fresh water, cylinder liner, cylinder cower, exhausts valves, scavenging air, turbocharger, pistons cooling). Cooling oil system (overheatig effect on the cooling oil, diagnostics and maintained system). Maintenance of cooling water (additives).

14. Reversing and starting systems, safety systems.

15. Engine operating with turbocharger brakedown, working conditions at sea shallow waters, engine operating with breakdoen of the cylinder liner. Endine emergency operating - transferring of operating from remote to the local.

**Format of instruction:**

| ☒ lectures | ☐ individual assignments |
| ☐ seminars and workshops | ☐ multimedia |
| ☒ exercises | ☐ lab exercises |
Student responsibilities

Lectures are obligatory for students because records of attendance are kept. To get a signature, students must attend a minimum of 95% of lectures and 100% of exercises. In case of non-fulfillment of the above condition, the signing is conditioned by the preparation of additional tasks (seminar paper). Students who do not attend classes due to illness must bring a valid medical certificate. Students who achieve less than 50% of attendance are not eligible to sign and are required to re-enroll in the course again the following year.

During the classes, it is planned to take a mid term test, which will be held after certain units of material have been covered in lectures and exercises. Students have the opportunity to pass the exam by continuous evaluation during the semester by taking 3 mid term tests. The student is required to attend all mid term tests. Students may retake only one colloquium that they did not pass. Students who do not pass the colloquia during the semester, and have a signature, are required to take a written / oral exam within the exam period. Students who have collected a sufficient number of points during the class are required to register for the exam through Studomat for the first exam period after the lecture and in the exam period to come to the grade or answer for a higher grade.

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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1.0</th>
<th>Research</th>
<th>Practical work</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Self-study</td>
<td>(other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(other)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td>2.0</td>
<td>Oral exam</td>
<td>1.0</td>
<td>(other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>(other)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

During the semester, active participation in classes and exercises is controlled. 3 mid term test are written in the semester. The first mid term test, which includes the 1st to 5th lectures, is written in the fifth week of classes, the second mid term test , which includes the 6th to 10th lectures, is written in the 10th week of classes, and the third mid term test , which includes the 11th to 15th lectures, is written in the 15th week of classes. Students may retake only one mid term test that they did not pass. Students who do not pass the mid term test during the semester, and have a signature, are required to take a written / oral exam within the exam period. Examples of mid term test questions for students are available on the faculty intranet pages. At each mid term test, it is necessary to achieve a minimum of 50% of points for passing. Students who do not attend one mid term test for objective reasons or do not achieve a minimum percentage have the option of correction. The correction of the mid term test will be organized in the term of the exam on the 1st Exam term. The mid term test is held in writing, and for a positive grade it is necessary to achieve at least 50%. A student who passes all the mid term test positively is exempted from the written / oral exam and, depending on the achieved result, his / her grade is entered in the index on the first exam term of the final exam. Students who have passed one of the mid term test or material are recognized as part of the passed final exam. The rest of the material is taken in a written / oral exam. The final grade includes attendance at classes and the results of the mid term test. Students who do not pass the mid term test during the semester, and have a signature are required to take a written
oral exam within the exam period. The same assessment criteria apply to the examination period as to the continuous assessment of knowledge.

### Continuous evaluation of students’ performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final mark (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>Lectures 95, Exercises 100</td>
<td>32,142</td>
</tr>
<tr>
<td>Midterm I</td>
<td>50</td>
<td>19,047</td>
</tr>
<tr>
<td>Midterm II</td>
<td>50</td>
<td>19,047</td>
</tr>
<tr>
<td>Midterm III</td>
<td>50</td>
<td>19,047</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test (written)</td>
<td>50</td>
<td>34,93</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>34,93</td>
</tr>
<tr>
<td>Previous activity</td>
<td>Lectures 95, Exercises 100</td>
<td>32,142</td>
</tr>
<tr>
<td>In total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Lectures of the course holder</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>
4.11.6.13 Marine auxiliary engines and machinery

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARINE AUXILIARY ENGINES AND MACHINERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS111</td>
</tr>
<tr>
<td>Year of study</td>
<td>3rd</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Gojmir Radica, Ph.D., Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>6</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Željko Penga, Ph.D., Tino Sumić</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>(number of hours in a semester)</td>
</tr>
<tr>
<td></td>
<td>L  S  E  F</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>60 0 15 0</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives
Familiarisation with operation of the marine auxiliary engines and machinery.

Course enrolment requirements and entry competencies required for the course
Technical mechanics II, Marine engine elements.

Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Explain the design, construction and way of operation of the shafting designs.
2. Define the main values and sizes of the ship's pumps. Explain the design, construction and way of operation of the ship's pumps.
3. Define the main values and sizes of the ship's compressors and fans. Explain the design, construction and way of operation of the marine compressor and fan designs.
4. Define the main values, sizes and the way of selecting the marine strainers and filters. Explain the design, construction and way of operation of the individual marine strainers and filters.
5. Explain the design, construction and way of operation of the ship's steering gear and deck equipment.
6. Define the main values, sizes and the way of calculating and selecting the marine heat exchangers and pipelines.
7. Explain the design, construction and way of operation of the marine environment protection equipment.
8. Explain the design, construction and way of operation of the ship's safety equipment.

Course content broken down in detail by weekly class schedule (syllabus)

1. Introduction, shafting, intermediate shafting, propeller shaft.
2. Thrust bearing, shaft coupling, stern-tube and glands, bearings.
3. Auxiliary boilers.
5. Pump drive and control, on-board use of pumps, special requirements. Energy conversion, pump's supply height, efficiency, inlet/suction height, cavitation.
6. Reciprocating, air and centrifugal pumps.
7. Rotation volumetric pumps; screw / gear / blade pumps. Compressors and fans, introduction.
11. Oily water purification equipment. Appliances for treating black and grey waters.
12. Steering gear mechanism, way of moving the rudder. Hydraulic steering gear, handling the steering mechanism.
15. Refrigerating plant, main components of the refrigerating plant, designs.

Format of instruction:
- lectures
- seminars and workshops
- exercises
- on line in entirety
- partial e-learning
- field work

Student responsibilities
- Attendance of lectures, exercises and field work
- Class attendance 1,8
- Research
- Practical training
- Experimental work
- Report
- (Other)
- Essay
- Seminar paper
- (Other)
- Tests 4,2
- Oral exam
- (Other)
- Written exam
- Project
- (Other)

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)

Upon completing lectures and exercises dealing with the given teaching matter two midterm exams are administered. The midterm exams refer to the theoretical part of the syllabus (as described in the executive syllabus) and are taken in written form. It is necessary to provide at least 50% correct answers and explanations to pass them. The student who has passed both midterm i.e. midterms is exempt from taking the written/oral exam. One passed midterm is recognised as a partly passed final exam. The remaining practical and theoretical matter is subject to testing. Midterms and exams can be taken only by the students who have met the requirements of activity (attendance in class, exercises and field work).

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final mark (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>80</td>
<td>31,25</td>
</tr>
<tr>
<td>Midterm I</td>
<td>50</td>
<td>34,375</td>
</tr>
<tr>
<td>Midterm II</td>
<td>50</td>
<td>34,375</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
</tbody>
</table>
4.11.7 4th Year, VII Semester

4.11.7.1 General Tactics

<table>
<thead>
<tr>
<th>NAME OF COURSE</th>
<th>GENERAL TACTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO125</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Mladen Pahernik, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>6</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L 45 S 0 E 30 F 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
To prepare and enable students to apply theoretical standpoints of the war-time military doctrine. To comprehend human capabilities during combat in relation to the mission, time and space. To understand military viewpoints of the tactics of branches and occupations through capacities, techniques and procedures that can be measured and coded. To recognize the use and development of the modern weaponry.

**Course enrolment requirements and entry competencies required for the course**
/

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**
To define basic facts and notions of the general military tactics.
To analyze facts related to the mission, enemy, space and time.
To use techniques and procedures in solving combat missions within specific environment.
To differentiate forms of joint operations in the battlefield and in international environment.
To assess complex problems of leading units in unpredictable circumstances.
To classify and use organic entities of the military units for a specified purpose.

### Lectures:
1. Introduction (1)
2. Introduction into tactics (2)
   - a) The art of tactics
   - b) General tactical notions and graphical control measures
3. Assignment, organization, role and missions of the CAF (2)
4. Services of the CAF (3)
5. Movement (2)
   - a) Methods of unit movements
6. Patrols (2)
7. Engagement by fire (3)
8. Defense (5)
   - a) Types of defensive operations
   - b) Defense of the area
   - c) Mobile defense
   - d) Retreat
9. Attack (5)
   - a) The basics of attack
   - b) Movement to establish contact
   - c) Attack
   - d) Exploitation of success
   - e) Pursuit
10. Urban operations (2)
11. Auxiliary tactical operations (2)
12. Combat joint functions (16)
   - a) Information and intelligence operation (2)
   - b) Maneuver (2)
   - c) Engagement by fire (2)
   - d) Protection of forces (2)
   - e) Support (2)
   - f) Command and control (6)

### Exercises:
1. Graphical control measures (3)
2. Assessment of the land (MTETTC; OAKOC) (3)
3. Movement (6)
4. Fire (6)
5. Attack (6)
6. Defense (6)

### Format of instruction:
- $\square$ lectures
- $\square$ seminars
- $\checkmark$ exercises
- $\square$ on line in entirety
- $\square$ field work
- $\checkmark$ individual assignments
- $\checkmark$ multimedia
- $\square$ lab exercises
- $\square$ mentoring

### Student responsibilities
Students are required to attend lectures and attendance records are kept. In order to obtain the course teacher’s signature, students must attend at least 80% of lectures. In case of lower attendance, students are denied the signature and are required to take the course again the next academic year.

Students are required to attend exercises and attendance records are kept. In order to obtain the course teacher’s signature students must attend at least 90% of exercises. In case of lower attendance in class, students are denied the signature and shall take the course again the next academic year. In order to obtain the signature students have to meet requirements of class attendance and have to carry out the exercises.

Exam may be taken through continuous evaluation during semester by passing midterm exams or final written exam. Students who fail midterm exams and have obtained the signature are required to sit for written exam within examination period.
Students who have obtained a sufficient number of credits in class are required to apply for the exam via Studomat (online student portal) for the first examination period and to have their grade entered within examination period or to undergo exam for a better grade.

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)*

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1</th>
<th>Research</th>
<th>Practic al training</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td></td>
<td>(other )</td>
</tr>
<tr>
<td>Midterm exams</td>
<td>2</td>
<td>Oral exam</td>
<td>2</td>
<td>(other )</td>
</tr>
<tr>
<td>Written exam</td>
<td>2</td>
<td>Project</td>
<td>(other )</td>
<td></td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students' work

Two midterm exams are written per semester. The first midterm exam comprises the teaching materials from the 1st to the 7th lecture and is written in the 8th week of the teaching, the second midterm exam that comprises teaching materials from the 9th to the 15th lecture and is written in the 15th week of the teaching. On each midterm exam students are required to achieve a minimum 60% of points for a positive grade. Students who do not take one/both midterm exams or do not realize a minimal percentage are not given the opportunity for correction. The final grade comprises attendance and active participation in lectures, grade for exercises (practical training) and continuous testing.

Students who fail midterm exams during semesters and have obtained a signature, are required to sit for the written exam within the examination period. The same evaluation criteria are valid for the examination period as well as for continuous testing of knowledge.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and active participation in lectures</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Continuous testing of knowledge (partial exams / midterm exams)</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Exercises</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical exam (written)</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Previous activities (attendance and active participation in lectures)</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Exercises</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-60</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>61-70</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>71-80</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>81-90</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>91-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

1. UsArmy, FM 3-90 Tactics, translation GS CAF, Zagreb
3. GS OSRH , APP-6A Military symbols, translation, Zagreb, 2008

**Optional literature (at the time of submission of study programme proposal):**

US Army, FM 3-21.8 The Infantry Rifle Platoon and Squad, 2007

**Quality assurance methods that ensure the acquisition of exit competencies:**

University survey, list of student records, supervision of teaching at the Faculty

**4.11.7.2 Radio Detection Systems**

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>RADIO DETECTION SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPO126</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Zoran Blažević, Ph.D.</td>
</tr>
<tr>
<td><strong>Associate teachers</strong></td>
<td>Boško Jerončić Grba, M.Eng.</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>4th</td>
</tr>
<tr>
<td><strong>Credits (ECTS)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Type of instruction (number of hours in a semester)</strong></td>
<td>L: 30, S: 0, E: 15, F: 0</td>
</tr>
<tr>
<td><strong>Percentage of application of e-learning</strong></td>
<td>20</td>
</tr>
<tr>
<td>COURSE DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Course objectives</strong></td>
<td></td>
</tr>
<tr>
<td>• Describing and increasing the knowledge about radiolocation principles, impulse radar operation principle, and the role of all main radar subsystems.</td>
<td></td>
</tr>
<tr>
<td>• Differentiating between specific radar types and perceiving their advantages and disadvantages.</td>
<td></td>
</tr>
<tr>
<td>• Considering and investigating modern solutions in military radar technology, and their application in other distinguished naval forces.</td>
<td></td>
</tr>
<tr>
<td>• Explaining the organization of coastal surveillance and navigation, and geographical characteristics of lithographic Adriatic area from the aspect of radar surveillance.</td>
<td></td>
</tr>
<tr>
<td>• Visualization of possibilities and characteristics of surveillance and targeting radar operation of Croatian Navy.</td>
<td></td>
</tr>
<tr>
<td><strong>Course enrolment requirements and entry competencies required for the course</strong></td>
<td></td>
</tr>
<tr>
<td>Students will be able to:</td>
<td></td>
</tr>
<tr>
<td>1. Develop competencies in individual and team work in the process of using certain radar subsystems (surveillance, targeting, and navigation).</td>
<td></td>
</tr>
<tr>
<td>2. Recognize the relation between certain tactical and technical radar requirements.</td>
<td></td>
</tr>
<tr>
<td>3. Evaluate and perceive advantages and disadvantages of certain radar types at the disposal of Croatian Navy.</td>
<td></td>
</tr>
<tr>
<td>4. Analyze, remember and reproduce the procedures followed during radar operation.</td>
<td></td>
</tr>
<tr>
<td>5. Describe and discuss coastal surveillance and notification (OMIN), and geographical characteristics of Adriatic coast from the aspect of radar surveillance.</td>
<td></td>
</tr>
<tr>
<td>6. Consider and analyze characteristics of surveillance and targeting radars of Croatian Navy.</td>
<td></td>
</tr>
<tr>
<td>7. Discuss the role of radars in Croatian Navy sensor network and creating and distributing processed data through the telecommunication architecture of Croatian Navy.</td>
<td></td>
</tr>
<tr>
<td><strong>Learning outcomes expected at the level of the course (4-10 learning outcomes)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Course content broken down in detail by weekly class schedule (syllabus)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Lectures:</strong></td>
<td></td>
</tr>
<tr>
<td>1. <strong>Radar components</strong>, 4 (TRANSMITTER – synchronizer, modulator, VF generator - magnetron, TWT tube, semiconductor transmitter modules; RECEIVER- VF amplifier, local oscillator, mixer, IF amplifier, detector, video amplifier, the type of amplifier control; ANTENNA SYSTEM - characteristics, radiation pattern, parameters, waveguides, termination, duplexer, antenna with wide and narrow beam width, parabolic, cassegrain antennas, linear antenna array with phase shift; DISPLAY – purpose, electronic markers and symbols, display types A, B, C, E, RHI, PPI, synthetic display– raster scanscope).</td>
<td></td>
</tr>
<tr>
<td>2. <strong>Impulse radar</strong>, 4 (operation principle; block diagram, target distance determination, direction determination; EMS: the impact of atmosphere on signal of different frequencies; impulse transmission; frequency bandwidth; average power; target resolution; range; target tracking; impulse radar parameters; multi-frequency radar; RCS; clutter; radar types; Doppler frequency shift; coherent oscillator).</td>
<td></td>
</tr>
</tbody>
</table>
| 3. **Modern radar solutions**, 6 (continuous wave radar (CW); MTI radar; impulse-compression radar; synthetic aperture radar (SAR); marine PPAR - Passive Phase Array Radar (PESA - Passive electronically scanned array); marine
AESA – Active Electronically Steered Array (APAR – Active Phased Array Radar).

8. **Organization of coastal surveillance and navigation (OMIN),** 1  
   (characteristics and structure; radar surveillance over coastal radar station, 
   geographical characteristics of coast and islands from the aspect of radar 
   surveillance).

9. **Relation between tactical requirements and technical characteristics of surveillance radars,** 2  
   (definition of tactical-technical requirements of surveillance radars, range limits by receiver noise only; the resolution ability of target's distance, azimuth and elevation; flexibility-management of radar circuit units).

4. **Surveillance radars in Croatian Navy,** 9  
   (GEM, Raytheon Anschutz, Sperry Bridge Master; Enhanced Peregrine - operation characteristics, design - synthetisation, transmitter, TWT amplifier, receiver, signal processor, antenna, type of transmitting- receiving RF signal, remote control).

5. **Targeting radars in Croatian Navy,** 2  
   (radar with director SUV 9LV; targeting radar in anti-ship missile RBS 15B)

6. **Modern military ship radars,** 2  
   (features and used technical solutions on ships of other naval forces)

**Exercise:**

1. **Radar circuits,** 8  
   (practical work demonstration- transmitter, receiver, antenna system, display).

2. **Surveillance and targeting radars on ships in Croatian Navy,** 4  
   (operation demonstration)

3. **Presentation of detection systems from OSMiO of Croatian Navy,** 3

**Format of instruction:**

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercises</td>
<td>Lab exercises</td>
</tr>
<tr>
<td>Field work</td>
<td>Mentoring</td>
</tr>
</tbody>
</table>

**Student responsibilities**

Student attendance is registered and obligatory for lectures and exercises. In order to take the exam and earn ECTS credits, full-time students are required at least 95% of lecture and 100% of exercises attendance. Doctor’s note is not accepted as justification or replacement for class attendance. If students have not attended classes due to illness or any other justified reason and are missing 20% of lecture attendance, they can compensate for missing classes through additional tasks or consultations. All other students, i.e. the ones who have less than 50% of class attendance are not entitled to take the exam and are advised to enrol the course again in the following 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)**

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Homework assignment</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Tests</td>
<td>1,9</td>
<td>Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>
There are two tests. If students do not pass the mid term tests (min 50% of test score), they may take the oral exam. If students pass both mid term tests, they get the average grade.

For taking the exam and obtaining the course teacher’s signature, it is necessary to have 95 % of lecture attendance and 100 % of exercises.

### Continuous evaluation of students’ performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and exercises involvement</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>I TEST</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>II TEST</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>Exam (oral)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

---

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tait, P: &quot;Introduction to Radar Target Recognition&quot;, IEE, 2005.</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

**Optional literature (at the time of submission of study programme proposal)**

| Other: | |
|--------||
| Quality assurance methods that ensure the acquisition of exit competences | http://www.phy.davidson.edu/instrumentation/Files/NEETS/Mod18%20-%20Radar%20Principles.pdf  
http://faculty.nps.edu/jenn/Seminars/RadarFundamentals.pdf  
http://msi.nga.mil/MSISiteContent/StaticFiles/NAV_PUBS/RNM/310ch1.pdf  
http://www.rohde-schwarz.com.my/file_18640/1MA207_0e.pdf  

Student feedback via questionnaires and surveys, student attendance list, faculty classes supervision  

Other (as the proposer wishes to add) | - |
### COURSE DESCRIPTION

**Course objectives**
- offer an overview of naval warfare from ancient to modern times
- explain the impact of new technologies on the evolution of the war vessels and their activities through the use of various tactics
- show the differences in combat activities of ships driven by paddles, sails and engines
- highlight the logistical importance of navies in the performance of military operations
- analyze individual naval battles
- evaluate the role of commander

**Learning outcomes expected at the level of the course (4 to 10 learning outcomes)**

1. understand the basic principles of development and organization of naval forces in the societies from antiquity to modern times
2. identify the circumstances that led to large naval clashes
3. recognize the effects of certain large naval clashes
4. specify naval battles that were milestones in the historical development
5. specify the factors that led to the fact that one side achieved and maintained naval supremacy
6. learn about the logistical importance of navies in major conflicts
7. learn about the importance of technological and tactical innovations that have led to a preponderance in the conflict
8. notice the role of the commander and functioning the chain of command in the preparation and during the sea battle
9. understand the conditionality of tactics with geographical and meteorological circumstances

**Course content broken down in detail by weekly class schedule (syllabus)**


2. **The Navy in the conquests of Alexander the Great.** Persian navy in attempts to destabilize Alexander's hinterland during his conquest of the Middle East. Maritime conflicts during the Macedonian siege, blockade and occupation of Tyre. The importance of the Navy in Alexander's military actions in the valley of the River Indus and the return of his army through the waters of the Persian Gulf.

3. **Rome and Carthage fighting for Sicily and the western Mediterranean in the 3rd century BC.** The Roman Republic is becoming a maritime power. Carthaginian naval dominance in the western Mediterranean and entry into the conflict with the Roman Republic over control of Sicily. The Roman Senate makes a decision on the construction of the Navy in the first years of the First
240

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Punic War (264-241). <em>Corvus</em> - innovation in the Roman shipbuilding. Conflicts of navies with a large number of boats and people. The surprising victory of inexperienced Roman Navy over Carthaginian Navy in the battle of 256 BC at Ecnomus - one of the largest naval battles of the ancient world. The Roman Navy transferred the land forces for the war in Africa. The great losses in the storms: eg. Kamarina 255 BC.</td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>The Navy in the late Republic and its professionalization in the Roman Empire. Battle of Actium 31BC. The organization, functioning and tasks of imperial navies stationed in Misenum and Ravenna. Navy stationed in other parts of the Mediterranean and on the large rivers (<em>Classis Alexandrina, Siriaca, Moesica, Pannonica, Pontica, Britannica</em>). The role of the Navy in the Roman occupation of northern Britain during the reign of Septimius Severus (193-211). The Liburnian <em>serilia</em> found in hydroarchaeological research alongside Nin.</td>
</tr>
<tr>
<td>5.</td>
<td>The vital importance of the Navy in the defense of the medieval Byzantine Empire. <em>Dromon</em> as a basic type of war vessel. The introduction of the Latin sail. The use of so-called <em>Greek fire</em> in the 7th century as a key mean for rejection of the Muslim navies in the siege of Constantinople. Western Mediterranean becomes a theater of permanent naval conflicts of the Islamic and Christian world. Waning power of the Byzantine navy in the 11th century.</td>
</tr>
<tr>
<td>9.</td>
<td>The emergence of large sailing ships equipped with heavy cannons. Historical and tactical importance of failure of the Spanish Armada in the attack on England in 1588. Three English-Dutch War (1652-1674) and a final break with the tactics characteristic for the galleys - time of the line setting sailing ships and maximum firepower of guns. Large liners - example of the English <em>Sovereign of the Seas</em> with 100 guns. Standardization of warships into categories. The emergence of frigates intended for reconnaissance and accompanying - example of the American ship <em>Constitution</em>. The first battle use of submarines in the American War of Independence (1775-1783). Superior English Navy and Admiral Nelson: The Bay of Abu Qir (1798) and Trafalgar (1805).</td>
</tr>
<tr>
<td>10.</td>
<td>Time of the steam engine and metal. The impact of the industrial revolution on the all segments of the construction of war vessels, on their activities and tactics. Improvements in propulsion, armor and weaponry. French cannon of 165 mm in the Crimean War (1853-1856) - enhanced range, precision and destructive power. <em>Merrimack</em> and <em>Monitor</em> 1862. Ivan Lupis-Vukić and Robert Whitehead - the development of the torpedo factory in Rijeka. The Battle of Vis 1866.</td>
</tr>
</tbody>
</table>
11. **The end of the 19th and beginning of the 20th century: a big cannon and a torpedo.** Lessons from the American-Spanish War (1898) and the Russo-Japanese War (1904-1905). *Good cannon allows victory, armor only postpone defeat.* Increasing the cannon calibers. *Dreadnought:* a new class of warships of advanced design and greater mobility. The First World War stopped the development of the German and British big battleships. Japan and the United States with ships of 30,000 tons displacement and cannons with the range of 19 km. Cruisers and destroyers. The development of diesel and electric submarines. Pula - the main naval port of the Habsburg Monarchy.


student has the right to attend the final examination. The course is considered as passed if 50% of test items are solved correctly at the final examination.

<table>
<thead>
<tr>
<th>Required literature (available in the library and via other media)</th>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philip Sabin, Hans van Wees, Michael Whitby (ed.), <em>The Cambridge history of Greek and Roman warfare, vol. II. Rome from the late Republic to the late Empire</em>, Cambridge University press 2008.</td>
<td></td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional literature (at the time of submission of study programme proposal)</th>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

Quality assurance methods that ensure the acquisition of exit competences

The recording student attendance and seminars; evaluating written essays as well as evaluating their oral presentation; taking the final assessment.

Other (as the proposer wishes to add)

4.11.7.4 Physical education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO128</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>0</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td></td>
<td>0 0 30 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives

The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one's health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.
<table>
<thead>
<tr>
<th>Course enrolment requirements and entry competencies required for the course</th>
<th>/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning outcomes expected at the level of the course (4-10 learning outcomes)</td>
<td>Demonstrate several basic and specific exercises for a certain kinesiological activity. Demonstrate the proper performance of new elements of a certain kinesiological activity. Perform stretching exercises for a certain kinesiological activity. Repeat the given new elements of a certain kinesiological activity in series. Demonstrate strength and flexibility exercises in order to prevent osteomuscular disorders. Integrate motor knowledge and skills for solo workout or a competition.</td>
</tr>
<tr>
<td>Course content broken down in detail by weekly class schedule (syllabus)</td>
<td>Exercises:</td>
</tr>
<tr>
<td>1. Regular testing of physical abilities</td>
<td>1. Regular testing of physical abilities</td>
</tr>
<tr>
<td>2. The development of functional abilities</td>
<td>2. The development of functional abilities</td>
</tr>
<tr>
<td>3. The development of motor abilities</td>
<td>3. The development of motor abilities</td>
</tr>
<tr>
<td>4. Fitness programs</td>
<td>4. Fitness programs</td>
</tr>
<tr>
<td>5. Swimming</td>
<td>5. Swimming</td>
</tr>
<tr>
<td>6. Naval pentathlon (naval obstacles, navy skills training area)</td>
<td>6. Naval pentathlon (naval obstacles, navy skills training area)</td>
</tr>
<tr>
<td>Format of instruction:</td>
<td>□ Lectures □ Seminars □ Exercises □ On-line in entirety □ Field work □ Individual assignments □ Multimedia □ Lab exercises □ Mentoring</td>
</tr>
<tr>
<td>Student responsibilities</td>
<td>Students are required to participate in exercises. Records of student attendance are also kept.</td>
</tr>
<tr>
<td>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>
</tr>
<tr>
<td>Experimental work</td>
<td>Report</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
</tr>
<tr>
<td>Grading and evaluating student work in class and at the final exam</td>
<td></td>
</tr>
<tr>
<td>Required literature (available in the library and via other media)</td>
<td>Number of copies in the library</td>
</tr>
<tr>
<td>Optional literature (at the time of submission of study programme proposal)</td>
<td>J. Šarlija, M. Vrkić: Upute za vježbanje na spravama, Zagreb 2010.</td>
</tr>
<tr>
<td>Quality assurance methods that ensure</td>
<td>University survey and teaching supervision.</td>
</tr>
</tbody>
</table>
4.11.7.5 Naval Combat Systems I

<table>
<thead>
<tr>
<th>NAME OF COURSE</th>
<th>NAVAL COMBAT SYSTEMS I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Code</td>
<td>VPN121</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Dario Matika, Ph.D</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Jakša Mišković, M.Eng.</td>
</tr>
<tr>
<td></td>
<td>Darija Jurko, M.Eng.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>Up to 20%</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives
1. Adopt basic and specific knowledge and skills on naval artillery and missiles in the Navy, which are necessary for the successful performance of the initial duties on board the Croatian Navy ships.
2. Master the knowledge on effects and tactics of use of naval weapons systems (artillery and missiles) in the Croatian Navy.
3. Train students in planning and performing various tactical tasks independently.

Course enrolment requirements and entry competences required for the course

Learning outcomes expected at the level of the course (4 to 10 learning outcomes)

1. Understand the basics of the ballistics and theory of artillery firing.
2. Identify different types of artillery ammunition and fuses and their use in firing at different types of targets.
3. Know the different types of naval guns in the Croatian Navy, and their tactical use.
4. Know the most significant naval gun systems of the modern world's navies.
5. Understand the basic principles of air defence of naval forces.
6. Know the principles of combat use and maintenance of naval missile system RBS-15B.
7. Understand the basic principles of missile defence of the ship.

Lectures:
1. The basics of the ballistics and theory of artillery firing.
2. Firing on targets at sea, on land and in the air.
3. Artillery ammunition in the Croatian Navy.
4. Naval guns in the Croatian Navy.
5. Rules of firing of naval artillery.
6. Capabilities of coastal artillery.
7. Most significant naval artillery systems of World's Navies.
8. Anti-air defence of ships and naval forces.
9. Anti-ship missile systems.
11. Guiding of anti-ship missile RB-15B.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Format of instruction</td>
<td>☒ lectures</td>
<td>☐ independent assignments</td>
</tr>
<tr>
<td></td>
<td>☐ seminars and workshops</td>
<td>☒ multimedia</td>
</tr>
<tr>
<td></td>
<td>☒ exercises</td>
<td>☐ laboratory</td>
</tr>
<tr>
<td></td>
<td>☐ on line in entirety</td>
<td>☒ work with mentor</td>
</tr>
<tr>
<td></td>
<td>☐ partial e-learning</td>
<td>☐ (other)</td>
</tr>
<tr>
<td></td>
<td>☒ field work</td>
<td></td>
</tr>
<tr>
<td>Student responsibilities</td>
<td>Lecture attendance is mandatory (there is a record of attendance), and it is 80% at lectures in order to obtain the course teacher’s signature. If the attendance requirement is not met, student is obliged to sign re-enrol in the course in the next academic year. There will be a midterm and end of term written exam. For the passing grade, it is needed at least 50% of points on each exam. Students who have not passed the midterm exam are not allowed to take the end of term exam. Students that have obtained the signature, but have not passed midterm/end of term exams, are obligated to take a final written exam. Students that have enough points to pass the course have to apply for the exam during the first term in order to get their grade signed in, or to have an oral exam if they want a better grade.</td>
<td></td>
</tr>
<tr>
<td>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 1,1</td>
<td>Research</td>
</tr>
<tr>
<td></td>
<td>Experimental work</td>
<td>Report</td>
</tr>
<tr>
<td></td>
<td>Essay</td>
<td>Seminar essay</td>
</tr>
<tr>
<td></td>
<td>Tests 2,9</td>
<td>Oral exam</td>
</tr>
<tr>
<td></td>
<td>Written exam</td>
<td>Project</td>
</tr>
<tr>
<td>Continuous evaluating of students’ performance</td>
<td>Elements of evaluating</td>
<td>Achievement (min.%)</td>
</tr>
<tr>
<td></td>
<td>Class attendance</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Midterm exam</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>End of term exam</td>
<td>50</td>
</tr>
<tr>
<td>Final examination:</td>
<td>Elements of evaluating</td>
<td>Achievement (min.%)</td>
</tr>
<tr>
<td></td>
<td>Exam (written and/or oral)</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Other activities (including all factors of continuous evaluation)</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>
Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average achievement with a few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

Same grading criteria are valid for written final exam as for continuous mid-terms exams.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Seller (J.) Leather, The Sea-Gunner: Shewing the Practical Part of Gunnery, As it is Used at Sea, etc.,</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

2. RBS-15B Technical description

Quality assurance methods that ensure the acquisition of exit competences

Evidence of student’s attendance, evidence of professor’s attendance, student’s questionnaire, Faculty class supervision.

4.11.7.6 Passage Planning
### COURSE DESCRIPTION

#### Course objectives
Introduce students to the legal sources of passage planning, elements of passage plan, principles and sequence of analysis of the factors influencing the choice of the fairway and method of navigation, a division of maritime navigation, planning ocean, coastal and port parts of the voyage, the system of routing and controlling navigation in certain areas, VTS services and introduce students to the principles of national and international regulations on watch keeping and explain the principles of watch keeping at sea, anchorage and in port.

#### Course enrolment requirements and entry competencies required for the course
Terrestrial Navigation  
Electronic Navigation  
Ship Handling Technique

#### Learning outcomes expected at the level of the course (4-10 learning outcomes)
Describe and explain elements of the passage plan. Define and interpret the factors that influence the choice of the fairway. Knowing the factors relevant to the planning of ocean, coastal and port part of the voyage, make a passage plan. Plan and implement navigation by the systems of routeing in polar regions, areas of shallow waters and near-shore, areas of heavy traffic, on high seas, in war zones, etc. Identify the VTS and navigation control system. Confirm the principles and technological conditions of passage optimization. Describe and interpret the principles of keeping watch at sea, anchorage and in port.

#### Course content broken down in detail by weekly class schedule (syllabus)

**Lectures:**
1. Deck logbook
2. Watchkeeping at sea
3. Procedures teamwork on the bridge
4. Bridge Team Management
6. Using the ship's books and publications
7. Using pilot charts
8. Planning ocean voyage
9. Planning of navigation in coastal areas
10. Navigating in special conditions
11. Planning of navigation in areas of ice
12. Planning of navigation in areas of strong currents
13. The system of marking waterway and fairway (IALA system code)

**Exercises:**

---

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PASSAGE PLANNING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPN122</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>4th</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Marijan Zujić, M.Sc. Dario Medić, Ph.D.</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Type of instruction</strong></td>
<td>L S E F</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>4th</td>
</tr>
<tr>
<td><strong>Course teacher</strong></td>
<td>Marijan Zujić, M.Sc. Dario Medić, Ph.D.</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Associate teachers</strong></td>
<td>Filip Bojić</td>
</tr>
<tr>
<td><strong>Status of the course</strong></td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td><strong>Percentage of application of e-learning</strong></td>
<td>/</td>
</tr>
</tbody>
</table>
1. Deck logbook  
2. Procedures teamwork on the bridge  
3. Bridge team Management  
4. Choice of route  
5. Basic principles of Weather Routing  
6. Election of ocean routes  
7. Making voyage plans  
8. Planning passage using ECDIS systems  
9. Implementation of the voyage plan  
10. Final preparations before the arrival in port / anchoring  
11. Auxiliary methods for safe navigation  
12. The impact of performance navigation devices on the planning of maritime navigation  
13. Planning and implementation of voyage in congested or high traffic areas  
14. Plans and realization of voyage in low visibility  
15. Planning and implementation navigation in ice: sailing in or near ice.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>lectures</td>
<td>individual assignments</td>
</tr>
<tr>
<td>seminars and workshops</td>
<td>multimedia</td>
</tr>
<tr>
<td>exercises</td>
<td>lab exercises</td>
</tr>
<tr>
<td>on line in entirety</td>
<td>mentoring</td>
</tr>
<tr>
<td>partial e-learning</td>
<td>(other)</td>
</tr>
<tr>
<td>field work</td>
<td></td>
</tr>
</tbody>
</table>

Student responsibilities

Attending lectures and active participation in lectures are compulsory for students, as well as bringing class materials and regular assignment preparation. The students are allowed to miss up to 3 lectures during the semester, either lectures or practical training. Regular class attendance is the condition to gaining the right to the signature. Students who are denied the signature shall enrol the course again in the following 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Tests</td>
<td>2</td>
<td>Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students' work
After passing the practical training midterm exam, the students can attend the oral part of the exam. The students who do not pass the midterm exam/s take the final exam. The midterm exams (parts of the final exam) are taken only during classes and the final (entire) exam in the official exam schedule. If students have not passed all midterm exams (but only some of them), and have obtained the signature, at the final written exam they may take only the midterm exam they have not passed. The recognition of the entire practical training written exam or one of its two main parts without limitations is valid until the end of the academic year, i.e. until the end of the examination period.
For students who take the course again the following academic year, the passed parts of the exam are not recognized. The allocated time for writing the midterm exam (only during classes) is 1 to 2 school classes.

**Continuous evaluation of students' performance:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures and participation in training</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>Continuous assessment of laboratory exercises</td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td>Mid term exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The theoretical exam (written and/or oral)</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Past activities (involve continuous assessments)</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowditch, N.: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2017.</td>
<td>1</td>
<td>yes</td>
</tr>
<tr>
<td>Passage Planning Practice, Witherbys Publishing Ltd and Seamanship International Limited 2006</td>
<td>1</td>
<td>/</td>
</tr>
<tr>
<td>Passage Planning Principles, Witherbys Publishing Ltd and Seamanship International Limited 2006;</td>
<td>1</td>
<td>/</td>
</tr>
<tr>
<td>NP231 Admiralty Guide to the Practical Use of ENCs, 2nd Edition 2016;</td>
<td>2</td>
<td>/</td>
</tr>
</tbody>
</table>
**4.11.7.7 Astronomical Navigation**

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ASTRONOMICAL NAVIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPN123</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Zvonimir Lušić, Ph.D.</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Stipe Galić, M.Eng.</td>
</tr>
<tr>
<td>Tomislav Sunko, M.Eng.</td>
<td></td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 0 26 4</td>
</tr>
<tr>
<td>(number of hours in a semester)</td>
<td></td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10%</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives: Identify the celestial bodies, and use them for determining the position and orientation at sea. Practical use of sextant, chronometer and nautical almanac. Determine the position by observation of celestial bodies in different ways (direct and indirect methods, methods of secant and tangent)

Course enrolment requirements and entry competencies required for the course: Terrestrial Navigation; Mathematics II
Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Confirm the basic principle of motion of celestial bodies, their actual and apparent movement.
2. Recognize the major constellations and stars, and make orientation with them.
3. Analyse the celestial sphere, coordinate systems and graphics conversion of coordinates.
4. Practical use of nautical almanac; calculation of local coordinates from Greenwich, time, sunrise and sunset, twilights, meridian passage (upper/lower), latitude (Polaris, merid. passage).
5. Correcting altitude by use of nautical tables.
6. Apply spherical trigonometry to identification of celestial bodies, determining the elements of drawing line of position and compass deviation control.
7. Independently calculate the position, numerically and with the help of special tables (Marc St. Hilaire Method, direct method), fix and running fix.
8. Confirm the principle of chronometer and importance of time in astronomical navigation, recognition and elimination of errors of chronometar.
9. Confirm the principle of sextant, practical use of sextant, and recognition and elimination of his errors.
10. Critically assess the usability of different methods of determining the position in astronomical navigation (Marc St. Hilaire Method, secant method, tangent method, including their errors).

Course content broken down in detail by weekly class schedule (syllabus)

<table>
<thead>
<tr>
<th>Lectures</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Notion of astronomical navigation, the spheres and the basic theorems of spherical trigonometry.</td>
<td></td>
</tr>
<tr>
<td>2. Coordinate systems.</td>
<td></td>
</tr>
<tr>
<td>3. The first and second spherical astronomical triangle-coordinate conversion, special cases of astronomical-nautical spherical triangle.</td>
<td></td>
</tr>
<tr>
<td>4. Solar system, celestial bodies used in navigation, real and apparent motion of celestial bodies.</td>
<td></td>
</tr>
<tr>
<td>5. Nautical Almanac.</td>
<td></td>
</tr>
<tr>
<td>6. Instruments for determining the height, sextant.</td>
<td></td>
</tr>
<tr>
<td>7. Correction of the celestial body height.</td>
<td></td>
</tr>
<tr>
<td>8. Time in astronomical navigation.</td>
<td></td>
</tr>
<tr>
<td>9. Chronometer, errors of chronometer, time signals.</td>
<td></td>
</tr>
<tr>
<td>10. Methods for determining positions (both direct and indirect, tangent and secant).</td>
<td></td>
</tr>
<tr>
<td>11. Marc St. Hilaire Method, direct (Dozier) method.</td>
<td></td>
</tr>
<tr>
<td>12. Special cases in astronomical navigation (φM, Polaris).</td>
<td></td>
</tr>
<tr>
<td>13. Identification of the celestial bodies (computing, tables, star finders, star charts).</td>
<td></td>
</tr>
<tr>
<td>14. Deviation control of the compass. Use of ABC tables. Use of professional marine software and special tables (Ho 249) for determining position.</td>
<td></td>
</tr>
<tr>
<td>15. Position errors in astronomical navigation.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exercises</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Celestial spheres, conversion of coordinates.</td>
<td></td>
</tr>
<tr>
<td>3. Nautical Almanac, calculation of local coordinates from Greenwich.</td>
<td></td>
</tr>
</tbody>
</table>
5. Time of meridian passage. Sunrise, sunset, nautical/civil twilight.
6. Deviation control of the compass by using celestial bodies.
7. Practical use of sextant: determination and correction of errors, angle measurement.
10. Determination of latitude by use of Polaris and bodies at upper/lower transit.
12. Determination of position-running fix (Sun).
14. Determination of position and identification, both numerically and by use of tables.
15. Determination of position and identification by use of special software.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ lectures</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
</tr>
<tr>
<td>☒ exercises</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
</tr>
<tr>
<td>☒ field work</td>
</tr>
<tr>
<td>☐ individual assignments</td>
</tr>
<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ lab exercises</td>
</tr>
<tr>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Criterion</th>
<th>Specific activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance</td>
<td>Min 80%</td>
<td>Presence of students</td>
</tr>
<tr>
<td>Exercise attendance</td>
<td>Min 80%</td>
<td>Presence of students</td>
</tr>
<tr>
<td>Exercise attendance-field work (sextant)</td>
<td>100%</td>
<td>Presence of students</td>
</tr>
<tr>
<td>Log of exercises</td>
<td>100%</td>
<td>Log review</td>
</tr>
</tbody>
</table>

Lectures and exercises are obligatory; there is a record of attendance. To obtain the course teacher’s signature a min 80% of lecture and exercise attendance is required, and 100% for field work (sextant). In case a student fails to acquire minimal hours of attendance, he/she will be denied the signature and accordingly will have no right to apply for the exam.

Absentee notes cannot justify or replace class attendance. In case of sickness or any other justified reason, students who have more than 80% of attendance, but do not have 100% attendance at field work (sextant), can get extra hours in other, additional terms during semester or later, but not later one month after end of class attendance period.

All other students, i.e. students with below 80% of attendance are denied the signature and shall re-enrol the course again next academic year.

| Screening student work (name the proportion of ECTS credits for each) |
|--------------------------|-----------------|------------------|
| Class attendance | 1,4 | Research |
| Experimental work | | Report |
| | | Field work | 0,1 |
activity so that the total number of ECTS credits is equal to the ECTS value of the course)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Seminar paper</th>
<th>Oral exam</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td>2,2</td>
<td>1,3</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td></td>
</tr>
</tbody>
</table>

Assessment and evaluation of full-time students’ work

Midterm exams:
I. – exercise, 10th week
II. – exercise, 15th week
III. theory, 14/15th week

After successfully passed midterm exams, i.e. having fulfilled all required obligations, students may attend the exam from theory. Students with all passed midterm exams (I, II and III) are exempt from taking the final exam. Other students need to attend the final exam, the requirement is the lecturer’s signature.

Midterm exams (parts of the final exam) are taken during classes, and final exam during examination period at the end of the semester.

The requirement for the 2nd midterm exam is successfully passed 1st midterm exam. Successfully passed midterm exams I and II can replace the final written exam, but not theory. Midterm exam I (without midterm exam II) cannot replace any part of the final exam during examination period.

Final written exam (or both midterm exams I and II) is valid until the end of the semester, the same criteria apply to theory (Midterm exam III).

Maximum time allowed for final written exam-2 school hours
Maximum time allowed for midterm exams-from 1 to 2 school hours
Maximum time allowed for midterm exams, theory- up to 1 school hours

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures</td>
<td>80</td>
<td>15</td>
</tr>
<tr>
<td>Midterm exam I</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>75</td>
<td>35</td>
</tr>
<tr>
<td>Midterm exam III</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>Field work</td>
<td>100%</td>
<td>5</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous activity (including all elements of the continuous evaluation)</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Written tasks (exercises)</td>
<td>75</td>
<td>60</td>
</tr>
<tr>
<td>Theory (written and/or oral)</td>
<td>50</td>
<td>30</td>
</tr>
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</table>

Grading scale:
50% is the minimal requirement to pass the exam
<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

75% is the minimal requirement to pass the exam

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>-74</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>75-84</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>85-89</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>90-94</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowditch, N.: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002.</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>Nautical Tables (Nautičke tablice), HHI, Split.</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>Nautical Almanach (Nautički godišnjak), 2002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Optional literature (at the time of submission of study programme proposal)**

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

**Quality assurance methods that ensure the acquisition of exit competences**

- University survey, list of student attendance, Faculty teaching supervision

**Other (as the proposer wishes to add)**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>

254
### Course Information

**Name of the Course:** Ship Maintenance

**Code:** VPS113

**Course Teacher:** Gorana Jelić Mrčelić, Ph.D.  
Luka Mihanović, Ph.D.

**Associate Teachers:** Tomislav Peša, M. Eng.

**Year of Study:** 4th year

**Credits (ECTS):** 3

**Type of Instruction:**
- **(number of hours in a semester):**
  - L: 30
  - S: 0
  - E: 15
  - F: 0

**Percentage of Application of E-Learning:** 30%

**Status of the Course:** Mandatory for Naval Engineering Studies

---

### Course Description

**Course Objectives:** To give students specific knowledge on ships maintenance and repair.

**Course Enrollment Requirements and Entry Competencies Required for the Course:**

1. Define degradation of materials.
2. Define and classify corrosion and protection measures against corrosion.
3. Explain mechanisms of corrosion.
4. Analyze protection measures against corrosion during planning of shipbuilding.
5. Compare advantages and disadvantages of different protection measures against corrosion.
6. Analyze procedures during ship’s inspection and drydocking.
7. Analyze procedures during routine maintenance and repair.

---

**Learning Outcomes Expected at the Level of the Course (4-10 Learning Outcomes):**

- 1. Define degradation of materials.
- 2. Define and classify corrosion and protection measures against corrosion.
- 3. Explain mechanisms of corrosion.
- 4. Analyze protection measures against corrosion during planning of shipbuilding.
- 5. Compare advantages and disadvantages of different protection measures against corrosion.
- 6. Analyze procedures during ship’s inspection and drydocking.
- 7. Analyze procedures during routine maintenance and repair.

---

**Course Content Broken Down in Detail by Weekly Class Schedule (Syllabus):**

2. Division of corrosion according to mechanisms of corrosion. Division of chemical corrosion: gas, in nonelectrolytes. Kinetics of chemical corrosion.
3. Corrosion due to free energy change, pressure on decomposition, equilibrium constant. Detection of oxides.
9. Corrosion properties of technical metals. Selection of an optimal material. Iron, steel, stainless steel, copper, brass, ...
13. Protection against corrosion with organic coatings. Selection of an appropriate system. Thickness, application and quality testing of coating.

**Exercises:**
1. Copper gas corrosion
2. Corrosion of zinc in electrolytes
3. Determination of metal potentials in seawater
4. Determination of metal potentials in soil
5. Evans diagram
6. Pre-treatment of material before protection
7. Galvanisation
8. Protection with organic coatings
9. Silica gel absorption capability
10. Testing of cathodic protection efficiency
11. Testing of cathodic protection efficiency in soil
12. Ship’s inspection and dry drydocking
13. Maintenance of cargo equipment
14. Maintenance of hatch coamings
15. Maintenance and repairs

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ lectures</td>
</tr>
<tr>
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<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ laboratory</td>
</tr>
<tr>
<td>☐ mentoring</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

**Student responsibilities**
Class attendance is mandatory for students, ie the condition for obtaining a signature is attendance at a minimum of 80% of lectures (12 times) and 100% of exercises. In case of insufficient number of attendances, students do not have the right to sign and are required to re-enroll in the course again next year.

Students have the opportunity to pass the oral exam by continuous evaluation during the semester by taking a mid term tests. Students are not required to attend the mid term tests. Students who do not pass the mid term tests, but have a signature, are required to take an oral exam within the exam period. Students who take the mid term tests are required to register for the exam via Studomat for the first exam period after the lecture and to come to the registration of the grade or to answer for a higher grade.

| 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 assignment | 1,875 |
| Essay | Seminar paper | (Other) |
| Tests | Oral exam | (Other) |
| Written exam | Project | (Other) |

**Assessment and evaluation of full-time students' work**
Class attendance is mandatory for students, ie the condition for obtaining a signature is attendance at a minimum of 80% of lectures (12 times) and 100%
of exercises. During the semester, two mid term tests are taken (7th and 14th week of classes). At the mid term test it is necessary to achieve a minimum of 50% of points. Students who do not take the mid term test for objective reasons or do not achieve the minimum percentage have the opportunity to take a written exam. In the final grade the results of a mid term test or written exam. Students who do not pass the mid term test during the semester, and have a signature, are required to take an oral exam within the exam period. The same assessment criteria apply to the examination period as to the continuous assessment of knowledge.

**Continuous evaluation of students’ performance**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance</td>
<td>95</td>
<td>0</td>
</tr>
<tr>
<td>Assessment of students work during the course 1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Assessment of students work during the course 1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written tasks</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Theory (written and/or oral)</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
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<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dokkum, van, K.: Ship knowledge, DOKMAR, the Netherlands, 2003</td>
<td></td>
<td>e-book</td>
</tr>
<tr>
<td>IMO: ISM Code</td>
<td></td>
<td>e-book</td>
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### 4.11.7.9 Criminal Law

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>CRIMINAL LAW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO129</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Stjepan Gluščić, Ph.D.</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 35</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>0</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objective**

Acquiring specialized, applied knowledge from the field of the General and Special Part of the criminal substantive legislation, and basics of criminal procedural law.

**Course enrolment requirements and entry competencies required for the course**

/  

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

After the course of study students will be competent (they will have knowledge and develop skills):

- to define criminal law, criminal offence distinguishing it from other forms of punishable offences, to define sources and explain fundamental principles and institutes of the criminal substantive law from the framework of the General Part of the Criminal Code, they will learn what criminal sanctions are prescribed by the Criminal Code and basic elements of their implementation and will, in general, adopt specialized terminology and meaning of the terms. They will also be informed about the standpoint of the criminal law with regard to juveniles and legal entities as categories of criminal offenders.
- to define and explain Chapters of the Special Part of the Criminal Code, to establish the protective object of each Chapter, to recognize and qualify criminal offences with particular emphasis on criminal offences that are the most common in practice.
• Students will be informed about judicial practice upon analysis of the court rulings in some cases of the solved criminal offences that are the most common in practice and about some legal understandings in criminal law (formed by the Supreme Court of the Republic of Croatia). This will serve as knowledge which students can later use in their work.

• Students will learn basic elements of criminal procedural law, or rather basic elements of the Criminal Procedure Act that processes and sanctions criminal offences.

• With active participation in exercises and other forms of teaching methods students will supplement understandings about the subject matter and develop critical thinking with regard to cases that might appear during their work.

<table>
<thead>
<tr>
<th>Course content broken down in detail by weekly class schedule</th>
<th>Format of instruction:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The concept and historical development of criminal law, sources of criminal law, the purpose of punishment, relation of criminal law with other branches of law</td>
<td>lectures</td>
<td>1 hour of lecture</td>
</tr>
<tr>
<td>2. Spatial, personal and temporal application of criminal law</td>
<td>lectures</td>
<td>2 hours of lectures 1 hour of exercise</td>
</tr>
<tr>
<td>3. CRIMINAL OFFENCE (definition, constitutive elements, time, place, manner of committing criminal offence, stages of committing criminal offence, insignificant offence, voluntary withdrawal, continuing criminal offence, concurrence of criminal offences)</td>
<td>lectures</td>
<td>3 hours of lectures 3 hours of exercise</td>
</tr>
<tr>
<td>4. Reasons for exclusion of unlawfulness, culpability</td>
<td>lectures</td>
<td>1 hour of lecture 1 hour of exercise</td>
</tr>
<tr>
<td>5. Perpetrators of criminal offences, criminal law with regard to juveniles and legal entities</td>
<td>lectures</td>
<td>2 hours of lectures</td>
</tr>
<tr>
<td>6. Accomplices</td>
<td>lectures</td>
<td>1 hour of lecture 1 hour of exercise</td>
</tr>
<tr>
<td>7. Legal sanctions</td>
<td>lectures</td>
<td>1 hour of lecture</td>
</tr>
<tr>
<td>8. SPECIAL PART OF THE CRIMINAL CODE (introduction to special criminal legislation and overview of the Chapters of the Criminal Code)</td>
<td>lectures</td>
<td>1 hour of lecture</td>
</tr>
<tr>
<td>9. Crimes against humanity and human dignity, criminal offences against human rights and fundamental freedoms, criminal offences against personal freedom</td>
<td>lectures</td>
<td>2 hours of lectures 1 hour of exercise</td>
</tr>
<tr>
<td>10. Criminal offences against life and limb and criminal offences against sexual freedom</td>
<td>lectures</td>
<td>2 hours of lectures 2 hours of exercises</td>
</tr>
<tr>
<td>11. Criminal offences against property, criminal offences of forgery, criminal offences against the economy</td>
<td>lectures</td>
<td>2 hours of lectures 2 hours of exercises</td>
</tr>
<tr>
<td>12. Criminal offences against health and criminal offences against the environment</td>
<td>lectures</td>
<td>1 hour of lecture 1 hour of exercise</td>
</tr>
<tr>
<td>13. Criminal offences against general safety and criminal offences against traffic safety</td>
<td>lectures</td>
<td>2 hours of lectures 1 hour of exercise</td>
</tr>
<tr>
<td>14. Criminal offences against official duty, criminal offences against the judiciary, criminal offences against the Republic of Croatia, Criminal offences against a foreign state or international organisation, criminal offences against the Armed Forces of the Republic of Croatia</td>
<td>lectures</td>
<td>3 hours of lectures 1 hour of exercise</td>
</tr>
<tr>
<td>15. Overview of the significant criminal offences from other Chapters of the Special Part of the Criminal Code</td>
<td>lectures</td>
<td>3 hours of lectures 1 hour of exercise</td>
</tr>
<tr>
<td>16. Selected parts of the Criminal Procedure Act</td>
<td>lectures</td>
<td>8 hours of lectures</td>
</tr>
</tbody>
</table>

Format of instruction: □ lectures □ individual assignments
Student responsibilities

- seminars
- exercises
- on line in entirety
- field work

Lectures are compulsory for students and class attendance records are kept. In order to obtain the course teacher’s signature students have to attend a minimum 95% of classes and realize exercises during lectures in entirety. In case of insufficient number of attendance, students are not allowed to get a signature and have to enrol in the course again the next academic year. In case when students have sufficient class attendance but do not have enough realized exercises, in order to get a signature, they have to solve an individual assignment/s instead of unrealized exercises (a case of the criminal offence from practice with questions they have to give answers to) and submit it in writing.

The exam can be taken at the final exam (written exam/the possibility of oral exam).

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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1.00</td>
<td>Research</td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
</tr>
<tr>
<td>Midterm exams</td>
<td></td>
<td>Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
<td>1.50</td>
<td>Project</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Continuous evaluation of students’ performance</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>95</td>
<td>5</td>
</tr>
<tr>
<td>Exercises</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Previous activities (class attendance)</td>
<td>95</td>
<td>5</td>
</tr>
<tr>
<td>Previous activity (exercises)</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 – 64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
</tbody>
</table>
### Quality assurance

Methods that ensure the acquisition of exit competencies:
- University questionnaire
- Student attendance records
- Faculty teaching supervision

### Other (as the proposer wishes to add)
- 4.11.7.10 State Border Control

#### NAME OF COURSE

<table>
<thead>
<tr>
<th>THE COURSE</th>
<th>STATE BORDER CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO130</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Stjepan Gluščić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>Number of hours in a semester</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for students of the Ministry of the Interior</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>45 5 0 5</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Hrvoje Filipović, Ph. D.</td>
</tr>
</tbody>
</table>

### Course objective

The aim of the programme is to provide students with insight into the importance of state border management and to adopt standards in the field of justice, freedom and security implemented by competent ministries and agencies included in integrated border management. Through this course of study students will master standards of the Schengen Borders Code that are implemented in the Foreign Nationals Act, the State Border Control Act, The Police Duties and Powers Act and the International and
Temporary Protection Act. After students pass the exam they will be able to independently carry out risk analysis and decide about use of the most important institutes that appear during illegal migrations, cross-border crime and other threats connected with state border protection.

| Course enrolment requirements and entry competencies required for the course | / |
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | To interpret correctly institutes from the Schengen Borders Code, the Act on State Border Control, the Foreign Nationals Act, the International and Temporary Protection Act, the Police Duties and Powers Act. To decide about the use of the most important institutes that appear during illegal migrations, cross-border crime and other threats related to state border protection. To actively participate in integrated border management. To analyse national judicial practice and of the European Court for Human Rights relating to migrations |

Lectures:
1. Historical development of the EU with special comment on events important for border police.
2. Primary and secondary EU law significant for border police
3. Border checks: the place for carrying out border checks, obligations of subjecting to border checks, border check activities (check of persons, property and vehicles
4. Border checks: visas (air-transit visa, short-stay visa, HVIS); border line and state border surveillance
5. Border surveillance: methods for conducting state border surveillance, powers from the Police Duties and Powers Act, basic elements of reading topographic maps, purpose of control in depth of the border region and state border incidents
6. Border surveillance: purpose of control in depth of the border region and state border incidents
7. Schengen information system
8. Passenger profiling – particularities of border checks
10. International border police cooperation, the role of Frontex in control of the EU external borders, EUROSUR – European Border Surveillance System, NMBIS
11. Border crossings points: types of border crossings: international, local, temporary (purpose, area, marking, movement and stay)
12. Competent ministries and agencies included in integrated border management (Ministry of the Interior – Border Police Directorate; Croatian Ministry of Defence – Coast Guard, Ministry of Finance – Customs Administration, Ministry of the Sea, Transport and Infrastructure – Maritime Safety Directorate, Directorate for Maritime and Inland Navigation, Ministry of Foreign and European Affairs etc.)
13. Foreign nationals: travel documents (concept, competent bodies for issuance, deadlines, complaints), stay of foreign nationals in the Republic of Croatia: short-term, temporary and permanent stay, conditions for employment of foreign nationals (residence and work permit, work registration certificate)
14. Foreign nationals: illegal entry and stay of foreign nationals, accommodation of foreign nationals at the Detention Centre, types of removal
16. International and temporary protection: the Dublin Regulation (EU) No 604/2013, EURODAC Regulation No 603/2013, procedures with foreign nationals who at border crossings express their intention to apply for international protection, procedures for granting international protection

Course content broken down in detail by weekly class schedule


21. Risk analysis: risk management standard process, risk analysis methods and techniques

Format of instruction:

- Lectures
- Seminars
- Exercises
- *Online* in entirety
- Field work

Student responsibilities

Lectures are obligatory for students and class attendance records are kept. In order to obtain the course teacher’s signature, it is compulsory to attend minimum 80% of classes. In case of insufficient class attendance, students are not entitled to get a signature and have to enrol in the course again the next academic year.

The exam can be taken through continuous evaluation during the semester such as midterm exams or on the final exam (written and/or oral exam).

Students who have not passed midterm exams and obtained the signature, have to take written and/or oral exam within the examination period.

Students who gathered sufficient number of points during classes, have to apply for the exam via Studomat (online student portal) for the first examination term and come on the examination date to have their grade entered or to take an oral exam for a better grade.

<table>
<thead>
<tr>
<th>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)</th>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>1,1</td>
<td>Report</td>
<td>Self-study and homework assignment (other)</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm exams</td>
<td>2,9</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

Assessment and evaluation of full-time students’ work

Three midterm exams are written during the semester. The first midterm exam that comprises teaching materials from the 1st to the 5th lecture is written in the 6th week of the classes, the second midterm exam that comprises teaching materials from the 6th to the 10th lecture is written in the 11th week of the classes, and the third midterm exam that comprises the teaching materials from the 11th to the 15th lecture is written in the 15th week of the classes. Examples of the questions for the midterm exam are made available to students at the end of each lecture. At each midterm exam it is necessary to achieve a minimum 50% of points to pass the exam. Students who do not take one
midterm exam from objective reasons or do not realize a minimal percentage, are given
the opportunity to retake the midterm exam.
Final evaluation comprises the class attendance and activity at lectures and continuous
testing of knowledge.
Students who do not pass midterm exams during semester and have obtained the
signature, have to take written and/or oral exam within the examination period. The
same criteria of evaluation apply to examination period as well as for continuous testing
of knowledge.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures and active participation in exercises</td>
<td>95</td>
<td>10</td>
</tr>
<tr>
<td>Continuous testing of knowledge (partial exams/midterm exams)</td>
<td>50</td>
<td>90</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Previous activities (attendance and activity at lectures)</td>
<td>95</td>
<td>10</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49,9</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 - 61,9</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>62 - 74,9</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>75 - 87,9</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>88 - 100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>
**Filipović, H., (2020) Illegal Entry of Foreign Nationals as a Criminal Offense or a Misdemeanor, Collected Papers of the Faculty of Law University of Rijeka**


**Required literature (available in the library and via other media)**
- Šegvić, S., Schengen Regime for Administering EU External Borders, Collected papers of the Law Faculty of the University of Split, Vol. 48 No. 1, 2011

**Quality assurance methods that ensure acquisition of exit competences**
- University questionnaire, student attendance records, Faculty teaching supervision.

**4.11.7.11 Marine Power Electronics**

<table>
<thead>
<tr>
<th>NAME OF COURSE</th>
<th>THE MARINE POWER ELECTRONICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPE111</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Teaching methods (number of teaching hours per semester)</td>
<td>L 30 S 0 E 15 F 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**
The course deals with the components and basic circuits of the analogue and digital electronics with special focus on the components and circuits of the power electronics such as rectifiers, invertors, DC/DC and AC/AC converters that are used in the vessel's electric power plant. Familiarisation with the procedures of measuring and detecting failures in electronic circuits.

**Course enrolment requirements and entry competencies required for the course**
- Marine Electro Technology I and II
- Onboard Electric Power Systems I

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**
- Identify basic electronic components.
- Present the basic physical principles of semi-conductors.
- Draw the layouts and compare the operation of various analogue and digital circuits.
- Present essential principles of electric power conversion.
Understand basic operation principles of the AC/DC, DC/AC, DC/DC and AC/AC converters.

- Identify the disturbances in the network which are produced by the converters and find ways of eliminating them.
- Draw and explain the layouts of synch-converters and cyclo-converters.

Course content broken down in detail by weekly class schedule (syllabus)

2. Passive components (resistors, capacitors, transformers). Active components (power diode), static and dynamic characteristic.
3. Active components: SCR (thyristor), gate turn-off thyristor (GTO), energy bi-polar junction transistor (BJT), 3-terminal fully-controllable switch (JFET). Static and dynamic characteristics and parameters.
4. Active components: MOSFET, IGBT, MCT. Static and dynamic characteristics and parameters.
5. Protection of the components of power electronics, problem of EM disturbances, heat properties of the components.
7. Operation amplifiers – ideal and real amplifier. Basic sets of the operation amplifiers (non-inverting and inverting amplifiers, adders, Miller integrator).
8. The operational principles of the AC/DC, DC/AC, DC/DC and AC/AC converters. Efficiency and power factor of the converter.
12. Descending-ascending DC converter. DC converter with galvanic separator.
15. Basic measurement techniques and the diagnostics of failures in electronic sets. Introduction to repairing faults in the electronic power sets.

Exercises:
1. Basic analogue components. Functional testing of the semi-conducting elements.
2. Basic analogue components. Functional testing of the semi-conducting elements.
3. Basic analogue components. Functional testing of the analogue electronic sets.
4. Basic analogue components. Functional testing of the analogue electronic sets.
5. DC/AC converters.
6. DC/AC converters.
7. AC/DC converters.
8. AC/DC converters.
9. DC/DC converters.
10. DC/DC converters.
11. AC/AC converters.
12. AC/AC converters.
13. Speed regulation of the electric motors.
14. Speed regulation of the electric motors.
15. Uninterrupted power supply.

Format of instruction: ☒ lectures ☐ individual assignments
### Student responsibilities

Lectures are obligatory for students because records of attendance are kept. To obtain a signature, students must attend a minimum of 80% of the lectures, of which 95% of the lecture hours must be from the material defined by the STCW Convention. In case of insufficient number of attendances, students do not have the right to sign and are required to re-enroll in the course again next year.

Students have the opportunity to pass the oral exam by continuous evaluation during the semester by taking a mid term test. Students who do not pass the mid term, but have a signature, are required to take a written and oral exam within the exam period. Students who pass all mid term test are required to register for the exam via studomat for the first exam period after the lecture and in the exam period to come to the registration of grades or answer for a higher grade.

### Screening student work

(Include 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1.125</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
</tr>
<tr>
<td>Report</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
</tr>
<tr>
<td>Seminar paper</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td>2.875</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td></td>
</tr>
<tr>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>80</td>
<td>18.75</td>
</tr>
<tr>
<td>1st midterm tests</td>
<td>45</td>
<td>40.625</td>
</tr>
<tr>
<td>2nd midterm tests</td>
<td>45</td>
<td>40.625</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 - 64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65 - 79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>78 - 89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>Required literature (available in the library and via other media)</td>
<td>Title</td>
<td>Number of copies in the library</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-------</td>
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</tbody>
</table>

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


Quality assurance methods that ensure the acquisition of exit competences

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

Other (as the proposer wishes to add)

4.11.7.12 Marine Engine Systems

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MARINE ENGINE SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS114</td>
</tr>
<tr>
<td>Year of study</td>
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</tr>
<tr>
<td>Course teacher</td>
<td>Ivan Komar, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>6</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Tino Sumič, M.Eng.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives

Acquiring basic and advanced knowledge about propulsion systems, general service systems, and special systems on board vessels at the operational and management levels. Run and monitor the systems from the engine control room and from local spots, exploitation and measures taken for the marine environment protection.

Course enrolment requirements and entry competencies required for the course

Marine Engine Elements, Thermo-Dynamics and Heat Transfer.

Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Read and create classification layouts of ship's pipelines,
2. Describe the function of the ship's pipelines and instruments for measurement within the pipelines,
3. Distinguish the layouts of the ship's pipelines,
4. Recognise the essential pipelines and alarms for the safety of propulsion,
5. Analyse the interdependence of the measured values and the cause-effect relationships of the values that are indicated by alarms,
6. Prepare the working area for maintaining the marine engine or equipment to ensure the safety of staff at work,
7. Promptly respond to the detected malfunctions of the engine systems and take adequate measures.
8. Plan the maintenance of ship's pipelines in order to enable the maximum seaworthiness of the vessel.
9. Safely perform the duties of the engine officer at the operational and management levels.

### Lectures and exercises:

1. Introduction; marine propulsion plants, categorisation of the vessel's engine systems.
3. Cooling system; chemical properties of water, sea suction collector, types of cooling systems (direct and indirect cooling. Designs of indirect cooling (conventional system, cooling of the liner / main engine / main engine pistons / fuel injectors / lubricating oil).
4. Centralised cooling system (system of low-temperature / high-temperature fresh water, sea water system), analysis of flow in the fresh water system.
5. System of oils; lubrication oil for the marine engine plant, systems of lubricating marine diesel engines (circulation of lubricant in the main diesel engine, system of lubricating the main engine cylinders, circulation of lubricant in the auxiliary diesel engines, lubrication of stern-tube bearings, lubrication of other onboard machinery), separation of lubricant, exploitation and maintenance of the lubrication system components; hydraulic systems and their characteristics and elements, hydraulic layouts of the open and closed systems.
6. Fuel system: general information on fuels and their characteristics, physical properties of fuel, fuel treatment (additives, homogenisators); systems of bunkering and transfer of fuel, fuel tanks (fuel storage tanks, settling tanks, service tanks, mixing tank); fuel purification system, homogenisator in fuel purification system; fuel supply control system, viscosity control system, fuel system of auxiliary engines, emergency generator and oil-fired boiler.
7. System of compressed air; compressor, compressed air registers / pipelines / armature / consumers. Air starting system.
8. Feed water system: generating fresh water on board vessels, boiler feed water,
9. General systems onboard vessels: ballasting of tankers, system for automatic trimming, ballasting and deballasting conditions).
10. Bilge system (description of the bilge system, pipelines and armature, collecting and discharging bilge waters from / in various areas, ejector self-suction device, bilge separator).
11. Sanitary system (requirements for quality of the water onboard vessels, system of fresh water generation, fresh water storage tanks, distribution of sanitary water, disinfection procedures, hydrophore, fresh water heaters).
15. Systems in crude oil tankers; system; inert gas. Crude oil washing of the tanks, drying tank system, cargo heating system. Chemical tankers; inert gas on chemical tankers, nitrogen as inert gas. Liquefied gas carriers; properties of gases and processes of liquefaction and maintaining constant pressure in tanks; handling the cargo when loading / unloading.

### Format of instruction:

- ☒ lectures
- ☒ seminars and workshops
- ☒ exercises
- ☐ on line in entirety
- ☐ partial e-learning
- ☒ field work
- ☐ individual assignments
- ☐ multimedia
- ☐ lab exercises
- ☐ mentoring
- ☐ (other)
**Student responsibilities**

Lecture and exercise attendance, participation in field work. Attendance is compulsory for students, i.e. a minimum 95% at lectures and 100% at exercises is required for obtaining the course teacher’s signature. In case of insufficient attendance students are denied the signature and are obliged to enrol in the course again next academic year. Students have the opportunity to take the oral exam by continuous assessment during the semester and by passing two midterm exams. Students who do not pass midterm exams and have obtained a signature, are required to take the oral exam within the examination period. Students who pass the midterm exams are obliged to apply for the exam via Studomat in the first exam term in order to enter the grade or to retake the test for a better grade.

**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)**

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1.25</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td>Fielf work 0.5</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Tests</td>
<td>3.375</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

**Assessment and evaluation of students’ work:**

Upon completion of the lectures and exercises dealing with the given teaching materials, two midterm exams are administered. Midterm exams refer to the theoretical part of the syllabus (as described in the syllabus) and are taken in written form. It is necessary to achieve at least 50% correct answers and explanations to pass a midterm exam. Students who have passed both midterm exams are exempt from taking the written/oral exam. Students who fail one midterm exam will take only that part at the final exam. The passed midterm exam is accepted as a partly passed final exam. Midterm exams and final exam may be taken only by students who have met all the requirements (class attendance, exercises and field work).

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

**Continuous evaluation of full-time students' work**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>Lectures 95</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Exercises 100</td>
<td></td>
</tr>
<tr>
<td>Field work</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam I</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam II</td>
<td>50</td>
<td>30</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Continuous evaluation activities</td>
<td>Lectures 95</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Exercises 100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field work 100</td>
<td></td>
</tr>
</tbody>
</table>
Total | 50 | 100

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50- 64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65 - 79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>78 - 89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90 - 100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Quality assurance methods that ensure the acquisition of exit competences

Survey carried out by University of Split, List of student attendance, Teaching process monitored by Faculty.

### Other (as the proposer wishes to add)


### 4.11.7.13 Marine Hydraulics and Pneumatics

#### NAME OF THE COURSE

**MARINE HYDRAULICS AND PNEUMATICS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Year of study</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPS115</td>
<td>4th</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course teacher</th>
<th>Credits (ECTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dorde Dobrota, Ph.D.</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Associate teachers</th>
<th>Type of instruction (number of hours in a semester)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status of the course</th>
<th>Percentage of application of e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory for Naval Engineering Studies</td>
<td></td>
</tr>
<tr>
<td>Course objectives</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>Learn the basic physical properties and technical requirements that the working media have to fulfil in hydraulic and pneumatic operation. Distinguish operation characteristics and construction designs of hydraulic pumps, air compressor, hydraulic and pneumatic actuating and control elements (valves). Develop logic approach when analysing and solving practical engineering problems related to handling on-board hydraulic and pneumatic systems.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course enrolment requirements and entry competencies required for the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Mechanics II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcomes expected at the level of the course (4-10 learning outcomes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student will:</td>
</tr>
</tbody>
</table>
1. Distinguish basic physical properties and technical requirements that the working media have to fulfil in hydraulic and pneumatic operation. |
2. Analyse and distinguish the elements of hydraulic and pneumatic systems according to their design and application, and draw their symbols. |
3. Analyse and interpret hydraulic and pneumatic control schemes. |
4. Independently formulate and drew examples of hydraulic and pneumatic control schemes. |
5. Identify failures and apply the acquired skills for removing failures and malfunction in on-board hydraulic and pneumatic systems. |

<table>
<thead>
<tr>
<th>Course content broken down in detail by weekly class schedule (syllabus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures:</td>
</tr>
</tbody>
</table>
3. Elements of the hydraulic system. Categorisation, operational parameters and technical characteristics of hydraulic pumps. |
4. Pressure, flow and power regulators of the variable displacement hydraulic pumps. |
10. Hydraulic function schemes. Typical hydraulic circuits for power transmission, speed control, pressure control, energy storage, blocking position of cylinders and synchronization of cylinders. |
13. Basic pneumatics control schemes for controlling actuators. Logical connection. Sequence control depending on positions of the cylinder. |
15. Examples of construction of hydraulic and pneumatic systems on-board. |

<table>
<thead>
<tr>
<th>Exercises:</th>
</tr>
</thead>
</table>
1. Experimental measurement of $Q-p$ characteristics of hydraulic pumps and determines the volumetric pumping efficiency hydraulic pump.
2. Experimental measurement of $Q-p$ characteristics of the pressure relief valve.
4. The hydraulic pressure control circuit. Practical exercise.
5. Hydraulic circuit for blocking the position of the cylinder. Practical exercise.
9. Indirect control of single and double acting cylinder. Practical exercise.
10. The implementation of control depending of the way and time. Practical exercise.
11. Realization of logical function "OR" in the pneumatic control. Practical exercise.
12. Realization of logical function "AND" in the pneumatic control. Practical exercise.
13. Realization of logical function "NO" in the pneumatic control. Practical exercise.
15. Example of pneumatic control system to manoeuvre of two-stroke low-speed marine diesel engine.

**Format of instruction:**

- X lectures
- ☐ seminars and workshops
- X exercises
- ☐ on line entirely
- ☐ mixed e-learning
- ☐ field lectures
- ☐ individual assignments
- ☐ multimedia
- X laboratory exercises
- ☐ mentoring

**Student responsibilities**

Lecture attendance is compulsory meaning that requirement for obtaining the course teacher’s signature is a minimum 95% of lecture attendance and 100% of exercise attendance. Students who have 80% of lecture and/or exercises attendance are allowed to attend, if their absence is justified, compensation classes in the form of consultation and/or with seminar papers in order to the required criteria. In case of insufficient number of arrivals to class, students are not eligible for signature and shall enrol in the course again next academic year.

Students have the opportunity to pass the exam through continuous evaluation during the semester and by taking two midterm exams. Students are required to take both midterm exams. Students who do not pass midterm exam/s and have obtain a signature, are required to take the written exam in the examination period. Students who have gathered enough points during semester are required to apply for the exam after and to come on the exam date to enter the grade or retake the exam so as to get a better grade.

**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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1,125</th>
<th>Research</th>
<th>Practical training</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td>Homework assignments</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Insert other)</td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td>2,875</td>
<td>Oral exam</td>
<td>(Insert other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Insert other)</td>
<td></td>
</tr>
</tbody>
</table>

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

Assessment and evaluation of full-time students' work

Class attendance is compulsory for full-time students, which means that the requirement for obtaining the signature is to attend a least 95% of lectures and 100% of the exercises. Regarding written exam, students may be exempt from taking it if they have passed two (2) midterm exams, written during the semester. The first midterm exam includes the first to the sixth week of lectures and it is taken in the 7th week of classes. The second midterm exam includes the seventh to the fourteenth week of lectures and it is taken in the 15th week of classes. Sample questions for students are available on the Web. It is necessary to achieve a minimum 50% of points. Students
who do not take one of midterm exams for objective reasons or do not achieve the
minimum percentage of points have the opportunity to take the written exam.
Students who do not pass a midterm exam and have obtained a signature, are required to
take the written exam in the examination period.
The final evaluation consists of presence in the classroom, results on the midterm exams /
written exam and oral test. The same assessment criteria apply to test dates as well as
for continuous assessment.

**Continuous evaluation of students’ performance**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>min. 95% attendance of lectures, 100% attendance of exercises</td>
<td>28.125</td>
</tr>
<tr>
<td>1st midterm test</td>
<td>50%</td>
<td>35.937</td>
</tr>
<tr>
<td>2nd midterm test</td>
<td>50%</td>
<td>35.937</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm or written exam</td>
<td>50%</td>
<td>65%</td>
</tr>
<tr>
<td>Oral exam</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Previous activities (including any indication of continuous assessment)</td>
<td>100%</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Percentage points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>
4.11.7.14 Automation of Marine Engine Systems

**NAME OF THE COURSE** | AUTOMATION OF MARINE ENGINE SYSTEMS
--- | ---
Code | VPE112
Year of study | 4 th
Course teacher | Danko Kezić, Ph.D.
Credits (ECTS) | 4
Associate teachers | Petar Matić, Ph.D., Tomislav Peša, M.Eng.
Type of instruction (number of hours in a semester) | L | S | E | F
| 45 | 0 | 30 | 0
Status of the course | Mandatory for Naval Marine Engineering
Percentage of application of e-learning | 

**COURSE DESCRIPTION**

Course objectives

Acquisition of knowledge necessary for understanding the principle of the automatic control systems operations for ship's engines and machinery. Familiarisation with the operation principle of the controller and the principles of setting automation systems.

Course enrolment requirements and entry competencies required for the course

Marine electrotechnics I and II
Mathematics I and II

Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Identify basic components in the automatic control loops.
2. Present basic principles of operation of sensors and actuators in marine engine plant.
3. Draw and distinguish open-loop control systems, systems with disturbance compensation and closed-loop systems.
4. Compare the systems of the first, second and higher orders.
5. Distinguish the characteristics of P, PI and PID controllers.
6. Identify parameters affecting the stability of automatic control systems.
7. Explain the ways of setting the sensors and gauges.
8. Distinguish basic techniques of the controller turning.

Course content broken down in detail by weekly class schedule (syllabus)

Lectures:


7. Stability of the closed-loop automation system. Methods of determining the stability (Bode plot, Niquit method).


13. Centralised, distributed and integrated automation. Example of an integrated automation of the steam generating plant and engine cooling and lubricating systems.

14. Ship automation systems of fuel supply, air-conditioning, electric power.


Exercises:
1. Defining a mathematical model for simple mechanical translation systems.

2. Defining a mathematical model for simple mechanical rotation systems.

3. Defining a mathematical model for simple electric systems.

4. Defining a mathematical model for simple electro-mechanical systems.

5. Designing a simulation model for the electro-mechanical system by using Matlab software.


7. Defining the transfer function of the open and closed system of automatic control.

8. Defining a mathematical model for a complex system by using the rules of block diagram algebra.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Designing a simulation model for a complex system defined by the block diagram and transfer function.</td>
</tr>
<tr>
<td>10.</td>
<td>Time response of the automatic control system – analysis of the transition and steady state.</td>
</tr>
<tr>
<td>11.</td>
<td>Identification of the system through the system’s time response.</td>
</tr>
<tr>
<td>14.</td>
<td>Designing and tuning of the controller by manual adjusting of the model simulated in Matlab.</td>
</tr>
<tr>
<td>15.</td>
<td>Designing and tuning of the controller by Ziegler-Nichols method of the open and closed loop.</td>
</tr>
</tbody>
</table>

**Format of instruction:**

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars and workshops</th>
<th>Exercises</th>
<th>On line in entirety</th>
<th>Partial e-learning</th>
<th>Field work</th>
<th>Individual assignments</th>
<th>Multimedia</th>
<th>Lab exercises</th>
<th>Mentoring</th>
<th>Other</th>
</tr>
</thead>
</table>

Lectures are obligatory for students because records of attendance are kept. To obtain a signature, students must attend a minimum of 80% of the lectures, of which 95% of the lecture hours must be from the material defined by the STCW Convention. In case of insufficient number of attendances, students do not have the right to sign and are required to re-enroll in the course again next year. Students have the opportunity to pass the oral exam by continuous evaluation during the semester by taking a mid term test. Students who do not pass the mid term, but have a signature, are required to take a written and oral exam within the exam period. Students who pass all mid term test are required to register for the exam via studomat for the first exam period after the lecture and in the exam period to come to the registration of grades or answer for a higher grade.

**Student responsibilities**

**Screening student work**

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1.125</th>
<th>Research</th>
<th></th>
<th>Practical training</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td>(Other)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Other)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tests (midterms)</td>
<td>2,875</td>
<td>Oral exam</td>
<td>(Other)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessment and evaluation of full-time students’ work**

Two midterm tests are held during the semester. The first midterm test comprises Lectures 1-7 and the corresponding auditory exercises, and is held in the 7th week of the semester. The second comprises Lectures 8-15 and the corresponding auditory exercises, and is held in the 15th week. Sample tests are available on the faculty’s web-site. A student has to achieve at least 50% of points to pass a midterm exam. If a student has missed / failed one of the midterm tests, he/she can re-take that test in the 15th week of the semester. The final grade is defined on the basis of student attendance and midterm test results. Students who have obtained the teacher’s signature but have failed or missed the midterm tests have to register for the final written exam in the examination period. The same grading criteria apply for the continuous assessment of student achievements and for the final examination.

**Continuous evaluation of students’ performance**
### Elements of evaluation

<table>
<thead>
<tr>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance 80 (95%)</td>
<td>30</td>
</tr>
<tr>
<td>1st midterm tests 50</td>
<td>35</td>
</tr>
<tr>
<td>2nd midterm tests 50</td>
<td>40.625</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 - 64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65 - 79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>78 - 89</td>
<td>Above average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90 - 100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. C Dorf, R. H. Bishop: Modern Control Systems, Prentice Hall, 2011.</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)


### Quality assurance methods that ensure the acquisition of exit competences

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

### Other (as the proposer wishes to add)

4.11.8 4th Year, VIII Semester

4.11.8.1 Electronic Warfare

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ELECTRONIC WARFARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN125</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Zoran Blažević, D.Sc.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Boško Jerončić Grba, M.Eng.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Course objectives</td>
<td>2</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>--</td>
</tr>
<tr>
<td>• Describing and increasing the knowledge about electronic warfare (EW) in the</td>
<td>20</td>
</tr>
<tr>
<td>maritime surrounding, radio detection principles, attack and defense in radar-</td>
<td></td>
</tr>
<tr>
<td>IC spectrum.</td>
<td></td>
</tr>
<tr>
<td>• Considering and investigating the principles of jamming systems, selection-</td>
<td></td>
</tr>
<tr>
<td>sorting the signal, and the good and bad sides of jamming systems.</td>
<td></td>
</tr>
<tr>
<td>• Explaining the possibilities and limitations of scouting, detection, jamming and</td>
<td></td>
</tr>
<tr>
<td>deception, especially systems of autonomously-guided anti-ship missiles from</td>
<td></td>
</tr>
<tr>
<td>the aspect of EW on the sea, and principles of EW systems coordination with</td>
<td></td>
</tr>
<tr>
<td>armed systems on board.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Students will be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analyze, summarize and explain EW according to NATO division.</td>
</tr>
<tr>
<td>2. Analyze, summarize and explain the place and role of EW in NATO through CEC</td>
</tr>
<tr>
<td>US NAVY and maritime field situation</td>
</tr>
<tr>
<td>3. Efficiently use RESM, detection subsystems (devices), depending on tactical</td>
</tr>
<tr>
<td>situation in lithographic surrounding.</td>
</tr>
<tr>
<td>4. Efficiently use dipoles- chaffs and IC- active radar decoys depending on tactical</td>
</tr>
<tr>
<td>sea situation.</td>
</tr>
<tr>
<td>5. Analyze, summarize and explain features, use and effects of EPM (EA)</td>
</tr>
<tr>
<td>subsystems through basic signal jamming techniques of surveillance and targeting</td>
</tr>
<tr>
<td>radars.</td>
</tr>
<tr>
<td>6. Develop efficiency and independence in command-decision making process while</td>
</tr>
<tr>
<td>using EW system (device) on board.</td>
</tr>
<tr>
<td>7. Actively and independently contribute to the process of command-decision</td>
</tr>
<tr>
<td>making in the case of need for coordinated use of EW systems (devices) and</td>
</tr>
<tr>
<td>maritime armed systems on board.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>C4I on sea, 8 hours</strong> (Concept and role of C4I; components of maritime C4I; four-</td>
</tr>
<tr>
<td>layer KIS network; CEC - Cooperative Engagement Capability; PEOC4I- DDS „Middlew</td>
</tr>
<tr>
<td>er“; concept, design and distribution of maritime field situation – CVTMIS; ship's C4Ielements; C4I Aegis i ACDS; L - 11,16, 22; C2 - C4 SUV on Croatian Navy ships).</td>
</tr>
<tr>
<td>2. <strong>Electronic scouting (EI- elektroničkoizviđanje) at sea, 13 hours</strong> (concept,</td>
</tr>
<tr>
<td>features and division of EW on sea; evolution of EW on sea; basic features of EI</td>
</tr>
<tr>
<td>– SIGINT; radar detector types; signal parameters- signal detection, selection and</td>
</tr>
<tr>
<td>sorting; extraction of receiver features from detected signal; the impact of</td>
</tr>
<tr>
<td>lithographic surrounding on EI; problems of radar detecting and identification;</td>
</tr>
<tr>
<td>tendency of ship detector development).</td>
</tr>
<tr>
<td>3. <strong>Electronic jamming (EPM (EA) elektroničkoometanje) on sea, 10 hours</strong> (evolution of modern EPMs; basic features of EPM systems; jamming techniques of surveillance-targeting radars; the use of ship’s jammers; positive and negative effects; tendencies of jammers’ development; an example of protection of EO surveillance Croatian Navy systems GEM and Enhanced Peregrine).</td>
</tr>
<tr>
<td>4. **EMZ (ED)system of surveillance, targeting and connection- active radar and</td>
</tr>
<tr>
<td>IC maritime decoys, 14 hours** (EMZ – immunity on EI and EO; passive dipole</td>
</tr>
<tr>
<td>shielding).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status of the course</th>
<th>Mandatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of application of e-learning</td>
<td>20</td>
</tr>
</tbody>
</table>

279
– chaff; IC decoys; radar active decoys; “soft” ship’s defense from anti-ship projectile; coordination of EW with armed systems on board.

**Exercises:**

5. SIGINT (COMINT – ELINT), maritime forces, maritime air forces, **8 hours** (demonstration of basic radio detection techniques).

6. “Farol-Argo Systems”, “Philax” system, **9LV, 4 hours** (basic parameters with demonstration of operation).

7. SEVID, RMNetwork, **3 hours** (presentation with demonstration of operation).

**Format of instruction:**

- lectures
- seminars and workshops
- exercises
- on line in entirety
- field work
- individual assignments
- multimedia
- lab exercises
- mentoring

**Student responsibilities**

Class attendance is obligatory for lectures and exercises and the records are kept. In order to take the exam and earn ECTS credits, full-time students are required to achieve at least 95% of lecture attendance and 100% of exercise attendance. Absentee notes are not accepted as justification or replacement for class attendance. If students have not attended classes due to illness or any other justified reason and have missed 20% of class attendance, they are given the opportunity to compensate for the missing classes in a form of additional tasks or consultations. All other students, i.e. the ones who have less than 50% of class attendance are not entitled to take the exam and shall enrol in the course again 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)**

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>1,1</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td>Report</td>
<td>Homework assignments</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Tests</td>
<td>2,9</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

Two tests are administered.
If a student does not pass both tests (min 50% test score), then he/she takes the oral exam.
If a student has passed all tests, he/she gets the average grade.
In order to take the exam and to obtain the course teacher’s signature, it is necessary to have 95% of lecture attendance and 100% of exercises.

**Continuous evaluation of students' performance**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and exercises involvement</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>I TEST</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>II TEST</td>
<td>50</td>
<td>35</td>
</tr>
</tbody>
</table>

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### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>Exam (oral)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactical Electronic Warfare, Craig Benson, Michael Frater, Michael Ryan, Argos Press, January 1, 2007.</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)


Quality assurance methods that ensure the acquisition of exit competences

Student feedback via questionnaires and surveys, student attendance list, faculty classes supervision

Other (as the proposer wishes to add)

### 4.11.8.2 Basic Naval Principles and Practices

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>BASIC PRINCIPLES AND PRACTICES OF NAVY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN126</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th year</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Dario Matika, Ph.D</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Renato Žarković</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 40 S 0 E 15 F 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

1. Acquire knowledge of the execution of naval forces basic missions, including survey of Croatian Navy missions as regards protection of the interests of the Republic of Croatia and execution of military operations other than war,
2. Acquire knowledge of types of warships and their purpose and classification,
3. Master basic forms and contents of navies’ combat operations,
4. Acquire basic knowledge of navy ships tactical procedures,
5. Acquire basic knowledge of planning Croatian Navy missions using nautical charts,
6. Acquire knowledge of declared Croatian Navy capability targets.

**Course enrolment requirements and entry competences required for the course**

**Learning outcomes expected at the level of the course (4 to 10 learning outcomes)**

1. Defining and interpreting traditional naval forces capabilities in joint warfare,
2. Applying knowledge of navy ship classifications and their capabilities,
3. Defining and interpreting basic tactical principles in maritime forces planning procedures,
4. Defining, interpreting and analyzing different roles of maritime forces,
5. Applying knowledge and skills of planning Croatian Navy missions using nautical charts,
6. Define, analyze and interpret Croatian Navy Capability targets.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**
1. Introduction to the Course of Basic principles and practices of navy (2)
2. Navy role and tasks (4)
3. Hierarchy of world navies. (2)
4. Types of naval ships and their purpose and classification. (2)
5. Basic warfare roles of maritime forces. (4)
6. Naval ships protection and survivability. (4)
7. Maritime manoeuvring and tactical procedures (6)
8. Visualizing the Croatian Navy planning process using nautical charts. (4)
9. Naval missions other than war. (6)
10. Croatian Navy capability targets (6)

**Exercises:**
### Procedures of executing particular maritime tasks on board Croatian Flotilla ships.

1. Procedures of executing particular maritime tasks on board Croatian Coast Guard ships. (6)

2. Procedures of executing particular maritime tasks on board Croatian Coast Guard ships. (6)

3. Croatian Navy Headquarters organization and tasks, Croatian Navy Operations Centre organization and tasks. (2)

### Format of instructions

<table>
<thead>
<tr>
<th>format</th>
<th>lectures</th>
<th>seminars and workshops</th>
<th>exercises</th>
<th>on line in entirety</th>
<th>partial e-learning</th>
<th>field work</th>
<th>independent assignments</th>
<th>multimedia</th>
<th>laboratory</th>
<th>work with mentor</th>
<th>(other)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Student responsibilities

Lecture attendance is mandatory (there is a record of attendance), and it is 80% of lectures in order to get the right of signature. If the attendance requirement is not met, student is obliged to sign in for the class in the next academic year.

There will be two (2) mid-term written exams. For the passing grade, it is needed minimum of 50% of points on each mid-term exam. Students who didn’t pass the first mid-term are not permitted to take the second mid-term exam. Students that have a signature, but didn’t pass mid-terms, are obligated to take a final written exam. Students that have enough points to pass the course have to sign up for the exam during the first term in order to get their grade signed in, or to have an oral exam if they want a higher grade.

### Screening student work

(enter 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical work</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1</td>
<td>Experiment al work</td>
<td>Report</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar essay</td>
<td>e-learning</td>
</tr>
<tr>
<td>Tests</td>
<td>2,9</td>
<td>Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td></td>
</tr>
</tbody>
</table>

### Continuous evaluation of students' performance

Lectures are obligatory for students (records of attendance are kept). To get a signature, students must attend a minimum of 80% of the lectures. In case of insufficient attendance at classes, students are not entitled to sign and are required to re-enroll the course again the following year. Students have the opportunity to pass the exam by continuous evaluation during the semester by taking a total of 2 written mid term test. At each mid term test, it is necessary to achieve a minimum of 50% of points for passing. Students who do not pass the 1st mid term test cannot access the writing of the 2nd colloquium. Students who do not pass the mid term test during the semester, and have a signature, are required to take a written exam. Students who have collected a sufficient number of points during the course, are required to register for the exam for the first exam period after the lecture and in the term of the exam to come to the registration of grades or answer for a higher grade.
<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>1st Mid-term exam</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>2nd Mid-term exam</td>
<td>50</td>
<td>45</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam (written and/or oral)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Other activities (including all factors of continuous evaluation)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criteria</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>does not fulfil minimal criteria</td>
<td>fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>fulfils minimal criteria</td>
<td>satisfactory (2)</td>
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<tr>
<td>65-79</td>
<td>Average achievement with noticeable deficiencies</td>
<td>good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with a few deficiencies</td>
<td>very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>excellent (5)</td>
</tr>
</tbody>
</table>

Students who do not pass the mid term test during the semester, and have a signature, are required to take a written exam within the exam period. The same assessment criteria apply to the examination period as to the continuous assessment of knowledge.

<table>
<thead>
<tr>
<th>Required literature (available in the library and via other media)</th>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied joint doctrine for conduct operations, AJP-3, 2011.</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Allied joint maritime operations, AJP-3.1, 2004.</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>NATO Joint military symbology, APP -6 (C), 2011.</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Allied Maritime Interdiction Operations, ATP 71(D)</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional literature (at the time of submission of study programme proposal)</th>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competencies</td>
<td>Evidence of students’ attendance, evidence of lecturers’ attendance, student questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4.11.8.3 Safety Management and Risk in Shipping

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SAFETY MANAGEMENT AND RISK IN SHIPPING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN127</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Goran Belamarić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Course objectives</td>
<td>The aim of the course is to introduce students to international rules, regulations, and standards recommendations relating to safe handling, stowage, lashing and transport of cargo, characteristics of cargo in maritime transport.</td>
</tr>
<tr>
<td>Course enrolment requirements and entry competencies required for the course</td>
<td>Safety at Sea</td>
</tr>
</tbody>
</table>
| Learning outcomes expected at the level of the course (4-10 learning outcomes) | 1. Explain and interpret the principles of cargo planning and requirements in transportation of various types of dry, liquid, hazardous, and other types of cargo.  
2. Plan the loading / discharging, stowing, lashing various types of cargo.  
3. Recognize the dangers with specific types of cargo (dry bulk, containers, liquid, etc.).  
4. Confirm safeguards for cargo transportation by sea, particularly hazardous cargo, and procedures in case of leakage, capsizing, falling, failure, etc.  
5. Knowledge and use of computer programs applicable to planning and transport of various types of cargo. |
| Course content broken down in detail by weekly class schedule (syllabus) | Lecturers:  
1. International Safety Management - ISM  
2. Ship Management System -SMS  
4. Best Management Practices for Protection against Piracy (BMP4)  
5. Risk Assessment  
6. Risk Management  
7. Introduction to the rules of the Register (Classification Society), the ship class code, Class documents, harmonized system of survey and certification HSSC.  
8. Types of inspection, preparations for the conduct of the examination, inspection ESP program for ships, Sea trial.  
10. Inspection of firefighting equipment and life-saving equipment  
11. Inspection of equipment for prevention of pollution by oil, sewage water waste, exhaust gases.  
12. The role of the ship master in carrying out, organizing, preparation and inspection of equipment and ship systems.  
13. The role of the ship master in carrying out, organizing, preparation and inspection of equipment and ship systems.  
14. The role of chief engineer in the preparation and inspection of ship’s equipment and systems |
15. Inspection in accordance with the requirements of Port State Control, Flag State Control and Vetting Inspection, USCG Port State Control.

**Exercises:**
1. Preparation of documents for a review of the ship and risk assessment.
2. Review and control ship - safety protection during the ship's stay in port and at anchor, practical exercises on board.
3. The checks and controls of the ship - Overview of the machine and the machine equipment, practical exercises on board.
4. Review and control of the ship - Review of firefighting equipment, practical exercises on board.
5. Review and control ship - Review of firefighting equipment, practical exercises on board.
6. Views and control ship - Review of firefighting equipment, practical exercises on board.
7. Risk assessment and implementation of the internal control of the company (Internal Audits) and external control (External Audits).

**Format of instruction:**

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminars and workshops</td>
<td>Lab exercises</td>
</tr>
<tr>
<td>Exercises</td>
<td>Mentoring</td>
</tr>
<tr>
<td>On line in entirety</td>
<td>Simulator practice</td>
</tr>
<tr>
<td>Partial e-learning</td>
<td></td>
</tr>
<tr>
<td>Field work</td>
<td></td>
</tr>
</tbody>
</table>

**Student responsibilities**

Lectures and exercises (practical training) are compulsory for students and records of class attendance shall be kept. To get the signature students must attend the compulsory minimum 80% of instructions (lectures and exercises) and 100% (95%) on the set, which includes the training. In case of insufficient class attendance students shall neither be given a signature nor the right to take the exam. Absentee notes cannot justify or replace class attendance. Students who due to illness or other good reasons do not meet the requirements for signature and have more than 80% of attendance, will be able to rest up to 100% (95%)do in the additional terms, during semester and after, but not later than one month after the end of the classes. All other students, i.e. those who have achieved less than 80% of class attendance are not eligible for signature and shall enrol in the course again 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)**

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.125</td>
<td>Report</td>
<td>Homework assignments</td>
</tr>
<tr>
<td>Experimental work</td>
<td>Seminar essay</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Oral exam</td>
<td>1.0</td>
</tr>
<tr>
<td>Tests</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

**Assessment and evaluating student work in class and at the final exam**

After passing the written exam of practical training, students can take the oral exam. Students who have passed the midterm exams during lectures are exempt from taking the oral exam. Students who have not passed the midterm exams have to take the final exam.
that consists of two parts. The first part refers to the specified resolution of the problem of stability and load on the ship’s construction, equipment for cargo handling and securing of cargo, determining the amount of load draft of the ship. The second part refers to the theoretical part and work on the simulator for cargo handling. In order to apply for the final exam, students need to obtain the course teacher’s signature. Midterm exams shall be held exclusively during classes, and the final exam within the official examination period. If a student does not pass all midterm exams relating to practical training (but only some) and obtains the course teacher’s signature, may be credited with work on the simulator applications (as a whole), and given the other two tests with exercises. In this case, the final written exam comprises only the unit that a student has not passed, as well as the assessment of the operation on simulator applications (first or second unit). Midterm exams I and II relating to practical training can be substituted by appropriate individual assignments only during the semester. It does not apply to work on the simulator for cargo handling. Individual units are considered as passed only in the course of the current academic year, i.e. until the end of scheduled examination periods. If students re-enrol in the course next academic year these units shall not be accepted as passed. This rule may be exempt if a student has passed the written exam of practical training in entirety, than he/she may be given the opportunity to take the oral exam within one year. Allocated time for practical training written exam is 3 class periods. Allocated time for midterm exam of exercises is 2 class periods. Allocated time for theoretical midterm exam is 2 class periods.

**Continuous evaluation of students’ performance**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures and participation in training</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Continuous assessment of laboratory practice</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Continuous lectures verification</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>Continuous assignment of term papers</td>
<td>75</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation Elements</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Numerical tasks-written</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Demonstration work on simulator</td>
<td>90</td>
<td>25</td>
</tr>
<tr>
<td>Homework assignments</td>
<td>75</td>
<td>10</td>
</tr>
</tbody>
</table>
## Online CBT training and testing

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

---

## Grading scale:

### ***On-line CBT training and testing***

### ***Minimum for pass 75%***

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-74</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>75-84</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>85-89</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>90-94</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

---

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rules for technical supervision of ships - Croatian Register of Shipping (CRS), Split, 2012.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Law on Safety at Work RH (NN br. 59/96, 94/96 and 114/03 – consolidated text).</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>The International Ship and Port Facility Security Code (IMO’s 2012 edition)</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th></th>
</tr>
</thead>
</table>

### Quality assurance methods that ensure the acquisition of exit competences

- University survey, list of student attendance, Faculty teaching supervision.

### Other (as the proposer wishes to add)
## 4.11.8.4 Physical Education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO131</td>
</tr>
<tr>
<td>Year of study</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Credits</td>
<td>0</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L 0 S 0 E 30 F 0</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

**Course objectives**
The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one’s health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.

**Course enrolment requirements and entry competencies required for the course**

**Learning outcomes expected at the level of the course**

- Demonstrate several basic and specific exercises for a certain kinesiological activity.
- Demonstrate the proper performance of new elements of a certain kinesiological activity.
- Perform stretching exercises for a certain kinesiological activity.
- Repeat the given new elements of a certain kinesiological activity in series.
- Demonstrate strength and flexibility exercises in order to prevent ostomuscular disorders.
- Integrate motor knowledge and skills for solo workout or a competition.

**Course content broken down in detail by weekly class schedule (syllabus)**

- Regular testing of physical abilities
- The development of functional abilities
- The development of motor abilities
- Fitness programs
- Swimming
- Naval pentathlon (naval obstacles, navy skills training area)
- Navy skills training (rowing, sailing)

**Format of instruction:**

- Lectures
- Seminars
- Exercises
- On-line in entirety
- Field work
- Individual assignments
- Multimedia
- Lab exercises
- Mentoring

**Student responsibilities**

Students are required to participate in exercises. Records of student attendance are also kept.
### 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

**Assessment and evaluation of full-time students' work**

During the academic year, students are required to take two regular physical fitness tests to meet the established norms.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)


### Quality assurance methods that ensure the acquisition of exit competencies

- University survey and teaching supervision.

### Other (as the proposer wishes to add)
**ON-BOARD TRAINING IV**

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>ON-BOARD TRAINING IV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td>VPN128</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td>4th year</td>
</tr>
</tbody>
</table>
| **Course teacher** | Jakša Mišković, M.Eng.  
Tino Sumić, M.Eng. |
| **Credits (ECTS)** | 2 |
| **Associate teachers** | |
| **Type of instruction (number of hours in a semester)** | L | S | E | F |
| | 0 | 0 | 0 | 30 |
| **Status of the course** | Mandatory for Nautical engineering module |
| **Percentage of e-learning application** | |

**COURSE DESCRIPTION**

**Course objectives**
The main objective of this course for students is to acquire practical knowledge and skills of ship handling in all conditions and gain experience of living and working on board a ship.

**Course enrolment requirements and entry competences required for the course**

**Learning outcomes expected at the level of the course (4 to 10 learning outcomes)**
1. Defining and interpreting factors that influence the passage planning.
2. Knowing factors relevant to the planning of ocean, coastal and port part of the voyage, making a passage plan.
3. Planning and implementing navigation by routing systems in Traffic Separation Zones, areas of shallow waters and near-shore, areas of heavy traffic, on high seas, in war zones, etc.
5. Describing and explaining basic concepts of maritime risks, assessing and analysing the risk and participating in risk management.
6. Familiarization with the role of a ship master and/or chief engineer in the conduct, organization, preparation and inspection of the ship.
7. Constant updating of ship’s certificates and other ship’s documents related to safety, inspection and survey of the environment.
8. Conducting survey of ship at sea trials and knowing the basics of hull and equipment inspection, steering gear, cargo handling gear, machinery, manifold, pumps, tanks (closed spaces).
9. Preparing the ship for inspection in accordance with the requirements of the Port State Control, Flag State Control and Vetting Inspection.
10. Knowledge and implementation of safety measures.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Exercises:**
1. Bridge watch keeping procedures at sea, at anchor and in port.
2. Applying International and national rules and regulations on the safety of navigation.
4. Planning a passage using ECDIS systems.
5. Determining the ship's position using astronomical navigation.
6. Planning a passage in areas of heavy traffic and in situations of reduced visibility.
7. Preparing ship for berthing/anchoring.
8. Preparing the ship for inspection and risk assessment in accordance with the requirements of the Port State Control, Flag State Control and Vetting Inspection.

9. Gradual inspection of systems / parts of the ship, role of a ship master and chief engineer in carrying out, organizing, preparation and inspection of equipment and ship systems, keeping and updating the ship's documents.

10. Solving Tactical navigation problems applying Electronic navigation instruments and devices.

<table>
<thead>
<tr>
<th>Format of instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ lectures</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
</tr>
<tr>
<td>☐ exercises</td>
</tr>
<tr>
<td>☑ on line in entirety</td>
</tr>
<tr>
<td>☐ partial e-learning</td>
</tr>
<tr>
<td>☑ field work</td>
</tr>
<tr>
<td>☐ independent assignments</td>
</tr>
<tr>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ laboratory</td>
</tr>
<tr>
<td>☐ work with mentor</td>
</tr>
<tr>
<td>☐ (other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory 100% attendance, log keeping. Students who do not achieve 100% attendance, ie. miss boarding the school ship are required to re-enroll in the course next year. The schedule and program of the practice are realized during boarding on a school or some other appropriate ship, within a 24-hour stay on the ship for a minimum of 5 days.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screening student work (enter 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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Research</td>
</tr>
<tr>
<td>Practical training</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Report</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Tests</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grading and evaluating student work in class and at the final exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>The exam is not taken. In order to obtain a signature, it is necessary to complete 100% of the planned voyage on the school ship, actively participate in the exercises, fill in the appropriate log and complete other set tasks. Students who have completed maritime high school and have more than 6 months of navigation as deck or engine trainees (or officers) in the last five years will be recognized as navigational practices. Evidence is obtained by inspecting the seaman's book, and by reviewing the authorization of the officer of the navigational watch or by reviewing the log kept by the cadet.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Continuous evaluation of the students' performance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluation</td>
</tr>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Demonstration of skills and knowledge</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required literature (available in the library and via other media)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
</tr>
<tr>
<td>Bowditch, N.: The American Practical Navigator, National Imagery And Mapping Agency, Maryland, 2002.</td>
</tr>
<tr>
<td>MARISEC: Bridge Procedures Guide, 1998</td>
</tr>
<tr>
<td>Nautical Tables, Nautical Almanach</td>
</tr>
<tr>
<td>Rules for technical supervision of ships-Croatian Register of Shipping (CRS), Split, 2012.</td>
</tr>
</tbody>
</table>
The International Ship and Port Facility Security Code (IMO's 2012 edition) | Yes
--- | ---
Quality assurance methods that ensure the acquisition of exit competences | Evidence of students attendance, evidence of professors attendance, students questionnaire
Other (as the proposer wishes to add) | 

4.11.8.6 Naval Combat Systems II

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>NAVAL COMBAT SYSTEMS II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO132</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Dario Matika, Ph.D.</td>
</tr>
</tbody>
</table>
| Associate teachers | Jakša Mišković, M.Eng.  
                               Darija Jurko, M.Eng. |
| Status of the course | Mandatory for Nautical Studies programme |
| Year of study | 4th |
| Credits (ECTS) | 4 |
| Type of instruction (number of hours in a semester) | L | S | Ex | FW |
| 45 | 0 | 15 | 0 |
| Percentage of application of e-learning | 20% |

**COURSE DESCRIPTION**

Course objectives

- Adopt basic and specialist knowledge and skills on weapons used in Mine Warfare (MW) including mine countermeasures (MCM), as well as Anti-Submarine Warfare (ASW), which are necessary for the successful performance of initial officer duties on board the Croatian Navy ships.
- Master the basic knowledge on tactics and efficiency of the use of Mine Warfare weapons and Anti-Submarine Warfare Weapons in the Croatian Navy.
- Train students for independent planning and performing various tactical tasks in the Croatian Navy.
<table>
<thead>
<tr>
<th>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</th>
<th>Lectures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understand basic principles of naval mine and mine-countermeasure systems.</td>
<td></td>
</tr>
<tr>
<td>2. Understand basic principles of MCM tactics</td>
<td></td>
</tr>
<tr>
<td>3. Identify different types of naval mines in the Croatian Navy and their tactical use.</td>
<td></td>
</tr>
<tr>
<td>4. Understand basic principles of anti-submarine weapons systems.</td>
<td></td>
</tr>
<tr>
<td>5. Understand basic principles of tactical use of submarine.</td>
<td></td>
</tr>
<tr>
<td>Lectures:</td>
<td></td>
</tr>
<tr>
<td>1. Naval mine systems (historical review, and roles of mines in maritime operations; the purpose of sea mines; classification of sea mines).</td>
<td></td>
</tr>
<tr>
<td>2. Moored contact mines (basic parts and principles of SAG-2 mine, SAG-1 mine and SAGA-M74 mine).</td>
<td></td>
</tr>
<tr>
<td>3. Moored influence mines (basic parts and principles of SAM-M80 mine and MNS-M90 mine).</td>
<td></td>
</tr>
<tr>
<td>4. Bottom mines (basic parts and principles of AIM–M70 mine; procedures of laying the bottom mine).</td>
<td></td>
</tr>
<tr>
<td>5. Mine warfare (basic principles of mine warfare, active and passive MCM)</td>
<td></td>
</tr>
<tr>
<td>6. Contact sweep (basic principles of wire dragged sweepers, towing gear, sweeper types, and sweeper tables).</td>
<td></td>
</tr>
<tr>
<td>7. Acoustic sweep (classification of acoustic sweeper, working frequency spectre, producing of sound).</td>
<td></td>
</tr>
<tr>
<td>8. Magnetic sweep (power supply for electro-magnetic sweepers, cables, construction, basic parts and principles of PEML-1 and PEML-2 sweeper).</td>
<td></td>
</tr>
<tr>
<td>9. MW platforms (basic principles and tactics of minelayers, procedures for mine laying, basic principles and tactics of submarines during mine laying, basic principles and tactics of other platforms capable of laying mines).</td>
<td></td>
</tr>
<tr>
<td>10. Efficiency of naval mine (availability, reliability and functionality of naval mines, statistical probability of destroying mine's target).</td>
<td></td>
</tr>
<tr>
<td>11. The basics of mine barrage (basic principles of naval mine barrage, offensive and defensive mine barrage, basic and additional mine barrage, naval mine fields, basic elements of naval mine barrage).</td>
<td></td>
</tr>
<tr>
<td>12. Naval MCM systems (MCM activities, means and forces for MCM, MCM planning other MCM participants).</td>
<td></td>
</tr>
<tr>
<td>13. Minesweepers (basic principles and tactics of minesweeper in MCM, minesweeper manoeuvres and turns).</td>
<td></td>
</tr>
<tr>
<td>14. Minehunters (minehunter's mission and the use, requirements for tactical use, systems for underwater search and it’s tactical use).</td>
<td></td>
</tr>
<tr>
<td>15. Submarines (historical review, submarines in maritime operations, submarines of modern Navies, classification and basic characteristic of submarines: secrecy of operation, speed, diving, autonomy, strategic power).</td>
<td></td>
</tr>
<tr>
<td>16. Submarine weapons - missiles and torpedoes (basic principles and tactics of submarine’s strategic, tactical and anti-air weapons, basic principles and tactics of anti-ship and anti-submarine torpedoes).</td>
<td></td>
</tr>
<tr>
<td>17. Submarine operations (principles of submarine operations, submarine organization and employment, mine laying, ISR operations, special ops).</td>
<td></td>
</tr>
<tr>
<td>18. Anti-submarine weapons and platforms (historical review and classification of anti-submarine weapons, basic principles and tactics, modern anti-submarine systems; anti-submarine weapons in the Croatian Navy).</td>
<td></td>
</tr>
<tr>
<td>19. Anti-submarine weapons (basic principles and tactics, basic parts, and preparation prior to the use).</td>
<td></td>
</tr>
</tbody>
</table>
20. Torpedoes (basic principles and tactics, classification, anti-submarine torpedo).

**Exercises:**

1. Tactical task (mine barrage scheme, time tables, tables of mine barrier).
2. Tactical task (basic elements of tactical task, mine zones calculation, zone wideness, time calculation, minesweeper schemes, and turning during minesweeping activity).

<table>
<thead>
<tr>
<th>Format of instruction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>lectures</td>
<td>☑</td>
</tr>
<tr>
<td>seminars and workshops</td>
<td>☐</td>
</tr>
<tr>
<td>exercises</td>
<td>☑</td>
</tr>
<tr>
<td>on line in entirety</td>
<td>☐</td>
</tr>
<tr>
<td>partial e-learning</td>
<td>☐</td>
</tr>
<tr>
<td>field work</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance is mandatory (there is a record of attendance kept), and it is 80% of lectures in order to obtain the course teacher’s signature. If the attendance requirement is not met, students have to re-enrol in the course in the following academic year. There will be a midterm and end of term written exam. For a passing grade, students have to achieve at least 50% of points on each exam. Students who have not passed the midterm exam are not allowed to take the end of term exam. Students that have obtained the signature, but have not passed midterm/end of term exam, are obligated to take the final written exam. Students that have enough points to pass the course have to apply for the exam during the first term in order to get their grade signed in, or to have an oral exam if they want a better grade.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>1,1</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
</tr>
<tr>
<td>Experimental work</td>
<td>Report</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar essay</td>
</tr>
<tr>
<td>Tests</td>
<td>2,9</td>
</tr>
<tr>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grading and evaluating student work in class and at the final exam</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance is mandatory (there is a record of attendance), and it is 80% of lectures in order to get the right of signature. If the attendance requirement is not met, students shall enrol in the course in the following academic year. There will be a midterm and end of term written exams. For a passing grade, students have to achieve at least 50% of points on each. Students who have not passed the midterm exam are not allowed to take the end of term exam. Students that have obtained the course teacher’s signature, but have not passed midterm/end of term exam are obligated to take the final written exam. Students that have achieved enough points to pass the course have to apply for the exam in the first term in order to get their grade signed in, or to have an oral exam if they want a better grade.</td>
<td></td>
</tr>
</tbody>
</table>

Continuous evaluating of students’ performance
<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>45</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam (written and/or oral)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Other activities (including all factors of continuous evaluation)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>does not fulfil minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>fulfils minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable deficiencies</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with a few deficiencies</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

Same grading criteria are valid for written final exam as for continuous midterm exams.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANAG 1242 – Naval Mine Warfare Principles – ATP-6(C) Volume I</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>STANAG 1152 – Allied Anti-submarine Warfare Manual – ATP-28(B)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Morison, S., „Guide to naval mine warfare“, 1995.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Howard S. Levie, „Mine Warfare at Sea“, 1992.</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>
Optional literature (at the time of submission of study programme proposal)

| Cowie, J. S.: “Mines, minelayers and minelaying”, 1951. | YES |

Quality assurance methods that ensure the acquisition of exit competences

Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire, Faculty class supervision.

Other (as the proposer wishes to add)

4.11.8.7 Tactical Navigation

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>TACTICAL NAVIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN129</td>
</tr>
<tr>
<td>Year of study</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Zvonimir Lušić, Ph.D</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td>Percentage of e-learning application</td>
<td>10%</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives

Qualification training for Navigation Officers on board the Croatian Navy ships and for qualification to stand watch as Officer of the Deck (OOD) and Combat Information Centre Watch Officer (CICWO), for navigation in all weather conditions, graphical/practical solving of problems related to manoeuvring of ships for the battle tasks, and targeted use of electronic navigation devices. Understanding that the optimal use of weapons depends on a quick and accurate solving of manoeuvring tasks.

Terrestrial Navigation

Electronic navigation devices (or certificate of competence “to act in the capacity of a radar observer and to exercise radar plotting using an ARPA device on a working level.”)

Learning outcomes expected at course level (4-10)

Determining navigational elements of the own ship in tactical navigation.

Determining manoeuvring elements of the own ship in tactical navigation.

Determining navigational elements of an unknown ship in tactical navigation.
### Learning Outcomes
- Determining manoeuvring elements of an unknown ship in tactical navigation.
- Numerical and graphical solving of tactical navigational tasks using manoeuvring boards.
- Use of electronic navigation devices in tactical navigation.
- Developing efficiency of individual and team work on the bridge of a warship.

### Course Content

#### Lectures and Exercises:
- Basic concepts in tactical navigation, basic units and their conversion.
- Absolute motion.
- Relative motion.
- True motion mode.
- Relative motion mode.
- Interception at a given speed.
- Interception at a minimum speed.
- Interception in a given course.
- Interception at a given time.
- Closest point of approach (CPA).
- CPA (closest point of approach) to a ship with higher speed.
- Passing at a maximum distance.
- Passing in front of the bow at a maximum distance.
- Change-of-Station with speed.
- Change-of-Station at the lowest speed.
- Changing-of-Station with time.
- Maintaining the position along with a change of course and speed of the command ship (manoeuvre begins simultaneously with turning of the command ship).
- Maintaining the position along with a change of course and speed of the command ship (manoeuvre starts earlier and ends at the moment of turning of the command ship).
- Determining the course and speed of another ship.
- Scouting the given position.
- Scouting the given position (with the shortest amount of time outside the formation).
- Scouting in a given time and bearing (return to the same position).
- Scouting in a given time and bearing (return to another position).
- Intercept circle (theoretical possibility – manoeuvre of one’s own ship starts at the same time when the other boat was spotted).
- Intercept circle (theoretical possibility – manoeuvre of one’s own ship starts after the other boat was spotted).
- Collision avoidance.
- Determining the true wind direction.
- Laying a smoke screen on a stationary object - without wind.
- Laying a smoke screen on a stationary object - with wind.
- Laying a smoke screen on a moving object - without wind.
- Laying a smoke screen on a moving object - with wind.
- Positioning on the target ship.

### Format of Instructions:
- Lectures
- Seminars and workshops
- Exercises
- On line entirely
- Mixed e-learning
- Individual tasks
- Multimedia
- Laboratory
- Mentoring
- Field lectures
Lecture and exercise attendance is mandatory and the records of attendance are kept. For obtaining the course teacher’s signature, students’ minimal attendance at lectures is 95% and at exercises 100%. In case of the insufficient attendance, students will not obtain a signature and will lose the right to take the final exam, and consequently shall enrol this course next year. A note of excuse cannot justify nor replace the class attendance.

Students who on account of illness or any other justified reasons do not comply with the conditions for obtaining the signature and whose attendance at lectures is 80% or more will be able to work off remaining classes to 100% (95%) in additional terms, during the semester and after, but not later than one month after its end.

After each exercise completed (tactical navigation and manoeuvring), students will get homework from covered lessons and for that purpose they will need to keep the log of completed homework exercises.

<table>
<thead>
<tr>
<th>Lecture attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance at lectures</td>
<td>Min 95%</td>
<td>Student present</td>
</tr>
<tr>
<td>Attending at exercise</td>
<td>100%</td>
<td>Student present</td>
</tr>
<tr>
<td>Keeping of the log of the exercises (on the tactical navigation manoeuvre diagram)</td>
<td>100%</td>
<td>Presenting logs for the purpose of obtaining signature</td>
</tr>
<tr>
<td>Homework</td>
<td>100%</td>
<td>Presenting homework for the purpose of obtaining signature</td>
</tr>
</tbody>
</table>

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)

| Lecture attendance | 1.75 | Research | Practical training | 0.5 |
|--------------------|------|----------|--------------------|
| Experimental work |  | Report | Homework | 0.5 |
| Essay |  | Seminar paper | (Other) |
| Midterm/End of term exam | 1 | Oral exam | (Other) |
| Written exam | 1.25 | Project | (Other) |

Assessment and evaluation of full-time students’ work

There will be a midterm and end of term exam – work on a tactical navigation manoeuvre diagram lasting for 1 to 2 class periods (there will be a time limit – one minute will be given for each requested information). Requirement for taking the Tactical Navigation midterm exam is a passing grade on homework exercises after each graphic solving of Tactical Navigation problems.

Students who pass the midterm and end of term exams and perform successfully all other required obligations will be released from taking the final written exam. Students who have not passed the midterm/end of term exams and have obtained the signature will take the final written exam.

The midterm/end of term exams will be conducted during the lectures, whereas the final exam will be conducted during the official examination period.

If students fail the midterm or end of term exam, and have been entitled to the signature, parts of these exams can be accepted as passed.

The students can take the end of term exam only if they have passed the midterm exam.
If students pass only the midterm exam, they shall not be released from taking the overall written exam of the exercises (practical training). In this case, at the final written exam they can solve tasks from the unit they have not passed. This applies only until the end of current academic year, i.e. until the end of scheduled examination periods. If students re-enrol in the course next academic year these units are not accepted as passed.

Time allocated for the final written exam is 3 school periods.
Time allocated for writing the midterm/end of term exams is 1 to 2 school periods.

Terms for Midterm/ End of term exams:
Midterm exam - during the 7th week of classes
End of term exam - during the 13th week of classes

**Continuous evaluation of students' performance**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance and activity level at exercises</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Elementary concepts and demonstration work on the tactical navigation manoeuvring board</td>
<td>95</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Final examination:**

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance</td>
<td>95</td>
<td>30</td>
</tr>
<tr>
<td>Written exam</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading scale:**

_The minimum for passing 50%_

<table>
<thead>
<tr>
<th>Points (min.%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail(1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
</tbody>
</table>
### Table: The minimum for passing 75%

<table>
<thead>
<tr>
<th>Points (min.%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-74</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>75-84</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>85-89</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>90-94</td>
<td>Above-average success with occasional mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95-100</td>
<td>Exceptional success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Regulations for Preventing Collisions at Sea 1972 (COLREGs), by the International Maritime Organization (IMO)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>&quot;Maneuvering Board Manual chapter 6&quot;, National Geospatial-Intelligence Agency</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Swiatek, Chris. &quot;Maneuvering Boards and You&quot;, boatswainsmate.net.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Maneuvering Board, United States Navy Department Hydrographic Office, 1941</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>&quot;Maneuvering Board chapter 11&quot;, globalsecurity.org</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Quality assurance methods that ensure the acquisition of exit competencies

- Evidence of students’ attendance
- Evidence of professor’s attendance
- Students survey
- Faculty class supervision

Other (as the proposer wishes to add)
4.11.8.8 Automation in Maritime Traffic

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>AUTOMATION IN MARITIME TRAFFIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPE115</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Joško Šoda, Ph.D.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivan Pavić, Ana Masnov, M.Eng.</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Nautical Studies</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Type of instruction</td>
<td></td>
</tr>
<tr>
<td>(number of hours in a semester)</td>
<td>L  S  E  F</td>
</tr>
<tr>
<td></td>
<td>30  0  15  0</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives

The main aims of the course are learning the basics of automatic control systems with applications in maritime systems. Students will learn the difference between continuous and discrete open-loop and closed-loop control systems and their application in maritime. They will be able to analyze control systems in time-domain and frequency-domain. They will also obtain a basic understanding of used sensors as part of a closed-loop control system.

Course enrolment requirements and entry competencies required for the course

Mathematics 2

Learning outcomes expected at the course level (4-10 learning outcomes)

1. Classification of control systems
2. Describe the model of control systems using mathematical modelling of physical systems
3. Estimate the stability of the control system
4. Draw Bode plot of control system
5. Time-domain analysis of first, second or higher-order linear time-invariant control system
6. Chose appropriate sampling frequency for discrete control systems

Lectures:

1. Introduction. Basic definitions. Types of control systems and application in maritime.


10. Control of the transient response. The steady-state error of open-loop control systems. The steady-state error of closed-loop control systems.


14. z-Transform and basic properties of z-Transform. Transfer function in discrete-time systems.

15. Examples: Automatic ships steering system and automatic stabilization control system.

**Exercises:**

1. Introduction to PLC
2. Hardware support to PLC
3. Software support to PLC (TIA Portal)
4. Software support to PLC (TIA Portal)
5. Basic PLC instruction (NO, NC, Counters, Output, SET, RESET)
6. Basic PLC instructions (TON, TOF, RTON, XScale, RS)
7. Basics of PLC diagrams (AND, OR, XOR, NAND, NOR)
8. Basics of PLC diagrams (Samples of switching processes)
9. Analog sensors and implementation in PLC
10. Analog sensors and implementation in PLC
11. HMI interface and display
12. SINAMICS (Introduction)
13. SINAMICS (Control of asynchronous motor)
14. Integration of PLC, HMI and SINAMICS devices in the system
15. Examples of the real marine systems

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>lectures</th>
<th>seminars and workshops</th>
<th>exercises</th>
<th>on line entirely</th>
<th>mixed e-learning</th>
<th>field lectures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multimedia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory exercises</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mentoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Student responsibilities**

Lectures and auditory exercises are mandatory for students because records of attendance are kept. To get a signature, students must attend a minimum of 80%
of lectures and tutorials. In case of insufficient number of attendance at classes, the signing is conditioned by the preparation of seminar assignments from those units in which the student did not attend lectures, and such seminar assignments are evaluated with: passed or failed. Writing seminar papers is allowed only in cases of up to three (3) absences. If a student has missed more than three (3) lectures, then he / she is not entitled to sign, and enrolls in the course again in the next academic year. Students can pass the exam in two ways: by continuous assessment during the semester through two colloquia or after the semester by taking the written and oral part of the exam. Students who do not pass the colloquia during the semester, and have a signature, are required to take a written exam within the exam period. Students individually or in a team must cover the given topics using e-learning material. Students who have collected a sufficient number of points during the class are required to register for the exam via the student exam for the first exam period after the lecture and in the exam period to come to the grade or answer for a higher grade.

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Midterm / End of term exams</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grading and evaluating student work in class and at the final exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment and evaluation of student work</td>
</tr>
<tr>
<td>Attendance is mandatory for full-time students, ie the condition for obtaining a signature is attendance at a minimum of 80% of lectures (12 times). 2 mid term tests are written in the semester. The first mid term tests, which includes from 1 to 4 lectures and from 1 to 4 lectures from classroom exercises, is written in the fifth week of classes, and the second mid term tests, which includes from 5 to 10 lectures, is written in the 14th week of classes. Examples of questions for the mid term tests are available to students at the end of each lecture. At each mid term tests, it is necessary to achieve a minimum of 45% of points for passing. Students who do not attend one mid term tests for objective reasons or do not achieve the minimum percentage have the possibility of correction. A correction will be organized for these students in weeks 6 and 15. Students who do not pass 1 mid term tests cannot write 2 mid term tests. Students must work individually or in a team on given topics using e-learning material. The final grade includes class attendance, colloquium results and individual / team assignments.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Continuous evaluation of students’ performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluation</td>
</tr>
<tr>
<td>Regular lecture attendance and activity level at exercises</td>
</tr>
<tr>
<td>Individual assignment</td>
</tr>
<tr>
<td>Midterm exam I</td>
</tr>
<tr>
<td>Midterm exam II</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular lecture attendance</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Written exam</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Oral exam</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (min.%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-45</td>
<td>Does not meet minimal criteria</td>
<td>Fail(1)</td>
</tr>
<tr>
<td>45-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with a few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tristan Perez; Ship Motion Control, Springer, 2010.,</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Robert H. Bishop; Modern Control Systems Analysis and Design Using MATLAB, Addison Wesley Publishing Company</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>
Quality assurance methods that ensure the acquisition of exit surveys include:
- Survey carried out by University of Split, List of student attendance,
- Teaching process monitoring by Faculty,
- Analysis of the passing examination rate,
- (Quality Management System in compliance with ISO 9001)

Other (as the proposer wishes to add):

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**4.11.8.9 Modern Transport Technology**

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MODERN TRANSPORT TECHNOLOGY</th>
</tr>
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<tbody>
<tr>
<td>Code</td>
<td>VPN130</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Type of instruction</td>
<td>L  S  E  F</td>
</tr>
<tr>
<td></td>
<td>45  0  30  0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Nautical Studies and the Ministry of the Interior</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives:
The aim of the course is to handle technical - technological and commercial aspects of containerized and Ro-Ro technology at sea, and transportation of bulk and special types of cargo. Students are introduced to the essential elements of the container and Ro-Ro transport, specific technology of bulk, general and special cargo. Also, students learn the specifics of loading / discharging the cargo. In accordance with the requirements and recommendations of the STCW Convention, students will be introduced to international rules, regulations, recommendations and standards relating to technology of the transportation of containers, bulk, general and special cargo.

Course enrolment requirements and entry competencies required for the course:

Cargo Handling II

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Explain and interpret the division and characteristics of container ships, technology and specific characteristics of transport of containers by sea.
2. Define division and characteristics of containers, and the relevant regulations and standards relating to the transport of containers by sea.
3. Define and explain the types of technology of multimodal transport, RO-RO technology, LASH technology, Huck-PACK technology, and other technologies of multimodal transport: SEEBEE craft, BACAT craft, CAPRICORN barge carriers.
4. Define the characteristics and peculiarities of ro-ro transport by sea, and explain the commercial and technical management of container ships and ro-ro ships.
5. Describe and analyze the principles and procedures for loading, discharge, transhipment, stowage, lashing cargo on container ships and ro-ro ships.
6. Explain and interpret the container and ro-ro terminals, and define the possible trends of container and ro-ro technology development.
7. Independently develop the cargo plan for container and ro-ro ship and make calculation of ship’s stability and strain on ship structure.
8. Explain and interpret the division and characteristics, technology and specific transport of bulk, dry, dangerous (packaged and bulk) cargo by sea, and the specificity of transport of general cargo.
9. Independently develop a cargo plan for the bulk carrier, and make stability and ship structure strain calculation.
**Course content broken down in detail by weekly class schedule (syllabus)**

**Lecturers:**
1. The history of containerization in shipping.
2. Loading and stowage of containers on board container ship
3. Container Stowage Plan - BAY PLAN
4. Containerized cargoes, Heavy cargoes (Heavy Weights)
5. Securing, connecting, lashing containers
6. Stowage plan for containers regarding the passage plan
7. Mega container ships and application results in relation to their application
8. Handling with container ship in heavy stormy weather
9. Nature and technology of multimodal transport, ro-ro technology
10. Multi-purpose and ro-ro terminals in the ports - the advantages and disadvantages of ro-ro technology
11. Cargo Lashing equipment against shifting and load calculations force on ro-ro ships.
12. Systems strengthening and binding cargo on wheels and IMO regulations
13. BACAT, CAPRICORN, HUCK-PACK ships, Division of ships for bulk, general and special cargo. Construction.
14. Marine Transshipment means, cargo handling. LASH, SeeBee ships, VLCC, LNG, LPG (IMDG 1 hour). Ships for mixed cargo.
15. Types bulkers - Panamax Bulk carrier container, Ore carriers, log carriers, Cement-carriers, Chemical Tankers (IMDG 1)

**Exercises:**
1. Loading and stacking, lashing containers on container vessels
2. Computer programs for the development of Container Stowage Plan - Macs3 Loading - Stability Programme
3. Plan loading containers Container Stowage Plan - BAY PLAN - Macs3 Loading - Stability program
4. Plan loading containers Container Stowage Plan - BAY PLAN - Macs3 Loading - Stability program
5. Plan loading containers Container Stowage Plan - BAY PLAN - Macs3 Loading - Stability program
8. Provision of containers on deck - Lashing / Cargo Securing.uz use Macs3 Loading - Stability Programme
9. Calculation of load capacity of the container ship in service
10. Changing the stability of container, Ro-Ro, LASH, SeeBee ship under the influence of winds due to the exposed surface
11. Cargo Loading Plan on Ro-Ro ships
12. Develop a plan of loading the Ro-Ro ships - Macs3 Loading - Stability program
13. Cargo Loading Plan on ships for bulk and liquid cargo - Macs3 Loading - Stability & Bulk Carriers program
14. Develop a plan of loading on ships for bulk and liquid cargo - Macs3 Loading - Stability & BULK, VLCC, LNG, LPG
15. Develop a plan of loading of general or general cargo - Macs3 Loading - Stability & Bulk Carriers program, Chemical Tankers

**Format of instruction:**
- lectures
- seminars and workshops
- exercises
- online in entirety
- partial e-learning
- individual assignments
- multimedia
- laboratory exercises
- mentoring
- simulator practice
Lectures and exercises are compulsory for students and records of class attendance shall be kept. To get the signature students must attend the compulsory minimum of 80% of instructions (lectures and exercises) and 100% (95%) of the practical training. In case of insufficient number of arrivals to class shall not be given a signature nor the right to take an exam.

Absentee notes cannot justify absence from class. Students who, due to illness or other justified reasons, do not meet the requirements for signature and have more than 80% of class attendance, will be able to rest up to 100% (95%) in additional terms, during the semester and after but not later one month after the end of classes. All other students, i.e. those who have achieved less than 80% of class attendance are not eligible for signature and shall re-enrol in the course next academic year.

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Homework assignments</td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>1.0 (Other)</td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td>Oral exam</td>
<td>1.0 (Other)</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
<td></td>
</tr>
</tbody>
</table>

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

After passing the written exam of exercises (practical training), i.e. assuming all regular requirements met, students can take the oral examination. Students who pass the midterm exams during lectures are exempt from oral exam. Students who do not pass the midterm exam have to take the final exam that consists of two parts. The first part refers to the specified solution of the problem of stability and load on the ship's construction, equipment for cargo handling and securing of cargo, determining the amount of load draft of the ship. The second part refers to the theoretical part work on the simulator for cargo handling. Midterm exams shall be administered exclusively during classes and the final exam within the official examination period. If a student does not pass midterm exams of practical training and is entitled to the signature, he/she may be credited with the work on the simulator applications (as a whole), and the other two tests with exercises.

In this case, the final written exam comprises only the unit that a student has not passed as well as the assessment of the work on the simulator applications (first or second unit). Midterm exams I and II relating to practical training can be substituted by appropriate individual assignments only during the semester. It does not apply to work on the simulator for cargo handling. Individual units are considered as passed only in the course of the current academic year, i.e. until the end of scheduled examination periods. If students re-enrol in the course next academic year these units shall not be accepted as passed.
This rule may be exempt if a student has passed the written exam of practical training in entirety, than he/she may be given the opportunity to take the oral exam within one year.

Allocated time for practical training written exam is 3 class periods. Allocated time for midterm exam of exercises is 2 class periods. Allocated time for theoretical midterm exam is 2 class periods.

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence at lectures and participation in training</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Continuous assessment of laboratory practice</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>Continuous lectures verification</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>Continuous assignment of term papers</td>
<td>75</td>
<td>15</td>
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<tr>
<td>Total</td>
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<td>100</td>
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</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical exam (written and/or oral)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Numerical tasks-written</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Demonstration work on simulator</td>
<td>90</td>
<td>25</td>
</tr>
<tr>
<td>Homework assignments</td>
<td>75</td>
<td>10</td>
</tr>
<tr>
<td>Online CBT training and testing</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

ON-line CBT training and testing

Minimum for pass 75%
<table>
<thead>
<tr>
<th></th>
<th>85-89</th>
<th>Average success with noticeable mistakes</th>
<th>Good (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-94</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
<td></td>
</tr>
<tr>
<td>95-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required literature (available in the library and via other media)</th>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capt. J. Isbester ExC FINI, Extra Master, Bulk Carrier Practice, The Nautical Institute, October 1993.</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>GDV - Die Deutschen Versicherer, CONTAINER HANDBOOK, Cargo loss and prevention information from German Marine Insurers, GDV Berlin 2010.</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional literature (at the time of submission of study programme proposal)</th>
<th>Quality assurance methods that ensure the acquisition of exit competencies</th>
<th>University survey, list of student attendance, Faculty teaching supervision.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other (as the proposer wishes to add)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### COURSE DESCRIPTION

**Course objectives**

Gaining normative bases and practical knowledge in the field of substantive and procedural legislation, and from a Special Part on misdemeanours against public order, domestic violence and violence at sports events with a selection of misdemeanours from other significant acts that deal with misdemeanours.

After the course of study students will be competent (they will have knowledge and develop skills):

- To define misdemeanour law, misdemeanours and differentiate them from other forms of punishable offences, to define and explain basic principles and institutes of misdemeanour law under the Misdemeanours Act, they will know the legal sanctions prescribed by the Misdemeanours Act and other acts and will, in general, adopt specialized terminology and meaning of the terms they will use in their work.
- To broaden knowledge and gain insight into numerous regulations that prescribe misdemeanours which will provide them with easier and quicker understanding and use in practice.
- They will know how to define and explain regular and summary misdemeanour proceedings, explain the principles and conducting of misdemeanour proceedings, the roles of participants in such proceedings, and in particular the role and procedures of police officers and the Ministry of the Interior as the competent body for initiation of misdemeanour proceedings.
- They will know provisions of the law that prescribe misdemeanours against public order, particularities of domestic violence and violence at sports events, and other important misdemeanours police officers deal with in their work.

**Course enrolment requirements and entry competencies required for the course**

/  

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

- Identify misdemeanours and distinguish them from other forms of punishable offences, to define misdemeanour law, to explain basic institutes and principles of misdemeanour law, to know legal sanctions prescribed by misdemeanour and other acts
- To compare acts and sub-legal regulations that prescribe misdemeanours
- To differentiate regular and summary proceedings, to explain the principles and conducting of misdemeanour proceedings, the roles of participants in such proceedings, in particular the role and procedures of police officers and the police as the competent body for misdemeanour proceedings
- To establish similarities and differences in provisions of law that prescribe misdemeanours that are most common in practice
- To develop critical thinking in cases that could result from practice and specialized terminology
- To write penalty notices

<table>
<thead>
<tr>
<th>Course content broken down in detail by weekly class schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept and sources of misdemeanour law</td>
</tr>
<tr>
<td>Concept of misdemeanours and the application of the Misdemeanours Act</td>
</tr>
<tr>
<td>3 hours of lecture</td>
</tr>
</tbody>
</table>

| Offenders, misdemeanour responsibility of legal entities and of juveniles |
| 3 hours of lecture |

| Reasons for exclusion of unlawfulness |
| Culpability and forms of culpability |
| 4 hours of lecture |

| Stages of committing misdemeanours |
| 3 hours of lecture |

| Accomplices |
| 2 hours of lecture |

| Punishments for misdemeanours |
| Confiscation of pecuniary gain |
| 2 hours of lecture |

| Legal consequences of conviction, rehabilitation, data from misdemeanour records |
| 2 hours of lecture |

| Misdemeanour proceedings and its principles |
| 4 hours of lecture |

| Participants in the proceedings and concept of the party |
| Deadlines, pleadings and records, delivery service |
| 4 hours of lecture |

| Measures for ensuring the conducting of proceedings and execution of penalties |
| 4 hours of lecture |

| Inquiries and immediate presentation of evidence |
| Actions in misdemeanour proceedings |
| 9 hours of lecture |

| Regular misdemeanour proceedings |
| 4 hours of lecture |

| Legal remedies (ordinary and extraordinary) |
| 3 hours of lecture |

| Summary misdemeanour proceedings |
| 3 hours of lecture |

| SELECTED MISDEMEANOURS FROM SPECIAL MISDEMEANOUR LEGISLATION: |
| The Public Order Misdemeanours Act, The Domestic Violence Protection Act, the Act on the Prevention of Disorder at Sports Events, the Drug Abuse Prevention Act, the Weapons Act, the Excise Duty Act, the Customs Act, the Sea Fisheries Act, the Maritime Code. |
| 10 hours of lecture |

Format of instruction:
- lectures
- seminars
- exercises
- on line in entirety
- field work
- individual assignments
- multimedia
- laboratory
- mentoring

Student responsibilities
### 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
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</tr>
<tr>
<td>Experimental work</td>
<td>10%</td>
</tr>
<tr>
<td>Essay</td>
<td>5%</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>20%</td>
</tr>
<tr>
<td>Written exam</td>
<td>50%</td>
</tr>
<tr>
<td>Research</td>
<td>15%</td>
</tr>
<tr>
<td>Report</td>
<td>5%</td>
</tr>
<tr>
<td>Seminar paper</td>
<td>10%</td>
</tr>
<tr>
<td>Oral exam</td>
<td>(other)</td>
</tr>
<tr>
<td>Project</td>
<td>20%</td>
</tr>
<tr>
<td>Independent study and homework</td>
<td>(other)</td>
</tr>
<tr>
<td>(other)</td>
<td></td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>(other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>(other)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Veić, P. i sur.: Prekršajni zakon (drugo izmijenjeno i dopunjeno izdanje, Dušević i Kršovnik, Rijeka 2013.</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>3. Zakonski tekstovi iz posebnog prekršajnog zakonodavstva (odabrani članci).</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>

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

## Course Objectives

- to explain the organization of the Ministry of the Interior and General Police Directorate and describe the organization and scope of work of the police directorates and police stations;
- to list requirements for recruitment to the Ministry of the Interior, impediments for employment in the Ministry of the Interior, to differentiate minor and serious dereliction of duty and to list requirements for termination of employment by operation of law;
- to state rules of personal appearance and conduct of police officers on duty and off duty;
- to explain following the orders of a superior officer and to list functional insignia for police officers and to explain conditions for acquiring police ranks;
- to list police duties, to state legal grounds for carrying out police duties and use of police powers and basic principles for carrying out police duties;
- to state conditions for providing assistance and to explain cooperation of the police with other government bodies;
- to state police powers prescribed by the The Police Duties and Powers Act, the Misdemeanours Act and the Criminal Procedure Act;
- to state duties of police officers while using police powers and procedures while wearing official uniforms and plain clothes;
- to explain procedures of police officers while using police powers against children, juveniles and military persons and to state types of immunities and to explain identifications of persons entitled to privileges and immunities;
- to interpret requesting information from citizens as well as checking and establishing identity of persons and objects;
- to explain police power to serve a summons, power of search and to name legal requirements for bringing persons into custody;
- to explain searching for persons and objects;
- to give the example of warnings and orders and to name requirements for requisitioning of vehicles and telecommunications devices;
- to describe difference between visual inspection and search;
- to state requirements for temporary seizure of objects;
- to describe receiving crime reports, submitting crime and other reports and to explain the procedure of the police officer after receiving information that a crime was committed, to state when the police officer has to receive a crime report, to state what is written in a crime report and to explain the procedure when criminal offence will not be prosecuted ex-officio;
- to name requirements for checking phone records and visual inspection of documents, as well as entry and visual inspection of facilities and premises;
- to explain polygraph testing and entry to a private home;
- to state legal conditions for offering rewards to the public and audio and video recording and photographing in public places;
- to state principles on use of force;
- to explain passive and active resistance, to explain use of physical force, irritating spray and restraints;
- to interpret the use of police dogs as a means of force, to state legal requirements for use of tyre deflation devices and to describe the use of water cannons;
- to state the use of force against a group and to explain procedures of the police officer in cases of breach of the peace;
- to name legal requirements for use of firearms against persons, animals and in pursuit of a vessel and to explain procedures of the police officer after the use of force;
- to explain the tactics of procedures during response in cases of breach of the peace in hotel and restaurant facilities and open space;

Course enrolment requirements and entry competencies required for the course

Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. To develop a sense that every use of police powers is *de facto* interfering with human rights and freedoms, and that only consistent compliance with prescribed legal procedures and professional standards makes it legally permissible.
2. To build a standpoint that police powers are "tools" for protection of basic human rights and freedoms as the highest values of democratic societies, and that everything possible has to be done not to turn those powers against those who need to be protected, or rather to prevent abuse of police powers used against basic human rights and freedoms.
3. To compare police powers with police duties and to adopt fundamental principles of mutual relations.
4. To identify hazards resulting from illegal or unprofessional use of police powers as well as disrespect of fundamental principles of their use.
5. To assess whether the right and obligation of the police to act exist, or rather whether legal requirements for the use of certain powers have been met taking into account the existence of reasonable suspicion of danger, or rather that a criminal offence has been committed or it is about to be committed.
6. To integrate ethical standards in the use of police powers.
7. To generate voluntary informed consent to intensified oversight of police officers and duties because of a danger for society due to the abuse of police powers.
8. To build a righteous value system between goals and methods of achieving them, i.e. that the end does not justify the means, but it is necessary to follow professional standards in legally prescribed procedures for the use of police powers.
9. To formulate the existence of legal requirements for the use of each police power and the use of force in particular.
10. To combine acquired theoretical knowledge with practical experience from everyday police practice in order to find the best solutions through that integration.

Course content broken down in detail by weekly class schedule (syllabus)

Mutual relations and communications of police officers
Addressing and greeting citizens, subordination, mutual relations of police officers. Submitting reports, conduct. The Code of Ethics for Police Officers.

Ministry of the Interior, General Police Directorate, Police Administration and Police Station (organisation and scope of work, categories of police administrations and police stations)

Police officer

Police duties and general rules for carrying them out
Orders. Preventive police activities in maintaining public order and combating crime
Providing assistance and cooperation with other bodies
Cooperation with other bodies. Cooperation with foreign police forces and other international bodies. Preventive police activities – cooperation with citizens
Police powers (concept and aim, police powers in conformity with the Police Duties and Powers Act, the Criminal Procedure Act and the Misdemeanours Act. General rules and principles on police powers)
Official data
Classification of data and nominal delivery time (Marking of documents – levels of classified information). Obligation of keeping official secret.
Giving warnings and orders to citizens
Procedure of the police officer when a person disobeys a warning and an order.
Checking and establishing the identity of persons and objects (public documents and stages of checking the person’s identity, tactical rules for checking the person’s identity in normal, suspicious and dangerous situation (attempt to escape or to attack),
Establishing the identity of persons
Checking and establishing the identity of objects
Tactics of procedures:
Search in conformity with the Criminal Procedure Act
Temporary seizure, safekeeping and sale of objects
Ways of describing and listing temporary seized objects
Procedure with found items
Filling out the receipt for seized items
Bringing into custody
Real and legal obstacles
Tactics for bringing into custody, inform persons of their rights, proceeding with and without serving warrants and orders
Collecting, assessing, storage, processing and using data
Collecting, storage, processing and using data
Storage of data and data records
Requesting information from citizens
Preventive police activities – cooperation with citizens
Serving a summons
Contents of the summons. Bringing a person into custody who failed to appear in court.
Serving a summons to a child and a juvenile, contents of the summons, the methods of serving a summons and delivery of a summons
Measures of temporary restriction of freedom of movement and basic elements of the tactics of police officers’ procedures in implementation of measures of temporary restriction of freedom of movement
Arrest and detention
Writing reports on arrest and reports on taking a person into the police custody unit.
Entry and inspection of facilities and premises
Searching for persons and objects (issuance of alerts and notices, recording missing person reports)
Requisitioning vehicles and telecommunications devices
Receiving crime reports, submitting crime and other reports to the competent State Attorney’s Office
(types of reports, receiving crime reports, submitting crime reports (of known and unknown offenders), submitting special reports (with general data), submitting general reports)
Securing crime scenes
Concept of the crime scene, writing crime scene reports
Checking phone records
Polygraph testing
Visual inspection of documents
Entry to a private home
Offering rewards to the public, audio and video recording and photographing in public places
Undercover police activities
Use of force
Means of force (the concept and objective for the use of force, general requirements for the use of force, legal conditions – exclusion of responsibility)
Tactics of procedures in cases of disturbing the peace in open and enclosed space. Use of firearms against persons. Protection of life. Preventing escape from the scene of the crime. Use of firearms against animals. Use of firearms in pursuit of a vessel.
Use of explosive devices and special types of weapons. Protection of police officers after the use of force.
Checking flags, pursuit, stop, seizure and escort of vessels
Particularities of using police powers against children and juveniles, persons who enjoy immunity and against foreign nationals
Protection of crime victims and other persons
Use of force in cases of a breach of the peace

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>☑ lectures</th>
<th>☑ individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☑ seminars</td>
<td>☑ multimedia</td>
</tr>
<tr>
<td></td>
<td>☑ exercises</td>
<td>☑ lab exercises</td>
</tr>
<tr>
<td></td>
<td>☑ on line in entirety</td>
<td>☑ mentoring</td>
</tr>
<tr>
<td></td>
<td>☑ field work</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student responsibilities</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>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)</th>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>1</td>
<td>Report</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>2</td>
<td>Oral exam</td>
<td>(other)</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grading and evaluating student work in class and at the final exam</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Required literature (available in the library and via other media)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>1. Gluščić, Veić: Zakon o policijskim poslovima i oвлastima. MUP RH 2015. (NN 76/09, 92/14.)</td>
</tr>
<tr>
<td>Optional literature (at the time of submission of study programme proposal)</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competencies</td>
</tr>
<tr>
<td>Other (as the proposer wishes to add)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Pravilnik o načinu postupanja policijskih službenika (NN 89/010., 76/15.)</th>
<th>yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Mršić: Osnova sumnje – izvorište policijskih ovlasti, Hrvatska pravna revija br. 4/011.</td>
<td>yes</td>
</tr>
</tbody>
</table>

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

1. Policija i ljudska prava (Davor Gjenaro, Stjepan Gluščić, Ranko Helebrant, Saša Lalić)
### 4.11.8.12 Simulator and On-board Training IV

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SIMULATOR AND ON-BOARD TRAINING IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS116</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>2</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Associate teachers</th>
<th>Type of instruction (number of hours in a semester)</th>
<th>Percentage of application of e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L         S          E      F</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0         0          45      0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status of the course</th>
<th>Mandatory for Naval Marine Engineering</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>COURSE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course objectives</td>
</tr>
<tr>
<td>Course enrolment requirements and entry competencies required for the course</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning outcomes expected at the level of the course (4-10 learning outcomes)</th>
<th>Exercises:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Detecting, recognising and eliminating the operational malfunctions of fuel injection timing-eliminating of failure in this system.</td>
</tr>
<tr>
<td></td>
<td>- Detecting, recognising and eliminating the operational malfunctions of liner wear in one of the cylinders, fire in the scavenge air register-eliminating of failure in these systems.</td>
</tr>
<tr>
<td></td>
<td>- Detecting, recognising and eliminating the operational malfunctions in the operation of the turbocharger (suction and pressure side), malfunctions in the operation of the scavenge air heat exchanger, loss of power in the main power busbars-eliminating of failure in these systems.</td>
</tr>
<tr>
<td></td>
<td>- Detecting, recognising and eliminating the operational malfunctions of stained filter, main bearing overheating; malfunctions in the operation of the circulation pumps-eliminating of failure in these systems.</td>
</tr>
<tr>
<td></td>
<td>- Detecting, recognising and eliminating the operational malfunctions of overflooded bilge tank, failure of receiving the bridge orders. Unplanned maintenance – detection and elimination of the malfunctions and failures in the above systems.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Format of instruction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- lectures</td>
</tr>
<tr>
<td>- seminars and workshops</td>
</tr>
<tr>
<td>- exercises</td>
</tr>
<tr>
<td>- entirely online</td>
</tr>
<tr>
<td>- combined with e-learning</td>
</tr>
<tr>
<td>- field work</td>
</tr>
<tr>
<td>- independent tasks</td>
</tr>
<tr>
<td>- multimedia</td>
</tr>
<tr>
<td>- laboratory</td>
</tr>
<tr>
<td>- mentoring</td>
</tr>
</tbody>
</table>

| Student responsibilities | Attending exercises (at least 95% attendance), going to field classes (at least 100% attendance). |

<table>
<thead>
<tr>
<th>Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
</tr>
</tbody>
</table>
**ECTS value of the course**

<table>
<thead>
<tr>
<th>Written exam</th>
<th>Project work</th>
<th>(other)</th>
</tr>
</thead>
</table>

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>95</td>
<td>56.25</td>
</tr>
<tr>
<td>Seminar work</td>
<td>100</td>
<td>43.75</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available through other media</th>
<th>YES</th>
</tr>
</thead>
</table>

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

Instruction manuals of ship simulator Konsberg ERS MAN B&W 5L90MC-C L11 VLCC

Instruction manuals on 2-stroke and 4-stroke marine engines.

Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitored by Faculty.

Other (as the proposer wishes to add)

### 4.11.8.13 4.11.8.13. Naval Combat Systems

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>NAVAL COMBAT SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS117</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Jakša Mišković, M.Eng. Darija Jurko, M.Eng.</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
<tr>
<td>Year of study</td>
<td>4%</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L 45 S 0 E 15 F 0</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>20%</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

1. Adopt basic and specific knowledge and skills on naval artillery, missiles, weapons used in Mine Warfare (MW) including mine countermeasures (MCM), as well as Anti-
<table>
<thead>
<tr>
<th>Course enrolment requirements and entry competences required for the course</th>
<th>No special requirements</th>
</tr>
</thead>
</table>
| Learning outcomes expected at the level of the course (4 to 10 learning outcomes) | 1. Understand the basics of the ballistics and theory of artillery firing.  
2. Identify different types of artillery ammunition and fuses and their use in firing at different types of targets.  
3. Know the different types of naval guns in the Croatian Navy, and their tactical use.  
4. Know the most significant naval gun systems of the modern world's navies.  
5. Know the principles of combat use and maintenance of naval missile system RBS-15B.  
6. Understand basic principles of naval mine and mine-countermeasure systems.  
7. Understand basic principles of torpedoes and anti-submarine weapons systems.  
8. Understand basic principles of anti-submarine warfare. |
| Course content broken down in detail by weekly class schedule (syllabus) | **Lectures:**  
1. Basics of the ballistics and theory of artillery firing  
2. Artillery ammunition and naval guns in the Croatian Navy  
3. Firing on targets at sea, on land and in the air  
4. Most significant naval artillery systems of World's Navies.  
5. Modern missile systems and future development  
6. Basics of aerodynamics and the construction of the naval missile system RBS-15B  
7. Naval missile system RBS-15B servicing and maintaining  
8. Ship’s detection and underwater explosion  
9. Naval mine systems  
10. Naval MCM systems  
11. Anti-submarine warfare systems  
12. Torpedoes and their use  

**Exercises:**  
1. Naval weapons systems in the Croatian Navy  
2. Structure, maintenance and servicing of the naval missile system RBS-15B |
| Format of instruction | ☒ lectures  
☐ seminars and workshops  
☒ exercises  
☐ on line in entirety  
☐ partial e-learning  
☐ field work  
☐ independent assignments  
☐ multimedia  
☐ laboratory  
☐ work with mentor  
☐ (other) |
Student responsibilities

Lecture attendance is mandatory (there is a record of attendance), and it is 80% at lectures in order to obtain the course teacher’s signature. If the attendance requirement is not met, student is obliged to re-enrol in the course in the next academic year. There will be a midterm and end of term written exam. For a passing grade, it is needed at least 50% of points on each exam. Students who have not passed the midterm exam are not allowed to take the end of term exam. Students that have obtained the signature but have not passed midterm or end of term exam, are obligated to take the final written exam. Students that have enough points to pass the course have to apply for the exam during the first examination period in order to get their grade entered, or to have an oral exam if they want a better grade.

<table>
<thead>
<tr>
<th></th>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Brief report</td>
<td>Report</td>
<td>Self-study and homework assignments</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>2,9</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td></td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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)

Lectures are obligatory for students (records of attendance are kept). To get a signature, students must attend a minimum of 80% of the lectures. In case of insufficient attendance at classes, students are not entitled to sign and are required to re-enroll the course again the following year. Students have the opportunity to pass the exam by continuous evaluation during the semester by taking a total of 2 written mid term test. At each mid term test, it is necessary to achieve a minimum of 50% of points for passing. Students who do not pass the 1st mid term test cannot access the writing of the 2nd mid term test Students who do not pass the mid term test during the semester, and have a signature, are required to take a written exam. Students who have collected a sufficient number of points during the course, are required to register for the exam for the first exam period after the lecture and in the term of the exam to come to the registration of grades or answer for a higher grade.

Continuous evaluation of students’ performance

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>1st Mid-term exam</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>2nd Mid-term exam</td>
<td>50</td>
<td>45</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam (written and/or oral)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Other activities (including all factors of continuous evaluation)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Grading:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criteria</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>does not fulfil minimal criteria</td>
<td>fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>fulfils minimal criteria</td>
<td>satisfactory (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable deficiencies</td>
<td>good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with a few deficiencies</td>
<td>very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>excellent (5)</td>
</tr>
</tbody>
</table>

Students who do not pass the mid term test during the semester, and have a signature, are required to take a written exam within the exam period. The same assessment criteria apply to the examination period as to the continuous assessment of knowledge.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seller (J.) Leather, The Sea-Gunner: Shewing the Practical Part of Gunnery, As it is Used at Sea, etc.,</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Ashton Carter, David N. Schwartz, Ballistic Missile Defense, Brookings Institution Press, 1984.</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>STANAG 1242 – Naval Mine Warfare Principles – ATP-6(C) Volume I</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>STANAG 1152 – Allied Anti-submarine Warfare Manual – ATP-28(B)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Morison, S., „Guide to naval mine warfare“, 1995.</td>
<td></td>
<td>YES</td>
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<tr>
<td>Howard S. Levie, „Mine Warfare at Sea“, 1992.</td>
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</table>
### 4.11.8.14 Breakdown and Failure Diagnosis

**NAME OF THE COURSE**

<table>
<thead>
<tr>
<th>Code</th>
<th>VPS118</th>
<th>Year of study</th>
<th>4th</th>
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<tbody>
<tr>
<td>Course teacher</td>
<td>Luka Mihanović, Ph.D.</td>
<td>Credits (ECTS)</td>
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</tr>
<tr>
<td>Associate teachers</td>
<td>Tino Sumić, M.Eng.</td>
<td>Type of instruction (number of hours in a semester)</td>
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</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
<td>Percentage of application of e-learning</td>
<td>30</td>
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</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**

Understanding the causes of failures in marine engine systems and machinery, and their timely elimination. Familiarisation with expert systems for diagnostics of the state of marine engines and machinery.

**Course enrolment requirements and entry competencies required for the course**

Marine engines, Marine Auxiliary Engines and Machinery

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

1. Define and explain the basics and the methods of detecting failures.
2. Explain the causes of failures in designing, manufacturing, assembling, transport, test run, operation, maintenance and supervision
3. Analyse failures in diesel engines
4. Analyse failures in steam generators
5. Analyse failures in steam and gas turbines
6. Analyse failures in auxiliary engines and machinery
7. Analyse failures in electric machines

**Course content broken down in detail by weekly class schedule (syllabus)**

1. Diagnosis of failures-goal and essence; technical diagnostics; techniques of measurement and control; classification and characteristics of the measurement devices; errors of measurement.
2. Measurement devices and tests; timing, speed, pressure, temperature, flow, level.
3. Vibration, noise, power, indicated pressures measurement.
4. Characteristics of modern marine propulsion and auxiliary equipment; Research and study work processes; development trends.
5. Selecting relevant features, diagnostic measurement points; influence and interdependence of relevant features.
6. Requests classification societies and IMO regulations for monitoring and safety of machinery and equipment.
7. Analysis of Marine diagnostic system; fuel system.
8. Oil system.
9. Refrigeration system.
10. Air and exhaust system.
11. Expert systems for diagnostics; terms and definitions; expert systems for control and diagnostics of the slow-stroke engines.
13. Analysis of the working media and diagnostics; requirements for the quality of the media; characteristics of oils, fuels.
14. Diagnostics status and characteristics of refrigerants and exhaust; IMO regulations on exhaust emissions and emissions reduction.
15. Diagnostics of auxiliary ship equipment.

**Exercises:**

1. Examples of measurement methods; determining errors of measurement and statistical methods.
2. Examples of measurement and testing in laboratories, test and tables on board: temperature, pressure, speed, time, flow; work on the simulator.
3. Examples of measurements and tests in laboratories, test and tables on board: power, indicated and effective pressure; tasks; example of test tables.
4. Examples of new technological solutions; performance on ships.
5. Examples and assignments with values obtained on ship propulsion systems; work on the simulator.
7. Analysis of fuel system with the determination of the size and tasks; work on the simulators.
8. Analysis of oil system with determining the size and tasks; work on the simulators.
9. Analysis of cooling system with determining the size and tasks; work on the simulators.
10. Analysis of air and exhaust gasses system with determining the size and tasks; work on the simulators.
11. Examples of expert systems from the manufacturer MAN B & W and Wartsila.
12. Examples of expert systems from the manufacturer MAK, Caterpillar.
13. Examples of tests of oil and fuel to the engine and analysis of failures of service reports.
14. Examples of test of the cooling medium in the engine and analysis of failures of service reports.
15. Analysis of failures in the ship's equipment and machinery.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>Xlectures</th>
<th>□ seminars and workshops</th>
<th>□ individual assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercises</td>
<td>□ entirely online</td>
<td>□ laboratory exercises</td>
<td>□ mentoring</td>
</tr>
<tr>
<td></td>
<td>□ combined with e-learning</td>
<td>□ field work</td>
<td>□ (other)</td>
</tr>
</tbody>
</table>

**Student responsibilities**

Lectures are obligatory for students because records of attendance at classes are kept. To get a signature, students must attend a minimum of 80% of lectures. In case of insufficient number of attendances, students do not have
the right to sign and are required to re-enroll in the course next year. Students have the opportunity to pass the exam by continuous evaluation during the semester by taking 2 mid term tests. The student is required to attend all mid term test. Students who do not pass the mid term tests during the semester, and have a signature, are required to take a written exam within the exam period. Students who have collected a sufficient number of points during the class are required to register for the exam via Studomat for the first exam period after the lecture and to come to the registration of the grade or to answer for a higher grade.

| 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          |
| Experimental work             |                   | Report            |
| Essay                         |                   | Seminar paper     |
| Midterm/ End of term exams    | 1,875             | Oral exam         |
| Written exam                  |                   | Project           |

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

Lectures are obligatory for students (records of attendance are kept). To get a signature, students must attend a minimum of 80% of the lectures. In case of insufficient attendance at classes, students are not entitled to sign and are required to re-enroll the course again the following year. Students have the opportunity to pass the exam by continuous evaluation during the semester by taking a total of 2 written mid term test. At each mid term test, it is necessary to achieve a minimum of 50% of points for passing. Students who do not pass the 1st mid term test cannot access the writing of the 2nd mid term test. Students who do not pass the mid term test during the semester, and have a signature, are required to take a written exam. Students who have collected a sufficient number of points during the course, are required to register for the exam for the first exam period after the lecture and in the term of the exam to come to the registration of grades or answer for a higher grade.

Continuous evaluating of students:

<table>
<thead>
<tr>
<th>Continuous evaluation of students’ performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluating</td>
</tr>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>1st Mid-term exam</td>
</tr>
<tr>
<td>2nd Mid-term exam</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Final examination:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements of evaluating</td>
</tr>
<tr>
<td>Exam (written and/or oral)</td>
</tr>
</tbody>
</table>
### Other activities (including all factors of continuous evaluation)

<table>
<thead>
<tr>
<th>Lynch</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>lectures 80</td>
<td>exercise 100</td>
</tr>
<tr>
<td>37.5</td>
<td></td>
</tr>
</tbody>
</table>

**Total**: 100

### Grading:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criteria</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>does not fulfil minimal criteria</td>
<td>fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>fulfils minimal criteria</td>
<td>satisfactory (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable deficiencies</td>
<td>good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with a few deficiencies</td>
<td>very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Lectures on the Web</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Title</th>
<th>Available via other media</th>
</tr>
</thead>
</table>

### Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

### Other (as the proposer wishes to add)

<table>
<thead>
<tr>
<th>4.11.8.15 Marine Refrigerating and Air-conditioning Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NAME OF THE COURSE</strong></td>
</tr>
<tr>
<td>Code</td>
</tr>
<tr>
<td>VPS119</td>
</tr>
<tr>
<td>Course teacher</td>
</tr>
<tr>
<td>Zdeslav Jurić, Ph.D.</td>
</tr>
<tr>
<td>Associate teachers</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>
### Status of the course

<table>
<thead>
<tr>
<th>Mandatory for Naval Marine Engineering</th>
<th>Percentage of application of e-learning</th>
</tr>
</thead>
</table>

### COURSE DESCRIPTION

#### Course objectives
- Use of basic and advanced knowledge on cooling devices, their application onboard vessels, their operation and exploitation, precaution measures and environment protection.
- Maintenance and surveillance of marine cooling devices.
- Dimensioning marine cooling system and its components. Acquiring knowledge on cooling fluids and their effects on human health and environment.
- Calculation of ventilation (natural and forced).
- Calculation of onboard air-conditioning systems.

#### Course enrolment requirements and entry competencies required for the course
- Thermodynamics and Heat Transfer

#### Learning outcomes expected at the level of the course (4-10 learning outcomes)
1. Analysis and classification of marine refrigeration and air-conditioning systems.
3. Analysis of interdependence of states and cause-effect of alarm values.
4. Maintenance planning of refrigeration and air-conditioning systems.
5. System management (of refrigerating and air-conditioning systems) at complex and changeable environment. Success planning, maintaining and controlling at unpredictable situations.

#### Course content broken down in detail by weekly class schedule (syllabus)
1. Introduction to cooling technique. Types of cooling chambers and spaces. Insulation materials.
3. Cooling fluids, their selection and area of application. Elements of the compressor cooling device.
6. Determining basic values of the steam compressor cooling devices. Systems for melting the hoar frost from the evaporator are cooling tubes (battery).
10. Regulation of fan operation in the ventilation and air-conditioning systems. The need of air drying on board vessels. Rotation device for air drying.
11. Air-conditioning onboard a vessel, according to Croatian Register of Shipping (factors of comfort). Mechanical, heat-humid and physical-chemical treatment of air.
12. Fundamentals of calculating the air conditioning system.
13. Basic systems of onboard air-conditioning – operation layout for the summer and winter period in the h, x – diagram.
14. Regulation systems in the air-conditioning plant (enthalpy, static pressure, heating and cooling, relative humidity).
15. Heat and recovery in the ventilation and air-conditioning systems.

#### Format of instruction:
- ☑ lectures
- ☐ individual assignments
Student responsibilities

Class attendance is obligatory for all students. Class attendance is confirmed by students’ signature on, for that purpose, prescribed record sheet. Students have to attend at least 80% of lectures and 80% of exercises.

At the beginning of the semester students get topics for seminar and they deliver presentations in class.

Students fulfil their obligations regarding the course when they reach minimum class attendance and give seminar presentation.

Students who have not fulfilled their obligations shall not attend oral exam. Those students shall re-enrol in the course 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>0.4 Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>0.5 (other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>Oral exam</td>
<td>(other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(other)</td>
</tr>
</tbody>
</table>

Final evaluation includes class attendance, midterm exams or written exam evaluation, seminar presentation and oral exam evaluation. All components have to be evaluated positively, at least with minimum criteria met, in order to pass final exam. Final exam consists of the written and oral exam.

During semester midterm exams will be carried out. If both midterm exams are positively evaluated, students may sit for the written exam within the first final examination period. If one of the midterm exams is not positively evaluated, students have the opportunity to retake that exam within the first final written exam.

Students pass the final exam when all criteria are met with minimal requirements: class attendance, seminar presentation, written or midterm exams and oral exam.

Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>Lecture 80</td>
<td>28.125</td>
</tr>
<tr>
<td></td>
<td>Exercises 80</td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td>100</td>
<td>9.375</td>
</tr>
<tr>
<td>Paper</td>
<td>100</td>
<td>12.5</td>
</tr>
<tr>
<td>1st Midterm exam</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>2nd Midterm exam</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
</table>
Class attendance | Lecture 80 | Exercised 80 | 28,125  
Seminar | 100 | 21,875  
Written or midterm exams | 50 | 28,125  
Oral exam | 70 | 21,875  

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 50</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50 – 65</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65 – 80</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80 – 95</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>95 – 100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
</table>

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


Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitoring by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

Other (as the proposer wishes to add)

4.11.8.16 Naval Propulsion Systems

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>NAVAL PROPULSION SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS120</td>
</tr>
<tr>
<td>Year of study</td>
<td>4th</td>
</tr>
<tr>
<td>Course director</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Gojmir Radica, Ph.D.</td>
</tr>
<tr>
<td></td>
<td>Nikola Račić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>7</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L 60  S 0  E 30  F 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for Naval Marine Engineering</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>COURSE DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>Course objectives</td>
<td>The main objective of this course is to introduce students with propulsion systems of warships which have many specific requests causing different development and characteristics of each component including the whole system.</td>
</tr>
<tr>
<td>Course enrolment requirements and entry competences required for the course</td>
<td>No special requirements.</td>
</tr>
</tbody>
</table>
| Learning outcomes expected at the level of the course (4 to 10 learning outcomes) | 1. Understand basic requests of warship propulsion systems  
2. Understand working principles of warship propulsion systems  
3. Identify and explaining main parts of warship propulsion systems  
4. Understand the importance of propulsion reliability  
5. Differentiate construction arrangements of propulsion systems  
6. Define and explain damage resistance and smaller contamination possibilities in actions at sea  
7. Identify and explain main maintenance procedures on warship propulsion systems  
8. Describe and compare different arrangements of combined drives  
9. Understand advantages of combined drives in various conditions of exploitation |
| Lectures:            | 1. Historical development of the installation of propulsion systems on warships  
2. The requirements for propulsion machineries on modern warships  
3. Types of propulsion machineries (steam turbines, gas turbines, diesel engines) installed on warships  
4. Comparison of propulsion machineries: diesel engines, steam turbines, gas turbines; Rankine-Clausius thermal process, thermal process in steam plants; influence of steam parameters on the thermodynamic efficiency, steam reheating and multi-stage expansion.  
5. Types of steam turbines, steam flow in a turbine, power of a steam turbine, optimizing the degree of activity; energy losses inside of a steam turbine; use of steam and schedule of thermal energy consumption, regenerative feed-water heating.  
6. Performances of ship steam turbines; single-stage action, single-stage impulse turbine with the speed rating of steam, multi-stage impulse turbine with the pressure rating of steam, multi-stage reaction turbine, combined turbines; parts of a steam turbine; nozzles, blades, rotor, glands, bearings, casing, couplings.  
7. Basic features of ship steam generators; the purpose of steam generators on ships; thermal balance of steam generators.  
8. Main construction parts and accessories of steam generators; drive and maintenance of ship steam generators.  
9. Exhaust gas steam generators, basic ways of connecting recovery boilers; automatic regulation of steam generators; load regulation, burner control systems, power supply, overheating temperatures.  
10. Reducer, rotor rotating mechanism, condenser, lubricating oil system; steam turbine regulation system; power regulation, spin speed regulation, system preventing a spin speed exceeding, power measuring system.  
11. Gas turbines; open process of a gas turbine, air heating after compression, two-stage compression and expansion; main parts of a gas turbine plant; gas turbine, combustion chambers, combustion air heaters, fuel system.  
12. Combined gas and steam turbine systems, basics of proper drive of ship heat turbines; preparation, heating and drive of turbines, gas turbine fuel; maintenance and drive of gas turbine plants; vacuum maintenance in a condenser, condensate control, drainage control, lubrication control.  
13. Guidelines for operating steam-gas turbine system, maintenance of operational readiness of the drive, shutdown of the drive, supervision of turbine plants when out of service, turbine and condenser breakdown; turbine vibrations, turbine water |
impact, blades breakdown, damaged casing and turbine rotors, turbine bearing failure, reducer failure, condenser malfunction.


**Exercises:**
1. A visit to the engine room of RTOP-21 Šibenik, familiarization with the combined CODAG propulsion system.
2. Familiarization with parts of the ship's propulsion gas turbines, "Rolls-Royce" type Marine Proteus, in the engine cross-section cabinet.
3. Familiarization with a gas turbine for the generator drive in the engine cross-section cabinet.
4. Attending the starting preparations, starting, loading, shutting down and decommissioning of the gas turbine plant on RTOP-21 Šibenik.
5. Familiarization with ship’s steam turbine propulsion in the cabinet.
6. Familiarization with an auxiliary fire tube steam generator in the engine cross-section cabinet.
7. In the „Lora” boiler room, familiarization of students with the system which produces boiling water and steam in the steam generators; operating the power system, emptying water from the steam generator and refilling the system; operating the fuel and air system, starting the steam generator, steam-collecting, operating the burners, heating the steam line, analysing working parameters of the steam generator.
8. Preparing and starting the auxiliary steam generator on BS-73 Faust Vrančić.
9. Familiarization with the ship’s auxiliary steam generator on BŠ-72 Andrija Mohorovičić.

<table>
<thead>
<tr>
<th>Format of instruction:</th>
<th>☑ lectures</th>
<th>☐ seminars and workshops</th>
<th>☑ exercises</th>
<th>☐ on line in entirety</th>
<th>☐ partial e-learning</th>
<th>☑ field work</th>
<th>☐ independent assignment</th>
<th>☐ multimedia</th>
<th>☐ laboratory</th>
<th>☐ work with mentor</th>
<th>☑ simulator exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student responsibilities</td>
<td>Lecture attendance is mandatory (there is a record of attendance), and it is 80% at lectures and 100% at exercises in order to get the course teacher’s signature. If the attendance requirement is not met, a student shall re-enrol in the course in the next academic year. There will be a midterm and end of term written exams. For obtaining a passing grade, students need to achieve at least 50% of points on each exam. Students are allowed to retake only one exam (midterm or end of term) which they have not passed. Students that have obtained the signature, but have not passed midterm/end of term exams, are obligated to take the final written and oral exam. Students that have enough points to pass the course have to apply for the exam during the first examination term in order to get their grade signed in, or to have an oral exam if they want a better grade.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screening student work (enter 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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
</tr>
<tr>
<td>Experimental work</td>
</tr>
<tr>
<td>Essay</td>
</tr>
<tr>
<td>Tests</td>
</tr>
<tr>
<td>Written exam</td>
</tr>
</tbody>
</table>
Grading and evaluating student work in class and at the final exam

Attendance of classes is mandatory and the requirement is a minimum of 80% at lectures and 100% at exercises. There is a midterm exam in the 8th week and end of term exam in the penultimate week of the semester. The first one includes learning outcomes from 1 to 4, whereas the second one includes learning outcomes from 5 to 9. At least 50% is required for passing the midterm/end of term exam. Students who, for objective reasons, cannot take one of the two exams or fail to obtain a minimum percentage may retake one test. The final grade includes attendance, midterm and end of term exam results, written test, seminar paper and oral exam.

**Continuous evaluation of students’ performance**

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Performance (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80</td>
<td>37.5</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>31.25</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>31.25</td>
</tr>
</tbody>
</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above- average achievement with a few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

Students who fail the midterm/end of term exams and have obtained the signature shall take the written exam in the examination period. The same grading criteria shall apply to the examination period and for continuous evaluation of knowledge.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available through other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Macaulay, Crossing on Time: Steam Engines, Fast Ships, and a Journey to the New World, Roaring Brook Press (2019)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Bob Gordon, Model Steam Engines, Shire Publications (2010)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Xingrang Liu, Ramesh Bansal, Thermal Power Plants: Modeling, Control, and Efficiency Improvement, CRC Press (2016)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Hans Klein Woud, Douwe Stapersma, Design of Propulsion and Electric Power Generation Systems, Institute of Marine Engineers(2002)</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Justin E Kerwin, Propulsion, Society of Naval Architects &amp; Marine (2010)</td>
<td></td>
<td>YES</td>
</tr>
</tbody>
</table>

**Optional literature (at the time of submission of study)**

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality assurance</td>
<td>Evidence of students’ attendance, evidence of professors’ attendance, student</td>
</tr>
<tr>
<td>methods that ensure</td>
<td>questionnaire, Faculty teaching supervision.</td>
</tr>
<tr>
<td>the acquisition of</td>
<td></td>
</tr>
<tr>
<td>exit competences</td>
<td></td>
</tr>
<tr>
<td>Other (as the</td>
<td></td>
</tr>
<tr>
<td>proposer wishes to</td>
<td></td>
</tr>
<tr>
<td>add)</td>
<td></td>
</tr>
</tbody>
</table>
4.11.9 5th Year, IX Semester

4.11.9.1 Scientific Research Methodology

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>SCIENTIFIC RESEARCH METHODOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO135</td>
</tr>
<tr>
<td>Year of study</td>
<td>5th</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Merica Slišković, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L 30  S 0  E 15  F 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10%</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION

Course objectives: By overcoming the basic knowledge about the concept, methodology and technology of scientific and technical research, qualify students to independently implement simple research and writing, presentation and presenting papers.

Course enrolment requirements and entry competencies required for the course: n/a

Learning outcomes expected at the level of the course (4-10 learning outcomes):

1. Interpret the general concept of science and basic science characteristics and classification
2. To distinct and classify the type and structure of scientific and technical papers
3. To plan and organize technology research.
4. To provide and apply the methods of scientific research.
5. Present skills in writing, technical processing, presentation, and demonstration of paper

Course content broken down in detail by weekly class schedule (syllabus):

Lectures:
1. Introduction to Science
2. Scientific research activities.
3. Scientific works.
4. Professional works.
5. Methodology of scientific research
7. Application of scientific methods when writing papers.
8. Technology of scientific research
9. Preparing structure of scientific and technical paper
10. Paper writing and technical processing of scientific and technical works

Exercises:
1. The methodology of scientific research.
2. Scientific methods.
3. The technology of scientific research: identifying scientific problem, hypothesis, selection and analysis of topics (titles), development of a plan of research.
4. The technology of scientific research: compiling working bibliography, collecting, selection and study of literature and scientific information.
5. Writing of text and technical processing of scientific and technical works.
6. Planning of presentation.

Format of instruction: ☒ lectures ☐ seminars and workshops ☐ exercises ☐ on line in entirety ☒ partial e-learning ☐ individual assignments ☐ multimedia ☐ laboratory exercises ☐ mentoring ☐ (other)
Students must attend lectures. Their presence shall be registered and kept in records. In order to get the signature students must attend at least 80% of the lectures. In case of insufficient class attendance students will not be granted a signature and shall be obliged to re-enrol in the course the following year. Students have to make individual assignments, seminar papers according to given instructions and oral presentation. Students who have passed the exams during the semester must apply for the exam via Studomat for the first examination period after lectures and during that time must have their grade entered or be tested for a better grade.

Students are evaluated continuously during the semester. They are obligated to perform some tasks independently or in a team in designated time. Students must independently write seminar paper according to given rules and in given time. Seminar paper must be orally presented. Students who have passed the exams during the semester must apply for the exam via Studomat for the first examination period after the lectures and during that time must have their grade entered or be tested for a better grade.

Continuous evaluation of students’ performance

<table>
<thead>
<tr>
<th>Elements of Evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance of lectures and activity</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Independent/ team tasks</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Seminar paper</td>
<td>100</td>
<td>70</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary performance</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>
4.11.9.2 Process Modelling and Simulation

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PROCESS MODELLING AND SIMULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO136</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Pančo Ristov, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>6</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L  S  E  F  45 0 30 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

Course objectives: Gaining detailed knowledge of modelling and simulation of systems and/or business process, i.e., understanding the process simulation and VV&A models. The use of simulation in the development and analysis of business processes.

Course enrolment requirements and entry competencies required for the course: Applied Computer Science

Learning outcomes expected at the level of the course (4-10 learning outcomes):
1. Choosing an appropriate methodology for modelling business (maritime) process.
2. Create a conceptual model of the system/process being modelled.
3. Select and submit inputs to the model.
4. Develop mathematical and programming model.
5. The percentages of accuracy programming model with conceptual model.
6. Evaluate the output data from the model.
7. Compare the results obtained from multiple experiments.
8. Draw conclusions after experimenting with models and simulation.
<table>
<thead>
<tr>
<th>Course content broken down in detail by weekly class schedule (syllabus)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lectures</strong></td>
</tr>
<tr>
<td>1. Presentation College. Introduction to the system and a conceptual model of the system.</td>
</tr>
<tr>
<td>2. Determining the terms simulation and simulating, model and modelling.</td>
</tr>
<tr>
<td>3. Types of simulation models, computer simulation.</td>
</tr>
<tr>
<td>4. The process simulation, the purpose of the simulation, the positive and negative aspects of the simulation.</td>
</tr>
<tr>
<td>5. V &amp; A model.</td>
</tr>
<tr>
<td>7. The basic ideas of discrete event simulation (entities, attributes, events...).</td>
</tr>
<tr>
<td>8. System dynamics.</td>
</tr>
<tr>
<td>9. Detailed description of the equations of system dynamics: state equations, the equation changes state, auxiliary equations, equation initial condition and constant and structural elements of the system, the dynamic nature of cause and effect relationships and circles detrimental effect etc.</td>
</tr>
<tr>
<td>10. Computer simulation of technical systems, organizational systems and natural systems, and simulation of complex systems and processes in the maritime industry. The application of modern software packages such as: Powersim, iThink, Simula and Vansim.</td>
</tr>
<tr>
<td>12. Typical problems that can be dealt with discrete event simulation (mass systems serving).</td>
</tr>
<tr>
<td>13. Methods and techniques of conceptual (activity cycle diagrams).</td>
</tr>
<tr>
<td>15. Markov models</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Laboratory exercises</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Software package Powersim and iThing (way entrance/exit of the package, the syntax of programming packages, description of commands, the use of symbols, the development phase models).</td>
</tr>
<tr>
<td>3. Programming and use simple interpolation functions and mathematical functions in the programming of simulation models.</td>
</tr>
<tr>
<td>4. Programming and test functions and logic functions in the programming of simulation models.</td>
</tr>
<tr>
<td>5. Development of conceptual, mathematical and computer simulation models.</td>
</tr>
<tr>
<td>6. Creating and simulating electrical engineering models and behaviours modelled system.</td>
</tr>
<tr>
<td>7. Simulation of Electrical models depending on the power source.</td>
</tr>
<tr>
<td>8. Creating a model and simulate process of inventory management.</td>
</tr>
<tr>
<td>9. Creating models and simulation systems emptying and filling the tank.</td>
</tr>
<tr>
<td>10. Creating and simulating models disembarkation processes in the port.</td>
</tr>
<tr>
<td>11. Creating a conceptual model of mass serving (post office or hospital office).</td>
</tr>
<tr>
<td>12. Creating a conceptual model of mass serving (boarding passengers on the ship).</td>
</tr>
<tr>
<td>13. Analysis of students' suggestions for making your own models.</td>
</tr>
<tr>
<td>14. Creating a conceptual and programming model for each student.</td>
</tr>
<tr>
<td>15. Review and evaluation of the seminar paper for each student</td>
</tr>
</tbody>
</table>

| Format of instruction: | x lectures | x individual assignments |
Student responsibilities

The presence at lectures and exercises of at least 80% is required as well as active participation in classroom. In case of insufficient class attendance, students are not eligible for signature and shall re-enrol the course 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>ECTS Credits</th>
<th>Portion of Final Grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Experimental work</td>
<td>1.5</td>
<td>20</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Tests</td>
<td>1.5</td>
<td>20</td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical training</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Midterm exams are administered after lectures and exercises. Students are expected to take part in exercises, implement and test software, such as Powersim or iThing and develop models to tasks. Three midterm exams of theory are scheduled. The midterm exams will be in written form and it is necessary to achieve at least 50% of accurate responses. A student who positively solves all preliminaries is exempt from the written/oral exam and, depending on results; the score achieved on the final exam is entered in the “Indeks” (Student Transcript Book). The midterm exam that is positively solved by students is recognized as a part of the final exam.

The exam consists of the theoretical written and/or oral part. The examination may be limited to students who have met the requirements (lecture attendance, laboratory exercises). Class attendance and activity of each student in class is monitored and it is a part of the overall assessment.

Continuous evaluation of students’ performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and activity during the course</td>
<td>At least 80 The most active students gain 5-10 points, depending of the activity.</td>
<td>10</td>
</tr>
<tr>
<td>1st Midterm exam</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>2nd Midterm exam</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>3rd Midterm exam</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Exercises</td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written exam</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Criteria</td>
<td>Points (%)</td>
<td>Grade</td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>0-44.5</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>45-61</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>62-74</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>75-87.9</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>88-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)


### Quality assurance methods that ensure the acquisition of exit competences

- University survey, self-evaluation, student attendance list, passing rate analysis at the end of the academic year

### Other (as the proposer wishes to add)

- Practical training should be conducted in groups, in a way 1/1, or one student one computer.
<table>
<thead>
<tr>
<th><strong>Associate teachers</strong></th>
<th><strong>Type of instruction (number of hours in a semester)</strong></th>
<th><strong>L</strong></th>
<th><strong>S</strong></th>
<th><strong>E</strong></th>
<th><strong>F</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>30</td>
<td>0</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
</table>

| **Status of the course** | **Mandatory** | **Percentage of application of e-learning** | **10%** |

**COURSE DESCRIPTION**

**Course objectives**

To become familiar with the establishment and maintenance of maritime integrated systems for safety and control in the connectivity with integrated management of the coastal and marine areas in order to preserve natural resources on the maritime domain and to improve protection of the marine environment. The objective is to enable sustainable development and the creation of conditions for realization of maximum profit, development of skills identifying the needs, determining the measures and decisions in accordance with applied technologies.

**Course enrolment requirements and entry competencies required for the course**

- Be able to compare elements of the maritime integrated system for safety and control.
- Assess the way of establishing legal measures of the maritime integrated system for safety and control.
- Recommend activities for identifying needs.
- Demonstrate and present decision making process or processes in accordance with applied technologies
- Recommend the necessary measures in accordance with applied technologies.

**Learning outcomes expected at the level of the course (4-10 learning outcomes)**

- Be able to compare elements of the maritime integrated system for safety and control.
- Assess the way of establishing legal measures of the maritime integrated system for safety and control.
- Recommend activities for identifying needs.
- Demonstrate and present decision making process or processes in accordance with applied technologies
- Recommend the necessary measures in accordance with applied technologies.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**
- International legal framework of maritime safety. The rights and obligations contained in the UN Convention on the Law of the Sea - UNCLOS.
- International Maritime Organization - IMO.
- Measures applied by the states and the safety of navigation. The role of the European Maritime Safety Agency – EMSA. Measures to prevent maritime accidents.
- Reduction of the consequences after maritime accidents.
- The role of the Agency for research of accidents in air, sea and rail transport. Protection of the human life at sea, ecology and protection of the sea.
- Control of the sea and models for managing marine and coastal environment of the Adriatic Sea.
- Coast Guard, maritime transport and routing modes. Risks and safety.
- Implementation of the ISPS code. Critical Infrastructures – CA and CA management.
- The e-navigation system.
- Economic success in connectivity with the security.

**Exercises:**

- Analysis of the establishment of the international legal framework of maritime safety.
- Internet research of problems in connectivity with the rights and obligations contained in the UN Convention on the Law of the Sea - UNCLOS.
- International Maritime Organization (IMO). EMSA. Internet research of relevant sites and working on project tasks.
- Simulation of measures of states in connectivity with the safety of navigation. The tasks in developing measures to prevent maritime accidents.
Analysis of examples of reducing the consequences arising after maritime accidents.
Analysis of the report of the Agency for research of accidents in air, sea and rail transport.
Development of presentations about safety of life at sea, as well as the ecology and protection of the sea.
Analysis of the functionality of the sea control.
Visit to the Coast Guard. Introduction with the functions of the Coast Guard.
Examples of risk.
Creating plans in connectivity with the ISPS code.
Visit to certain critical infrastructures (CA).
E-navigation system and expected application
Presentation of examples of economic success in connectivity with security.

Format of instruction:
- lectures
- seminars and workshops
- exercises
- online in entirety
- field work
- individual assignments
- multimedia
- laboratory exercises
- mentoring
- (other)

Student responsibilities
Lectures and exercises are mandatory for students and records of attendance are kept. To get a signature, students must attend a minimum of 80% of classes (lectures and exercises). In case of insufficient attendance at classes, no signature or the right to take the exam will be given. Excuse note cannot justify or replace class attendance. Students are required to prepare and present a seminar 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.125</td>
<td></td>
<td>0.7</td>
</tr>
</tbody>
</table>

Experimental work Report (Other)
Essay Seminar paper (Other)
Mid term test 0.7 Oral exam 1.475 (Other)
Written exam Project (Other)

Grading and evaluating student work in class and at the final exam
Lectures and exercises are mandatory for students. Records of attendance at classes are kept. In order to get a signature, students must attend lectures and exercises. In case of insufficient number of attendances, no signature will be obtained. Based on the completed obligations, students can access the oral part of the exam. Students can write a seminar paper. The final exam is within the official exam deadlines. Examples of exam questions are available on the web. Students who re-enroll in the course in the following year are not recognized for parts of the exam.

Continuous evaluation of students' performance:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and activity during the course</td>
<td>95</td>
<td>50</td>
</tr>
<tr>
<td>Continuous evaluation (seminar paper)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
</tbody>
</table>
### Title

<table>
<thead>
<tr>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal)


### Quality assurance methods that ensure the acquisition of exit competences

University survey, List of student attendance, Faculty teaching supervision

### Other (as the proposer wishes to add)

4.11.9.4 Maintenance Management

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MAINTENANCE MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPS121</td>
</tr>
<tr>
<td>Year of study</td>
<td>5</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>4</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td>30 0 15 0</td>
<td></td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>/</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

**Course objectives**
The goal of the course is to familiarise the students with the basic causes of malfunction and failures and to enable the students to apply the acquired knowledge to the ship's systems and the vessel in general.

**Course enrolment requirements and entry competencies required for the course**
### Learning outcomes expected at the level of the course (4-10 learning outcomes)

Upon successful completion of this course the student is expected to be able to:

1. Explain the maintenance costs
2. Define and explain the basic causes of malfunction and failures
3. Define and explain the reliability of technical systems
4. Define and describe the maintenance strategies
5. Describe the ways of maintaining the underwater part of the hull
6. Define and explain the effect of spare parts on the maintenance procedure
7. Manage the system of planned maintenance on board the vessel

### Lectures

1. Maintenance costs, effect on the maintenance costs over the entire life-span of the equipment, effect of the participants on the maintenance costs.
2. Damage and failures: initial, accidental, time-induced failures and malfunctions. The function of the distribution of failures: failure rate, failure index.
4. Technology of maintenance: requirements, spare parts, worklists, tools and equipment for maintenance, diagnostic tools and devices.
5. Organisation of maintenance.
6. Preventive maintenance,
7. Corrective maintenance,
8. Maintenance according to the state of the components.
10. Safe management and efficient procedures in maintenance and repair in accordance with the vessel's SMS.
11. Modern approaches to maintenance: RCM, logistic approach.
12. Organisation and technologies of maintenance in the shipping industry.
13. Maintenance of the underwater part of the ship's hull: spare parts.
14. Software supporting maintenance procedure and maintenance planning.
15. Influence of the classification societies on maintenance.

### Exercises:

1. Configurations of the ship systems and reliability – calculation examples.
2. IBM® SPSS® AMOS (Analysis of Moment Structures) – structural equation modelling software for the maintenance support and planning. Introduction to the software.
3. AMOS – developing a configuration of the maintenance of the ship systems.
4. AMOS – developing a configuration of the maintenance of the ship systems: adding a system, a sub-system, components.
5. AMOS – examples of the configuration of critical equipment.
6. AMOS – lists of the due maintenance items.
7. AMOS – creating working orders and assignments by maintenance items.
8. AMOS – examples of reports on the completed task.
9. AMOS – statistical analysis of the corrective maintenance share in the maintenance planning.
10. AMOS – examples of reports on the used spare parts.
11. AMOS – examples of the analysis of the spare part stock.
12. AMOS – making orders for the spare parts.
13. AMOS – examples of spare part stock updating (items used / received).
14. AMOS – service letters from the equipment manufacturers.
15. AMOS – examples of monitoring the maintenance of the ship systems and the control of ship certificates, in line with the requirements of the PMS classification societies.

### Format of instruction

- Lectures
- Seminars and workshops
- Exercises
- Independent tasks
- Multimedia
- Laboratory
### Student responsibilities

Records of student attendance are kept as attending lectures and exercises is compulsory. Student is required to attend 95% of lectures and 100% exercises in order to obtain the course teacher’s signature, take the exam and earn ECTS credits. Insufficient attendance has to be compensated by performing additional assignments (seminar papers). Students who have missed classes due to illness must have a valid medical document proving their health issues. Students who have achieved less than 50% of class attendance cannot obtain the teacher's signature and have to re-register the course in the following academic year.

### Screening student work

<table>
<thead>
<tr>
<th>Attendance</th>
<th>Experimental work</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay</td>
<td>Report</td>
<td>Seminar work / paper</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>Oral exam</td>
<td>Project work</td>
<td>(other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>1,125</td>
<td>1,875</td>
<td>(other)</td>
</tr>
</tbody>
</table>

*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)*

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

Students’ activity in class is assessed over the semester. Students take two written midterm tests. The first test comprises Lectures 1-8 and is held in the 8th week of the semester, while the second comprises Lectures 8-15 and takes place in the 15th week of the semester. Sample tests are available on the faculty’s intranet. A student has to achieve at least 50% of points to pass a midterm test. In case a student passes both tests, he/she does not have to take the final exam. If a student has missed / failed one of the midterms for justified reasons, he/she can re-take that test in the following examination period. If a student has missed or failed both midterms, he/she has to take the complete final exam. The final written/oral exam is not obligatory for the students who have passed the midterms. A partial final exam is available to the students who have failed one of the midterms – the partial exam covering the area the students have not mastered. Students who have obtained the teacher’s signature but have failed or missed two or three midterm tests have to register for the final exam in the examination period. Students who have passed all the midterm exams are expected to register through the on-line service (“Studomat”) in the first examination period to obtain the grade in his/her record book. The final grade is defined on the basis of student attendance and midterm test results. Students shall take the final oral exam in case they would like to achieve a higher grade. The same grading criteria apply for the continuous assessment of student achievements and for the final examination.

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min. %)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and exercises involvement</td>
<td>95</td>
<td>37,5</td>
</tr>
<tr>
<td>1st mid term test</td>
<td>50</td>
<td>31,25</td>
</tr>
<tr>
<td>2nd mid term test</td>
<td>50</td>
<td>31,25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>
### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam (written)</td>
<td>50</td>
<td>31.25</td>
</tr>
<tr>
<td>Exam (oral)</td>
<td>50</td>
<td>31.25</td>
</tr>
<tr>
<td>Continuous evaluation</td>
<td>Lecture 95</td>
<td>73.50</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimum criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimum criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average success with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above-average success with few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Extraordinary success</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Available through other media</th>
</tr>
</thead>
</table>

### Optional literature (at the time of submission of study programme proposal/reading)

### Quality assurance methods that ensure the acquisition of exit competencies

Survey carried out by University of Split, List of student attendance, Teaching process monitored by Faculty, Analysis of the examination passing rate (Quality Management System in compliance with ISO 9001)

### Other (as the proposer wishes to add)
### 4.11.9.5 Crisis Management at Sea

<table>
<thead>
<tr>
<th>NAME OF COURSE</th>
<th>CRISIS MANAGEMENT AT SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN132</td>
</tr>
<tr>
<td>Year of study</td>
<td>5th</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Ivica Pavić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L 30  S 0  E 15</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td>10%</td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

- **Course objectives**
  - Acquisition of knowledge in the organizational, technical, technological and legal framework of crisis management at sea.
  - Acquisition of knowledge about the types and sources of crisis situations at sea and contemporary maritime security threats.
  - Learning the basic principles of the organization of crisis management and mechanisms of countries and international organizations in crisis management at sea.
  - Training the students in the application of acquired knowledge and skills in the field of crisis management to sea.

- **Course enrolment requirements and entry competencies required for the course**

- **Learning outcomes expected at course level (4-10 learning outcomes)**
  1. Describe the legal framework for crisis management at sea,
  2. Analyse the types and sources of crisis situations at sea,
  3. Explain the principles of the organization and crisis management at sea,
  4. Identify risks in maritime transport,
  5. Understand the mechanisms of states and international organizations in crisis management at sea,
  6. Analysis and interpretation of maritime security threats and the responses to threats of countries and international organizations.

- **Lectures**
  1. Introduction to the subject, conceptual definition of sources and types of threats to maritime security.
  2. Legal framework for the investigation of marine casualties.
  3. Maritime accidents as a source of crisis situations at sea.
  4. Smuggling prohibited goods and materials as a source of crisis situations at sea.
  6. Trafficking in human being and human being smuggling at sea.
  7. Risk management analysis and methodology according to IMO.
  8. Integrated maritime surveillance as a basis for crisis management to sea.
12. Organization and activities of naval forces in preventing the smuggling of prohibited goods and materials. International and national mechanisms for activities of naval forces.

**Exercises**
1. Examples of methods of risk assessment.
2. Investigation methodology of marine casualties. Analysis of selected well known maritime accidents.
3. Analysis of selected well known cases of prevention of environmental accidents and pollution.
4. Analysis of the organization of search and rescue services.
5. Analysis of the operations of naval forces in counter piracy operations.
6. Analysis of the operations of national and international naval forces in prevention of trafficking in human beings and smuggling of human beings at sea.

**Format of instruction:**
- lectures
- seminars and workshops
- on line entirely
- exercises
- mixed e-learning
- field lectures
- individual assignments
- multimedia
- laboratory exercises
- mentoring

**Student responsibilities**
Lecture attendance is mandatory (there is a record of attendance), and it is 80% of lectures in order to get the right of signature. If the attendance requirement is not met, student is obliged to sign in for the class in the next academic year.
There will be two (2) mid-term written exams, one at 7th week and one at 14th week of classes. For the passing grade, it is needed minimum of 50% of points on each mid-term exam. Students who didn’t pass the first mid-term are not permitted to take the second mid-term exam. Students that have a signature, but didn’t pass mid-terms, are obligated to take a final written exam. Students that have enough points to pass the course have to sign up for the exam during the first term in order to get their grade signed in, or to have an oral exam if they want a higher grade.

<table>
<thead>
<tr>
<th>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)</th>
<th>Lecture attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>1,1</td>
<td>Paper</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Experimental work</td>
<td></td>
<td>Seminar paper</td>
<td>e-learning</td>
</tr>
<tr>
<td>Essay</td>
<td></td>
<td></td>
<td>(Insert other)</td>
</tr>
<tr>
<td>Midterm/End of term exams</td>
<td>2,9</td>
<td>Oral exam</td>
<td></td>
</tr>
<tr>
<td>Written exam</td>
<td></td>
<td>Project</td>
<td>(Insert other)</td>
</tr>
</tbody>
</table>

**Grading and evaluating student work in class and at the final exam**
Lecture attendance is mandatory (there is a record of attendance), and it is 80% of lectures in order to get the right of signature. If the attendance
requirement is not met, student is obliged to sign in for the class in the next academic year. There will be two (2) mid-term written exams, one at 7th week and one at 14th week of classes. For the passing grade, it is needed minimum of 50% of points on each mid-term exam. Students who didn’t pass the first mid-term are not permitted to take the second mid-term exam. Students that have a signature, but didn’t pass mid-terms, are obligated to take a final written exam. Students that have enough points to pass the course have to sign up for the exam during the first term in order to get their grade signed in, or to have an oral exam if they want a higher grade.

### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>1st Mid-term exam</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>2nd Mid-term exam</td>
<td>50</td>
<td>45</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam (written and/or oral)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Other activities (including all factors of continuous evaluation)</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criteria</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>does not fulfil minimal criteria</td>
<td>fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>fulfils minimal criteria</td>
<td>satisfactory (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable deficiencies</td>
<td>good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above average achievement with a few deficiencies</td>
<td>very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>excellent (5)</td>
</tr>
</tbody>
</table>

Students who do not pass the mid term test during the semester, and have a signature, are required to take a written exam within the exam period. The same assessment criteria apply to the examination period as to the continuous assessment of knowledge.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

350
4.11.9.6 Military Logistic Systems Management

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MILITARY LOGISTIC SYSTEMS MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO137</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Jadranka Bilić, Ph.D.</td>
</tr>
<tr>
<td>Year of study</td>
<td>5th</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L 30 S 0 E 30 F 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory for all students</td>
</tr>
<tr>
<td>Percentage of e-learning application</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

The aim of the course is to teach the students theoretical and practical knowledge of logistics systems, understand the needs of management, its planning and coordination, and to acquire analytical and managerial skills in order to apply the knowledge in Military logistic systems management.
<table>
<thead>
<tr>
<th>Learning outcomes expected at course level (4-10 learning outcomes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Correctly interpret the concept and basic principles of logistics</td>
</tr>
<tr>
<td>2. Explain the logistics organisation.</td>
</tr>
<tr>
<td>3. Describe specific features of military logistics.</td>
</tr>
<tr>
<td>4. Describe maintenance processes.</td>
</tr>
<tr>
<td>5. Explain supply processes.</td>
</tr>
<tr>
<td>6. Explain various processes of production logistics.</td>
</tr>
<tr>
<td>7. Explain the organization of transport logistics</td>
</tr>
<tr>
<td>8. Explain the organisation of medical support</td>
</tr>
<tr>
<td>9. Describe the organisation of logistics in international organisations.</td>
</tr>
<tr>
<td>10. Carry out essential logistic calculations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course contents elaborated in detail according to class schedule (syllabus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Introduction to logistics systems management</strong>, 2 (concept, definition, objectives and goals of logistics, etymology and historical development of logistics, logistics as a science and logistics as a business activity, functional fields of logistics).</td>
</tr>
<tr>
<td>2. <strong>Organisation of military logistics</strong>, 2 (concept, objectives and goals, historical development).</td>
</tr>
<tr>
<td>3. <strong>Supply management</strong>, 2 (procurement, stocks management, storing and distribution)</td>
</tr>
<tr>
<td>4. <strong>Maintenance management</strong>, 3 (objectives, strategies, levels, degrees and concept).</td>
</tr>
<tr>
<td>5. <strong>Management of production logistics processes</strong>, 2 (production planning and control, material handling, packaging).</td>
</tr>
<tr>
<td>6. <strong>Traffic logistics</strong>, 2 (transport, military transport function)</td>
</tr>
<tr>
<td>7. <strong>Management of medical support</strong>, 2 (stationary health care and organisation of medical support in operations (ROLE))</td>
</tr>
<tr>
<td>8. <strong>Organisation of logistics in military branches</strong>, 2 (specific features of the Croatian Army and Croatian Air Force)</td>
</tr>
<tr>
<td>9. <strong>Logistic support to the Croatian Navy</strong>, 2 (structure and specific features)</td>
</tr>
<tr>
<td>10. <strong>Logistics in military operations</strong>, 3 (areas and units of support, logistics in MDMP - military decision making process)</td>
</tr>
<tr>
<td>11. <strong>Organisations of logistics in NATO and EU</strong>, 3 (Structure, NATO-led operations, EU-led missions and operations)</td>
</tr>
<tr>
<td>12. <strong>Organisation of logistics in the UN</strong>, 2 (structure and operational support)</td>
</tr>
<tr>
<td>13. <strong>Material and financial management</strong>, 3 (structure, material accounting, SPP II)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exercises:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Drawing up of supply materials budgets</strong>, 6 (calculation of required water and food in different weather conditions and in different geographical conditions)</td>
</tr>
<tr>
<td>2. <strong>Calculation of the required amount of ammunition</strong>, 6 (general ammunition and navy-specific ammunition)</td>
</tr>
<tr>
<td>3. <strong>Planning of movement and transport assets</strong>, 6 (planning of transit time, length of the column/convoy type of vehicles, speed of the column/convoy type of vehicles, types of vessels/vehicles and necessary capacities)</td>
</tr>
<tr>
<td>4. <strong>Fabrication of documentation for sending material resources</strong>, 6 (within the national system and in international operations)</td>
</tr>
<tr>
<td>5. <strong>Ship logistic documentation</strong>, 6 (filling in engine logs, technical booklets, technical records, food logs)</td>
</tr>
</tbody>
</table>

- lectures |
- independent assignments
### Format of instruction:

| ☐ seminars and workshops | ☐ multimedia |
| ☐ exercises | ☐ laboratory |
| ☐ on line in entirety | ☐ work with mentor |
| ☐ partial e-learning | ☐ (other) |
| ☒ field work |

Lecture attendance is mandatory (there is a record of attendance), and it is 90% at lectures and 100% at exercises in order to get the right of signature. A note of excuse cannot justify nor replace the class attendance. If the attendance requirement is not met, student is obliged to re-enrol in the course the next academic year.

Students who on account of illness or any other justified reasons do not fulfil the conditions for obtaining the signature and whose attendance at class is 80% or more will be able to work off remaining classes during consultation hours and by performing additional tasks.

### 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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Independent study and homework (other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar essay</td>
<td>(Other)</td>
</tr>
<tr>
<td>Tests</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

### Assessment and evaluation of full-time students’ work

There are a midterm and end of term exams.

If students do not pass the midterm or end of term exam (minimum 50% for passing grade) they shall take an oral exam.

If they pass the midterm and end of term exams they shall obtain an average grade.

In order to obtain the signature, students’ attendance at lectures shall be 95% and at exercises 100%.

#### Continuous evaluation of students' performance

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance and exercise attendance</td>
<td>95/100</td>
<td>30</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>End of term exam</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Final examination:

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
<td>95</td>
<td>30</td>
</tr>
</tbody>
</table>

---

353
### Grading scale:

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>Does not meet minimal criteria</td>
<td>Fail (1)</td>
</tr>
<tr>
<td>50-64</td>
<td>Meets minimal criteria</td>
<td>Sufficient (2)</td>
</tr>
<tr>
<td>65-79</td>
<td>Average achievement with noticeable mistakes</td>
<td>Good (3)</td>
</tr>
<tr>
<td>80-89</td>
<td>Above- average achievement with a few mistakes</td>
<td>Very good (4)</td>
</tr>
<tr>
<td>90-100</td>
<td>Exceptional achievement</td>
<td>Excellent (5)</td>
</tr>
</tbody>
</table>

Same grading criteria are valid for written final exam as for midterm/end of term exams.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJP-4 : Allied Joint Doctrine for Logistics, 2018</td>
<td></td>
<td>yes</td>
</tr>
<tr>
<td>STANAG 2617, ALP-16 ED.A(1) : Allied logistics publications for explosive safety and munitions risk management (ESMRM) in NATO planning, training and operations, 2015</td>
<td></td>
<td>yes</td>
</tr>
</tbody>
</table>

### Optional literature (at the time of submission of study programme proposal)

- Jeremy C.D. Smith: Defence Logistics: Enabling and Sustaining Successful Military Operations, 2018

### Quality assurance methods that ensure the acquisition of exit competences

- Evidence of students’ attendance, evidence of professors’ attendance, student questionnaire, Faculty teaching supervision.

### Other (as the proposer wishes to add)
# 4.11.9.7 Physical Education

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PHYSICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO138</td>
</tr>
<tr>
<td>Year of study</td>
<td>5th</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Ivica Bajaj, M.P.Ed.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>0</td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of application of e-learning</td>
<td></td>
</tr>
<tr>
<td>COURSE DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>Course objectives</td>
<td>The course objectives are to learn and improve new motor knowledge and skills in order to influence anthropological characteristics (motor traits; functional, motor, cognitive and conative abilities), to improve one's health and work ability, to satisfy the need for bodily movement, to enable students to use and spend their free time wisely and live a quality life in youth, maturity and old age.</td>
</tr>
<tr>
<td>Learning outcomes expected at the level of the course (4-10 learning outcomes)</td>
<td>/</td>
</tr>
<tr>
<td>Demonstrate several basic and specific exercises for a certain kinesiological activity.</td>
<td></td>
</tr>
<tr>
<td>Demonstrate the proper performance of new elements of a certain kinesiological activity.</td>
<td></td>
</tr>
<tr>
<td>Perform stretching exercises for a certain kinesiological activity.</td>
<td></td>
</tr>
<tr>
<td>Repeat the given new elements of a certain kinesiological activity in series.</td>
<td></td>
</tr>
<tr>
<td>Demonstrate strength and flexibility exercises in order to prevent ostromuscular disorders.</td>
<td></td>
</tr>
<tr>
<td>Integrate motor knowledge and skills for solo workout or a competition.</td>
<td></td>
</tr>
<tr>
<td>Course content broken down in detail by weekly class schedule (syllabus)</td>
<td>Exercises:</td>
</tr>
<tr>
<td>8. Regular testing of physical abilities</td>
<td></td>
</tr>
<tr>
<td>1. The development of functional abilities</td>
<td></td>
</tr>
<tr>
<td>2. The development of motor abilities</td>
<td></td>
</tr>
<tr>
<td>3. Fitness programs</td>
<td></td>
</tr>
<tr>
<td>4. Swimming</td>
<td></td>
</tr>
<tr>
<td>5. Naval pentathlon (naval obstacles, navy skills training area)</td>
<td></td>
</tr>
<tr>
<td>6. Navy skills training (rowing, sailing)</td>
<td></td>
</tr>
<tr>
<td>Format of instruction:</td>
<td></td>
</tr>
<tr>
<td>Lectures</td>
<td>Individual assignments</td>
</tr>
<tr>
<td>Seminars</td>
<td>Multimedia</td>
</tr>
<tr>
<td>Exercises</td>
<td>Lab exercises</td>
</tr>
<tr>
<td>On-line in entirety</td>
<td>Mentoring</td>
</tr>
<tr>
<td>Field work</td>
<td></td>
</tr>
<tr>
<td>Student responsibilities</td>
<td>Students are required to participate in exercises. Records of student attendance are also kept.</td>
</tr>
<tr>
<td>Class attendance</td>
<td>Research</td>
</tr>
</tbody>
</table>

355
## 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Report</th>
<th>(Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

Assessment and evaluation of full-time students’ work

During the academic year, students are required to take two regular physical fitness tests to meet the established norms.

## Required literature

(available in the library and via other media)

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

## Optional literature

(at the time of submission of study programme proposal)


## Quality assurance methods that ensure acquisition of learning outcomes

- University survey and teaching supervision.

## Other (as the proposer wishes to add)
### 4.11.105th Year, X Semester

**4.11.10.1 Hydrographic Engineering**

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>HYDROGRAPHIC ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPN133</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Ivica Pavić, Ph.D.</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>5</td>
</tr>
<tr>
<td>Year of study</td>
<td>5th</td>
</tr>
</tbody>
</table>

#### Associate teachers

<table>
<thead>
<tr>
<th>Associate teachers</th>
<th>Type of instruction (number of hours in a semester)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jakša Mišković, M.Eng.</td>
<td>L S E F</td>
</tr>
<tr>
<td></td>
<td>45 0 15 0</td>
</tr>
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</table>

#### Status of the course

<table>
<thead>
<tr>
<th>Status of the course</th>
<th>Percentage of application of e-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>30%</td>
</tr>
</tbody>
</table>

### COURSE DESCRIPTION

#### Course objectives

Acquire knowledge of organization, technology, methodology and application of hydrography in the production of charts and nautical publications, and in particular of standards for the usage, production, maintenance and data protection of electronic navigation charts.

#### Learning outcomes expected at the level of the course (4-10 learning outcomes)

1. Describe the organization of international hydrographic activity,
2. Analyse the role of International Hydrographic Organization,
3. Explain the principles of the hydrographic survey,
4. Understand the principles, capabilities and limitations of technological means used for hydrographic survey,
5. Analyse and interpret the data acquired by hydrographic survey,
6. Understand the principles of making nautical charts and publications,
7. Analyse and understand advantages and limitations of the usage of electronic nautical charts.

#### Lectures

1. Introduction to the subject. Legal basement of the international hydrographic activity.
2. The organization of hydrographic activity in the world. The most significant world’s nautical charts and publications producers.
4. The role of the International Hydrographic Organization in the development of the international hydrographic activity. Regional Hydrographic Commissions.
7. Propagation of ultrasound waves in seawater. The application of echo sounders in hydrography.
8. The application of LIDAR technology in hydrography.
12. Contemporary principles of organization, display, infrastructure and usage od geospatial data. Application of geographic information system in hydrography.
13. Main features, characteristics, advantages and limitations of electronic nautical charts and display systems. IMO and IHO requirements. Chart Datums analysis. Comparison of analogue and digital data. RNC vs. ENC.
15. Production, data protection and updates of ENC. Production, distribution, quality control and role of RENCs in the system of ENC. ENC updates, data protection scheme and distribution models.

**Exercises**
1. Analysis of maritime boundaries displayed on nautical charts.
2. The system of making nautical charts and publications.
3. Development of hydrographic original.
5. Analysis of nautical charts produced by Croatian Hydrographic Institute.
7. Analysis of nautical charts produced by The United Kingdom Hydrographic Office.
8. Analysis of navigational publications produced by The United Kingdom Hydrographic Office.
10. Application of nautical publication updates.
11. Raster nautical charts advantages and disadvantages analysis.
12. Vector nautical charts advantages and disadvantages analysis.
14. The usage of digital chart catalogues in the process of passage planning.
15. Analysis of ECDIS related incidents.

**Format of instruction:**
- lectures
- seminars and workshops
- exercises
- *online* entirely
- mixed e-learning
- field lectures
- individual assignments
- multimedia
- laboratory exercises
- mentoring

**Student responsibilities**
Lectures and exercises are mandatory for students and records of attendance are kept. In order to receive a signature, part-time students must attend a minimum of 50% of lectures and exercises, and full-time students a minimum of 80% of lectures and exercises. In case of insufficient number of attendances, students do not have the right to sign and are required to re-enroll in the course again next year. The exam can be taken continuously through a mid term test or through a final exam (written exam).

**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)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>(Other)</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar paper</td>
<td>(Other)</td>
</tr>
<tr>
<td>Midterm/ End of term exams</td>
<td>2</td>
<td>Oral exam</td>
</tr>
<tr>
<td>Written exam</td>
<td>1.5</td>
<td>Project</td>
</tr>
</tbody>
</table>

**Grading and evaluating student work in class and at the final exam**
Two mid term test from the theoretical part of the exam are planned. The student is required to attend all mid term tests. At each mid term test, it is necessary to achieve a minimum of 50% of points for passing. The mid term test from the theoretical part is held in writing. A student who passes both mid term test positively is exempt from the written exam. For students who have successfully passed one mid term test, is recognized as part of the passed final exam. The remaining part of the course is taken on the written part of the final exam in the term of the lecturer’s exam period, with the application at Studomat, provided that they have a signature. For students who do not
pass the first or second mid term test in the theoretical part, a new ter for the mid term test will be organized. Students who pass all mid term test are exempted from the written exam. Students who have collected a sufficient number of points during classes (passed both mid term test) are required to register for the exam through Studomat for the first exam period after the lecture and, depending on the result, their grade is entered in the index. Continuous student evaluation:

**Continuous evaluation of students' performance**

<table>
<thead>
<tr>
<th>Elements of evaluating</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
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<td>10</td>
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<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Mid-term exam</td>
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<td>45</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Mid-term exam</td>
<td>50</td>
<td>45</td>
</tr>
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</table>

**Grading scale:**

<table>
<thead>
<tr>
<th>Points (%)</th>
<th>Criterion</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-49</td>
<td>does not fulfil minimal criteria</td>
<td>fail (1)</td>
</tr>
<tr>
<td>50-61.9</td>
<td>fulfils minimal criteria</td>
<td>satisfactory (2)</td>
</tr>
<tr>
<td>62-74.9</td>
<td>Average achievement with noticeable deficits</td>
<td>good (3)</td>
</tr>
<tr>
<td>75-87.9</td>
<td>Above average achievement with a few deficiencies</td>
<td>very good (4)</td>
</tr>
<tr>
<td>88-100</td>
<td>Exceptional achievement</td>
<td>excellent (5)</td>
</tr>
</tbody>
</table>

Students who do not pass the mid term test during the semester, and have a signature, are required to take a written exam within the exam period. The same assessment criteria apply to the examination period as to the continuous assessment of knowledge.

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hecht, H. et.al.: <em>The Electronic Chart, fundamentals, functions, data and other essentials</em>, Geomares Publishing, 2017</td>
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**Optional literature (at the time of submission of study programme proposal)**

4.11.10.2 Professional Practice

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>PROFESSIONAL PRACTICE</th>
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</thead>
<tbody>
<tr>
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<td>Year of study 5th</td>
</tr>
<tr>
<td>Course teacher</td>
<td>Credits (ECTS) 10</td>
</tr>
<tr>
<td>Associate teachers</td>
<td>Type of instruction</td>
</tr>
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<td></td>
<td>(number of hours in a</td>
</tr>
<tr>
<td></td>
<td>semester)</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Percentage of e-learning</td>
</tr>
<tr>
<td></td>
<td>application 60 0 180 0</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION**

**Course objectives**

The main objective of this course for students is to acquire practical maritime (navy officer) knowledge and skills of ship handling in all conditions; acquire practical knowledge and skills of a specialist in particular profession; teach students leadership (issuing orders); gain specific proficiency needed for working on board.

**Course enrolment requirements and entry competences required for the course**

/ 

**Learning outcomes expected at the level of the course (4 to 10 learning outcomes)**

1. Applying specific knowledge and skills for working on board in all conditions,
2. Organizing crew and planning activities and exercises on board, identifying specific dangerous situations as dangerous on board (e.g., stress, alcohol, workload, distinct authority, war conditions, etc.) and analyzing characteristics of seafarers (attitude, hard work, authoritativeness, positive initiative).
3. Developing a good organizational structure of work on board a ship and developing leadership.

**Course content broken down in detail by weekly class schedule (syllabus)**

**Lectures:**

1. Management structure on board, organization of duties and responsibilities on board and decision-making in emergency situations.
2. Ergonomics, designs and specific ship purposes.
3. The application of the ISM Code, watchkeeping and relieving the watch, organization of drills on board.
4. Shipboard systems, devices and equipment.
5. Life saving appliances, fire fighting systems and equipment. Ship flooding emergency procedures.
6. Ship’s berthing, anchoring and towing equipment.
7. Navigation devices and equipment on board.
8. Communication devices and equipment on board.
9. Ship combat systems.
10. Ship power engineering systems.
11. Logistic management and maintenance of ship.
12. Naval boarding techniques.
13. Weapon handling techniques.

**Exercises (Navy):**
1. Procedures of organizing the ship's crew at sea and in port according to SOLAS.
2. Emergency procedures, damage control system procedures.
3. CBRN defence of ship.
4. Ship combat system tactics, techniques and procedures.
5. Executing particular ship’s tasks according to a specific naval mission.

**Exercises (Ministry of the Interior – Marine police):**
1. Emergency procedures on board.
2. Naval boarding techniques.
3. Marine police tactics, techniques and procedures.
5. Weapon handling techniques.
6. Integral training.

### Format of instructions

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Seminars and workshops</th>
<th>Exercises</th>
<th>On line in entirety</th>
<th>Partial e-learning</th>
<th>Field work</th>
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<tbody>
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</tbody>
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<table>
<thead>
<tr>
<th>Independent assignments</th>
<th>Multimedia</th>
<th>Laboratory</th>
<th>Work with mentor</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
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### Student responsibilities

<table>
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<th>Class attendance</th>
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<th>Practical training</th>
<th>ECTS credits</th>
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<td>4.5</td>
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</tr>
</tbody>
</table>

**Screening student work**

*Enter 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.*

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5</td>
<td></td>
<td>4.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experimental work</th>
<th>Report</th>
<th>(Other)</th>
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<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Essay</th>
<th>Seminar essay</th>
<th>(Other)</th>
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<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Tests</th>
<th>Oral exam</th>
<th>(Other)</th>
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</thead>
<tbody>
<tr>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Written exam</th>
<th>Project</th>
<th>(Other)</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

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

The exam is not taken. In order to obtain a signature, it is necessary to complete 100% of the planned voyage on the school ship, actively participate in the exercises, fill in the appropriate log and complete other set tasks.

### Continuous evaluation of the students' performance

<table>
<thead>
<tr>
<th>Elements of evaluation</th>
<th>Achievement (min.%)</th>
<th>Portion of the final grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class attendance</td>
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</tr>
<tr>
<td>Demonstration of skills and knowledge</td>
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<td>50</td>
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</table>

### Required literature

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrographic Institute publications and nautical charts</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>MARISEC: Bridge Procedures Guide,</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Quality assurance methods that ensure the acquisition of exit competences</td>
<td>Evidence of students’ attendance, evidence of professors attendance’, student questionnaire</td>
<td></td>
</tr>
<tr>
<td>Other (according to the proposer)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.11.10.3 Master Thesis

<table>
<thead>
<tr>
<th>NAME OF THE COURSE</th>
<th>MASTER THESIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>VPO140</td>
</tr>
<tr>
<td>Year of study</td>
<td>5th</td>
</tr>
<tr>
<td>Credits (ECTS)</td>
<td>12</td>
</tr>
<tr>
<td>Course teacher</td>
<td></td>
</tr>
<tr>
<td>Associate teachers</td>
<td></td>
</tr>
<tr>
<td>Type of instruction (number of hours in a semester)</td>
<td>L S E F</td>
</tr>
<tr>
<td></td>
<td>0 0 120 0</td>
</tr>
<tr>
<td>Status of the course</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Percentage of e-learning application</td>
<td></td>
</tr>
</tbody>
</table>

#### COURSE DESCRIPTION

**Course objectives**

The master thesis is an independent professional elaboration of pre-selected topic. The thesis topic can relate to a theoretical or practical or theoretical-practical area in the professional and scientific field of the study programme which has been completed.

A student chooses the course within which he/she will write the master thesis. The chosen course must be included in the curriculum of the completed study programme, i.e. it must be one of the courses listed in the student's „Index“ (Student Transcript Book).

**Course enrolment requirements and entry competences required for the course**

- competencies and achieved results of studying when solving problems in the professional and scientific area comprised in his/her study programme
- ability to apply theoretical and practical knowledge gained during the study programme
- ability to apply scientific methods in the actual thesis elaboration
- ability to identify relevant measurements of maritime processes
- ability to apply the knowledge acquired from current foreign and domestic specialised literature in the thesis paper, i.e. to elaborate somebody else's relevant ideas, attitudes or scientific facts publicized in the literature studied
- ability to search the variety of online databases
- ability to process and interpret illustrations appropriately (tables, graphs, figures and drawings).
### Course content broken down in detail by weekly class schedule (syllabus)

<table>
<thead>
<tr>
<th>Format of instructions</th>
<th>/</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ lectures</td>
<td>☑ independent assignments</td>
</tr>
<tr>
<td>☐ seminars and workshops</td>
<td>☐ multimedia</td>
</tr>
<tr>
<td>☐ exercises</td>
<td>☐ laboratory</td>
</tr>
<tr>
<td>☐ on line in entirety</td>
<td>☐ work with mentor</td>
</tr>
<tr>
<td>☑ partial e-learning</td>
<td>☐ (other)</td>
</tr>
<tr>
<td>☑ field work</td>
<td>/</td>
</tr>
</tbody>
</table>

### Student responsibilities

#### Screening student work (*enter 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*)

<table>
<thead>
<tr>
<th>Class attendance</th>
<th>Research</th>
<th>Practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental work</td>
<td>Report</td>
<td>Writing thesis</td>
</tr>
<tr>
<td>Essay</td>
<td>Seminar essay</td>
<td>(Other)</td>
</tr>
<tr>
<td>Tests</td>
<td>Oral exam</td>
<td>(Other)</td>
</tr>
<tr>
<td>Written exam</td>
<td>Project</td>
<td>(Other)</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Title</th>
<th>Number of copies in the library</th>
<th>Availability via other media</th>
</tr>
</thead>
</table>

#### Optional literature (at the time of submission of study programme proposal)

<table>
<thead>
<tr>
<th>Quality assurance methods that ensure the acquisition of exit competences</th>
<th>Other (according to the proposer)</th>
</tr>
</thead>
</table>

### 5. CONDITIONS OF THE STUDY PROGRAMME PERFORMANCE

#### 5.1. Study Programme Premises

The University of Split has conducted an analysis and description of the premises and equipment provided for the execution of the study programme, and demonstrated the relevant data on the location and the total study and training area. The data on specialized laboratories, practical training classrooms, computer rooms and equipment, as well as the data on the equipment necessary for scientific researches have been collected and elaborated. The Croatian Defence Academy (hereinafter referred to as the CDA), the Department in Split, has well-equipped teaching premises, conforming with the requirements of higher education...
standards. The teaching and practical training classrooms are equipped with IT and audio visual equipment, while a modern library holds the substantial number of more than 38,100 books.
In the CDA there are significant accommodation premises for all cadets enrolled in the study programme Cadet, as well as for other courses participants. The additional accommodation premises are being adapted and fitted out in the building No 9, and upon completion, the accommodation capacities in the CDA will meet the needs for the planned number of students.

<table>
<thead>
<tr>
<th>Building ID</th>
<th>Building location</th>
<th>Year of construction</th>
<th>Lecture hall reference number or mark</th>
<th>Total area in m²</th>
<th>Total volume in m³</th>
<th>Number of seating places for students</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDA – 5</td>
<td>Split, Zrinsko Frankopanska bb</td>
<td>1972</td>
<td>1</td>
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<th>Number of library users</th>
<th>Number of titles</th>
<th>Number of copies</th>
<th>Number of seating places for students</th>
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<table>
<thead>
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<th>Year of construction</th>
<th>Lecture hall reference</th>
<th>Total area in m²</th>
<th>Total volume in m³</th>
<th>Number of seating places for students</th>
</tr>
</thead>
</table>

364
### 3.1.4. Constituent buildings (include existing buildings, buildings under construction and planned construction)

<table>
<thead>
<tr>
<th>Building ID</th>
<th>Building location</th>
<th>Year of construction</th>
<th>Lecture hall reference number or mark</th>
<th>Total area in m²</th>
<th>Total volume in m³</th>
<th>Number of seating places for students</th>
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</thead>
<tbody>
<tr>
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<td>Split, Zrinisko Frankopanskabb</td>
<td>1972</td>
<td>11</td>
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### 3.1.5. Constituent buildings (include existing buildings, buildings under construction and planned construction)

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<th>Year of construction</th>
<th>Lecture hall reference number or mark</th>
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<td>66.15</td>
<td>198.45</td>
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<td>26</td>
<td>98.7</td>
<td>671.16</td>
<td>30</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>27</td>
<td>82.95</td>
<td>564.06</td>
<td>30</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>28</td>
<td>73.7</td>
<td>501.16</td>
<td>30</td>
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<td></td>
<td></td>
<td></td>
<td>30</td>
<td>214.15</td>
<td>1,456.22</td>
<td>30</td>
</tr>
</tbody>
</table>
### 3.1.6. Constituent buildings (include existing buildings, buildings under construction and planned construction)

<table>
<thead>
<tr>
<th>Building ID</th>
<th>Building location</th>
<th>Year of construction</th>
<th>Lecture hall reference number or mark</th>
<th>Total area in m²</th>
<th>Total volume in m³</th>
<th>Number of seating places for students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Croatian Navy – 11 (Seamanship practical classrooms) (Total net area 728 m²)</td>
<td>Split, Zrinsko Frankopanskabb</td>
<td>1979</td>
<td>6a</td>
<td>66</td>
<td>232</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>72</td>
<td>252</td>
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<td></td>
<td></td>
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<td>8</td>
<td>98</td>
<td>348</td>
<td>15</td>
</tr>
</tbody>
</table>

### 3.1.7. Training field for execution of practical education

<table>
<thead>
<tr>
<th>Training field ID</th>
<th>Training area/field internal mark</th>
<th>Total area in m²</th>
<th>Number of working places for students</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRM Split, Zrinsko Frankopanskabb</td>
<td>Shipboard Damage Control training field</td>
<td>11,500</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Poljud Sports Marina</td>
<td>3,500</td>
<td>30</td>
</tr>
<tr>
<td>Brodogradnja industrija d.d. Split</td>
<td>Training area for seafarers’ training in fire-fighting onboard ships and in confined spaces</td>
<td>1,500</td>
<td>20</td>
</tr>
</tbody>
</table>
### 5.2. List of teachers and associate lectures by courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Course teacher(s)</th>
<th>Associate teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic writing</td>
<td>Luka Vukić, Ph.D.</td>
<td></td>
</tr>
<tr>
<td><strong>Applied Computer Science</strong></td>
<td>Anita Guderlj, Ph.D.</td>
<td>Hrvoje Karna, Ph.D.</td>
</tr>
<tr>
<td>Basic Naval Principles and Practices</td>
<td>Dario Matika, Ph.D.</td>
<td>Renato Zarković</td>
</tr>
<tr>
<td>Ship construction and combat resilience</td>
<td>Luka Mihanović, Ph.D.</td>
<td>Andrija Ljulji, Ph.D.</td>
</tr>
<tr>
<td>Crisis Management at Sea</td>
<td>Ivica Pavić, Ph.D.</td>
<td></td>
</tr>
<tr>
<td><strong>Electronic Warfare</strong></td>
<td>Zoran Blažević, Ph.D.</td>
<td>Boško Jerončić Grba, M. Eng.</td>
</tr>
<tr>
<td>General tactics</td>
<td>Mladen Pahernik, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Graphic Drawing in Marine Engineering</td>
<td>Luka Mihanović, Ph.D.</td>
<td>Tomislav Perić</td>
</tr>
<tr>
<td>History of Naval Warfare</td>
<td>Ivan Matijević, Ph.D.</td>
<td>Zvonimir Forker</td>
</tr>
<tr>
<td>Hydroacoustics and Ship Physical Fields</td>
<td>Maja Škiljo, Ph.D.</td>
<td>Darija Jurko</td>
</tr>
<tr>
<td>Hydrographic Engineering</td>
<td>Ivica Pavić, Ph.D.</td>
<td>Jakša Mišković, M.Eng.</td>
</tr>
<tr>
<td>Maintenance Management</td>
<td>Luka Mihanović, Ph.D.</td>
<td>Tino Sumić, M. Eng.</td>
</tr>
<tr>
<td>Military Logistic Systems Management</td>
<td>Luka Mihanović, Ph.D.</td>
<td>Jadranka Bilić, Ph.D.</td>
</tr>
<tr>
<td>Marine Electrical Engineering and Electronics II.</td>
<td>Igor Vujović, Ph.D.</td>
<td>Dean Sumić  Tomislav Peša, M.Eng.</td>
</tr>
<tr>
<td>Marine Power Systems</td>
<td>Nikola Račić, Ph.D.</td>
<td>Karlo Bratić</td>
</tr>
<tr>
<td>Maritime English I</td>
<td>Adelija Ćulić Viskota, Ph.D.</td>
<td>Silvana Koken, M.Ed.</td>
</tr>
<tr>
<td>Maritime English II</td>
<td>Adelija Ćulić Viskota, Ph.D.</td>
<td>Silvana Koken, M.Ed.</td>
</tr>
<tr>
<td>Maritime Integrated Safety and Control Systems</td>
<td>Ivica Pavić, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Maritime Law</td>
<td>Ranka Petrinović, Ph.D.  Nikola Mandić, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Maritime Medicine</td>
<td>Rosanda Mulić, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Mathematrics I</td>
<td>Nikola Koceić-Bilan, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Mathematrics II</td>
<td>Nikola Koceić-Bilan, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Mathematrics III</td>
<td>Nikola Koceić-Bilan, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Elements of Maritime Transport I</td>
<td>Marko Katalinić, Ph.D.</td>
<td>Ana Karaman, M.Eng.</td>
</tr>
<tr>
<td>Elements of Maritime Transport II</td>
<td>Marko Katalinić, Ph.D.</td>
<td>Ana Karaman, M.Eng.</td>
</tr>
<tr>
<td>Military Communications and Information System</td>
<td>Antonio Sarolić, Ph.D.</td>
<td>Tomislav Perić, M.Eng.</td>
</tr>
<tr>
<td>Military History</td>
<td>Ivan Matijević, Ph.D.</td>
<td>Zvonimir Forker, M.A.</td>
</tr>
<tr>
<td>Military Leadership</td>
<td>Dario Matika, Ph.D.  Luka Mihanović, Ph.D.</td>
<td>Mirko Šundov, Ph.D  Marjan Kostanjavec, M.Sc.</td>
</tr>
<tr>
<td>Military Management</td>
<td>Dario Matika, Ph.D.  Luka Mihanović, Ph.D.</td>
<td>Mirko Šundov, Ph.D  Marjan Kostanjavec, M.Sc.</td>
</tr>
<tr>
<td>Military Pedagogy</td>
<td>Ivana Batarelo Kokić, Ph.D.</td>
<td>Andrija Kozina</td>
</tr>
<tr>
<td>Military Psychology</td>
<td>Darko Hren, Ph.D.</td>
<td>Katija Kalebic Jakupčević, Ph.D.  Boris Milavić, Ph.D  Vesna Trut, M.Sc.</td>
</tr>
<tr>
<td>Military training I</td>
<td>Luka Mihanović, Ph.D.</td>
<td>Hrvoje Šimša</td>
</tr>
<tr>
<td>Military Training II</td>
<td>Luka Mihanović, Ph.D.</td>
<td>Hrvoje Šimša</td>
</tr>
<tr>
<td>Military-Maritime Geography</td>
<td>Mladen Pahernik, Ph.D.</td>
<td>Mirko Šundov, Ph.D  Marinko Lozančić, Ph.D  Marko Zečević, Ph.D  Jelena Petrović, Ph.D.</td>
</tr>
<tr>
<td>On-board Training II</td>
<td>Tomislav Sunko, M.Eng.</td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Naval English I</td>
<td>Adelija Ćulić Viskota, Ph.D.  Silvana Koken, M.Ed.</td>
<td>Davor Vodopija M.Ed.</td>
</tr>
<tr>
<td>Naval English II</td>
<td>Adelija Ćulić Viskota, Ph.D.</td>
<td>Davor Vodopija M.Ed.</td>
</tr>
<tr>
<td>Course</td>
<td>Instructor(s)</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td>Silvana Kokan, M.Ed.</td>
<td></td>
</tr>
<tr>
<td>Process Modelling and Simulation</td>
<td>Domagoj Bagarić, M.P.Ed.</td>
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<tr>
<td>Radio Detection Systems</td>
<td>Ivica Bajaj, M.P.Ed.</td>
<td></td>
</tr>
<tr>
<td>Safety at Sea</td>
<td>Pančo Ristov, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Safety Management and Risk in Shipping</td>
<td>Zoran Blažević, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Scientific Research Methodology</td>
<td>Boško Jerončić Grba, M.Eng.</td>
<td></td>
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<tr>
<td>Sea and Marine Environment Protection</td>
<td>Ivica Pavić, Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Seaman ship II</td>
<td>Tomislav Sunko, M.Eng.</td>
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<tr>
<td>Seaman ship III</td>
<td>Goran Belamarić, Ph.D.</td>
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<tr>
<td>Seaman ship I</td>
<td>Merica Slišković, Ph.D.</td>
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<tr>
<td>Ship Construction and Damage Control</td>
<td>Goran Belamarić, Ph.D.</td>
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<tr>
<td>Tactical Navigation</td>
<td>Zvonimir Lušić, Ph.D.</td>
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<tr>
<td>Technical Mechanics I</td>
<td>Zlatan Kulenović, Ph.D.</td>
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<tr>
<td>Work Organisation and Management On Board</td>
<td>Lea Vojković, Ph.D.</td>
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<tr>
<td>Master Thesis</td>
<td>Lea Vojković, Ph.D.</td>
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<td>Mandatory for Naval Nautical Studies</td>
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<tr>
<td>Astronomical Navigation</td>
<td>Zvonimir Lušić, Ph.D.</td>
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<tr>
<td>Automation in Maritime Traffic</td>
<td>Joško Soda, Ph.D.</td>
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<tr>
<td>Automation of Marine Engine Systems</td>
<td>Danko Kezić, Ph.D.</td>
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<tr>
<td>Cargo Handling I</td>
<td>Goran Belamarić, Ph.D.</td>
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<tr>
<td>Cargo Handling II</td>
<td>Rino Bošnjak, Ph.D.</td>
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<tr>
<td>Electronic Navigation</td>
<td>Lea Vojković, Ph.D.</td>
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<td>International Law</td>
<td>Vesna Barić Punda, Ph.D.</td>
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<td>Maritime Communications</td>
<td>Lea Vojković, Ph.D.</td>
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<td>Dean Sumić, M.Sc.Eng.</td>
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<tr>
<td>Modern Transport Technology</td>
<td>Rino Bošnjak, Ph.D.</td>
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<tr>
<td>Naval combat systems I</td>
<td>Dario Matika, Ph.D.</td>
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<tr>
<td>Naval Combat Systems II</td>
<td>Dario Matika, Ph.D.</td>
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<tr>
<td>On-board Training III</td>
<td>Jakša Mišković, M.Eng.</td>
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<tr>
<td>On-board Training IV</td>
<td>Tino Sumić, M.Eng.</td>
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<tr>
<td>Passage Planning</td>
<td>Marijan Zujić, M.Eng.</td>
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368
<table>
<thead>
<tr>
<th>Course</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>Ship Handling Technique</td>
<td>Dario Medić, M.Sc.Eng.</td>
</tr>
<tr>
<td>Ship Maintenance</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Terrestrial Navigation</td>
<td>Zvonimir Lušić, Ph.D.</td>
</tr>
<tr>
<td>Mandatory for Naval Engineering Studies</td>
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<tr>
<td>Automation of Marine Engine Systems</td>
<td>Danko Kežić, Ph.D.</td>
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<tr>
<td>Breakdown and Failure Diagnosis</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Fuels, Lubricants and Water</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Marine Auxiliary Engines and Machinery</td>
<td>Gojmir Radica, Ph.D.</td>
</tr>
<tr>
<td>Marine Engines</td>
<td>Nikola Račić, Ph.D.</td>
</tr>
<tr>
<td>Maintenance Management</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Marine Hydraulics and Pneumatics</td>
<td>Đorđe Dobrota, Ph.D.</td>
</tr>
<tr>
<td>Marine Engine Elements</td>
<td>Nenad Vulić, Ph.D.</td>
</tr>
<tr>
<td>Marine Engine Systems</td>
<td>Ivan Komar, Ph.D.</td>
</tr>
<tr>
<td>Marine Power Electronics</td>
<td>Danko Kežić, Ph.D.</td>
</tr>
<tr>
<td>Marine Refrigerating and Air-Conditioning Systems</td>
<td>Zdeslav Jurić, Ph.D.</td>
</tr>
<tr>
<td>Naval Combat Systems</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Navy Propulsion System</td>
<td>Luka Mihanović, Ph.D.</td>
</tr>
<tr>
<td>Onboard Electric Power System</td>
<td>Maja Krčum, Ph.D.</td>
</tr>
<tr>
<td>Simulator and On-Board Training III</td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Simulator and On-Board Training IV</td>
<td>Tino Sumić, M.Eng.</td>
</tr>
<tr>
<td>Strength of Materials</td>
<td>Marko Vukasović, Ph.D.</td>
</tr>
<tr>
<td>Technology of Materials</td>
<td>Dražen Zivković, Ph.D.</td>
</tr>
<tr>
<td>Thermodynamics and Heat Transfer</td>
<td>Zdeslav Jurić, Ph.D.</td>
</tr>
<tr>
<td>Mandatory for students of the Ministry of the Interior</td>
<td></td>
</tr>
<tr>
<td>Criminal Law</td>
<td>Stjepan Gluščević, Ph.D.</td>
</tr>
<tr>
<td>Misdemeanour Law</td>
<td>Stjepan Gluščević, Ph.D.</td>
</tr>
<tr>
<td>Police Powers and Their Application</td>
<td>Željko Mršić, Ph.D.</td>
</tr>
<tr>
<td>State Border Control</td>
<td>Stjepan Gluščević, Ph.D.</td>
</tr>
</tbody>
</table>
### 5.3. Curriculum vitae of the course teacher

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Ivica Bajaj, M.P.Ed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Physical education</td>
</tr>
</tbody>
</table>

#### GENERAL INFORMATION ON COURSE TEACHER

<table>
<thead>
<tr>
<th>Address</th>
<th>Vukovarska cesta 2B, Omiš</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>0981700804</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:ivica.bajaj123@gmail.com">ivica.bajaj123@gmail.com</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1966</td>
</tr>
<tr>
<td>Scientist ID</td>
<td></td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td></td>
</tr>
</tbody>
</table>

#### INFORMATION ON CURRENT EMPLOYMENT

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Republic of Croatia Ministry of Defence Armed Forces, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1.10.1998.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Officer for kinesiology</td>
</tr>
<tr>
<td>Field of research</td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>commander</td>
</tr>
</tbody>
</table>

#### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>Master degree in physical education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Kinesiology</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
</tbody>
</table>

#### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>Field of training</td>
<td></td>
</tr>
</tbody>
</table>

#### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, (3)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
<tr>
<td>COMPETENCES FOR THE COURSE</td>
<td></td>
</tr>
<tr>
<td>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</td>
<td></td>
</tr>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?pedagoške kompetencije?</td>
<td></td>
</tr>
</tbody>
</table>

### PRIZES AND AWARDS, STUDENT EVALUATION

| Prizes and awards for teaching and scholarly/artistic work |  |
| Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) |  |

| First and last name and title of teacher | Domagoj Bagarić, professor PA |
| The course he/she teaches in the proposed study programme | Physical Education |

### GENERAL INFORMATION ON COURSE TEACHER

| Address | Branimirova 23, Zagreb |
| Telephone number | 00385915706268 |
| E-mail address | domagoj.bagari@gmail.com |
| Personal web page | --- |
| Scientist ID | --- |
| Research or art rank, and date of last rank appointment |  |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Lecturer, 2018 |
| Area and field of election into research or art rank | Kinesiology, military, sport |

### INFORMATION ON CURRENT EMPLOYMENT

| Institution where employed | Ministry of Defence |
| Date of employment | 1999 |
| Name of position (professor, researcher, associate teacher, etc.) | lecturer |
| Field of research | Kinesiology, military, sport |
| Function | officer |

### INFORMATION ON EDUCATION – Highest degree earned

<p>| Degree | Master |</p>
<table>
<thead>
<tr>
<th>Institution</th>
<th>Faculty of Kinesiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>University of Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>1998</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>University of Zagreb</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Kinesiology</td>
</tr>
<tr>
<td>Field of training</td>
<td>Football; recreation; skiing</td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English; 5</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>German; 4</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Physical education, Navy, University of Split, Master |
| Authorship of university/faculty textbooks in the field of the course | --- |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | --- |
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | --- |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | --- |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences | --- |

**PRIZES AND AWARDS, STUDENT EVALUATION**

| Prizes and awards for teaching and scholarly/artistic work | rector's award, 1993 |
| Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) | excellent |

**First and last name and title of teacher**

<p>| Dr. sc. Vesna Barić Punda, Full professor tenure |</p>
<table>
<thead>
<tr>
<th><strong>The course he/she teaches in the proposed study programme</strong></th>
<th>International Law, all modules</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL INFORMATION ON COURSE TEACHER</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td>Trg HBZ 3b, Split</td>
</tr>
<tr>
<td><strong>Telephone number</strong></td>
<td>+38521 480 199</td>
</tr>
<tr>
<td><strong>E-mail address</strong></td>
<td><a href="mailto:vesnapu@pravst.hr">vesnapu@pravst.hr</a></td>
</tr>
<tr>
<td><strong>Personal web page</strong></td>
<td><a href="http://www.pravst.hr">www.pravst.hr</a></td>
</tr>
<tr>
<td><strong>Year of birth</strong></td>
<td>1955</td>
</tr>
<tr>
<td><strong>Scientist ID</strong></td>
<td>133373</td>
</tr>
<tr>
<td><strong>Research or art rank, and date of last rank appointment</strong></td>
<td>Full professor tenure, by Decision of the Senate of the University of Split from September, 25, 2012.</td>
</tr>
<tr>
<td><strong>Area and field of election into research or art rank</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INFORMATION ON CURRENT EMPLOYMENT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Institution where employed</strong></td>
<td>Faculty of Law Split</td>
</tr>
<tr>
<td><strong>Date of employment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Name of position (professor, researcher, associate teacher, etc.)</strong></td>
<td>Professor</td>
</tr>
<tr>
<td><strong>Field of research</strong></td>
<td>International Law</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INFORMATION ON EDUCATION – Highest degree earned</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Degree</strong></td>
<td>Doctor of Science</td>
</tr>
<tr>
<td><strong>Institution</strong></td>
<td>Faculty of Law Split</td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>Split</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>1994</td>
</tr>
<tr>
<td><strong>INFORMATION ON ADDITIONAL TRAINING</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>Berlin</td>
</tr>
<tr>
<td><strong>Institution</strong></td>
<td>Freie Universitat Berlin, Department of Legal Sciences Institute for Eastern Europe</td>
</tr>
<tr>
<td><strong>Field of training</strong></td>
<td>Settlement of International Disputes, Human Rights, Law of the Sea, International Organizations</td>
</tr>
<tr>
<td><strong>MOTHER TONGUE AND FOREIGN LANGUAGES</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mother tongue</strong></td>
<td>Croatian</td>
</tr>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td>English 5</td>
</tr>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td>French 3</td>
</tr>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COMPETENCES FOR THE COURSE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Earlier experience as course teacher of similar courses (name title of course)</strong></td>
<td>Holder and coholder of several courses at the Law, Administrative and Specialist Graduate Professional Studies of the Faculty of Law in</td>
</tr>
<tr>
<td>study programme where it is/was offered, and level of study programme</td>
<td>Split, Forensics - University Department of the University of Split, Postgraduate Study of Maritime Law and Law of the Sea, Doctoral Studies and Criminology Study at the Faculty of Law in Mostar. Courses: International Law, Law of the Sea, Settlement of Disputes in International Law, International Organizations, International Treaties, Terrorism - International Legal Aspects, Human Rights.</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
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</tr>
<tr>
<td>Professional and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?-pedagoške kompetencije?</td>
<td>Project- Jurisprudentia - Improvement of the Quality of Education at the Law Faculties of the Osijek, Rijeka and Split Universities, 2015 (active participation in the project expert seminar for teaching staff in order to improve the Croatian Qualifications Framework).</td>
</tr>
<tr>
<td>PRIZES AND AWARDS, STUDENT EVALUATION</td>
<td></td>
</tr>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
<td>Award of the Student Council of the Faculty of Law in Split, 2016.</td>
</tr>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
<td></td>
</tr>
<tr>
<td>First and last name and title of teacher</td>
<td>Ivana Batarelo Kokić, Ph.D.</td>
</tr>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Military Pedagogy</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

| Address | Poljička cesta 35, 21000 Split |
| E-mail address | batarelo@ffst.hr |
| Personal web page | [http://marul.ffst.hr/~batarelo/dokuwiki](http://marul.ffst.hr/~batarelo/dokuwiki) |
| Year of birth | 1972 |
| Scientist ID | 257575 |
| Research or art rank, and date of last rank appointment | Scientific Advisor, 3. 12. 2017 |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Full Professor, 22. 2. 2018 |
| Area and field of election into research or art rank | Social sciences; Pedagogy |

**INFORMATION ON CURRENT EMPLOYMENT**

| Institution where employed | Faculty of Humanities and Social Sciences, University of Split |
| Date of employment | 1.10.2008 |
| Name of position (professor, researcher, associate teacher, etc.) | Full Professor |
| Field of research | Higher education |
| Function | Teacher |

**INFORMATION ON EDUCATION – Highest degree earned**

| Degree | Ph.D. |
| Institution | Arizona State University |
| Place | Tempe, AZ, SAD |
| Date | 9.12.2002 |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian |
| English language (level 5) |
| Italian language (level 3) |

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Andragogy – core course, undergraduate studies of pedagogy, Faculty of Humanities and Social Sciences, University of Zagreb |
| Andragogy – core course, graduate studies of pedagogy, Faculty of Humanities and Social Sciences, University of Split |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | Batarelo Kokić, I., & Rukavina, S. (2017). Learning from Digital Video Cases: How Future Teachers Perceive the use of Open Source Tools and Open Educational Resources. Knowledge Cultures, 5(5). |


Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)


The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

• Undergraduate study (Pedagogy, Faculty of Humanities and Social Sciences, University of Zagreb)

• Master studies (Educational Media and Computers, Arizona State University, USA)

• Doctoral studies (Interdisciplinary PhD in Curriculum and Instruction, Arizona State University, USA)

PRIZES AND AWARDS, STUDENT EVALUATION

Prizes and awards for teaching and scholarly/artistic work

• DAAD Fellowship (KMRC, Tuebingen; 2005.-2006.)

• Graduate Academic Scholarship (Arizona State University; 2000.-2001.)

First and last name and title of teacher

Goran Belamarić, Ph.D.

The course he/she teaches in the proposed study programme

Cargo Handling I, Safety management and Risk in Shipping

GENERAL INFORMATION ON COURSE TEACHER

Address
Rudera Boškovića 37, 21000 Split, Croatia

Telephone number
+385 21 619-435

E-mail address
goran.belamaric@pfst.hr

Personal web page
NIL
| **Year of birth** | 9th August 1956 |
| **Scientist ID** | 356022 |
| **Research or art rank, and date of last rank appointment** | 10th January 2018  
Assistant Professor at the Faculty of Maritime Studies Split |
| **Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment** | 17th October 2017  
Associated Scientific in election process for Associate Professor on Maritime Studies Split |
| **Area and field of election into research or art rank** | Area of technical sciences, field of traffic and transport technology |
| **INFORMATION ON CURRENT EMPLOYMENT** | |
| **Institution where employed** | University of Split, Faculty of Maritime Studies |
| **Date of employment** | 1st August 2008 |
| **Name of position (professor, researcher, associate teacher, etc.)** | Assistant Professor, Scientific researcher |
| **Field of research** | education and science, nautical engineering |
| **Function** | Training Centre Manager |
| **INFORMATION ON EDUCATION – Highest degree earned** | |
| **Degree** | PhD in the field of Maritime Transport, area of technical sciences, field of traffic and transport technology |
| **Institution** | University of Rijeka, Faculty of Maritime Studies |
| **Place** | Rijeka |
| **Date** | 11th December 2015 |
| **INFORMATION ON ADDITIONAL TRAINING** | |
| **Year** | 2018 |
| **Place** | Bilbao, Spain, EU |
| **Institution** | University of the Basque Country  
Universidad del Pais Vasco  
Faculty of Nautical Studies of Bilbao |
| **Field of training** | nautical engineering |
| **MOTHER TONGUE AND FOREIGN LANGUAGES** | |
| **Mother tongue** | Croatian |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | English language:  
Listening (C2), Reading (C2), Writing (C2);  
Speaking: Spoken interaction (C2) and Spoken production (C2) |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | Italian language:  
Listening (A2), Reading (A2), Writing (A2);  
Speaking: Spoken interaction (A2) and Spoken production (A2) |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | NIL |
| **COMPETENCES FOR THE COURSE** | |
| **Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)** | Total thirty (30) years of work in the maritime sector in the period from 1975 to 2005:  
In total 20 years of active long sea service experience:  
• As a Deck Officer served total 10 years active long sea service in period from July 1975 to July 1987;  
• As the Master of the ship served total 10 years active long sea service in period from 1st August 1987 when promoted in capacity of the Ship Captain (Master of the ship) since June 2005;  
Long sea service experience as a Master “Navigation in ice” (Northern Canada and Belle Isle up to Murmansk) in the period from 1995 to 2001. |
| **PROFESSIONAL COMPETENCE** | Certificates of Competency (COC)  
• MASTER of the Ship of a 3000 GT or more (Unlimited); |
• GMDSS Operator (General Operator Certificate - Unlimited);

FOREIGN FLAG STATE DOCUMENTS
(Certificates of Competency - COC)
• BRITISH (UK) MASTER CEC 0003100
• (UK Master Certificate of Competence)
  o As holder of UK LAP1 (United Kingdom Legal Administration Procedure-1) authorised Examiner for UK LAP2 UK Certificate of Competence
• BRITISH (U.K.) GMDSS GOC 050007021
• UK MCA (United Kingdom Maritime & Coastguard Agency) "Marlins" English Language Test - 97% passed

AUTHORIZED INSTRUCTOR
• Authorized INTERSCHALT Instructor for Loading Computer Software MACS3.net for:
  1. Basic Program MACS3.net;
  2. MixCargo (including the Container Program BELCO) - Container Handling and Stowage;
  3. Program for Dangerous Goods: DAGO I, DAGO II, DAGO II
  4. Hazardous Materials Handling and Stowage;
  5. SEALASH + Additional Module:
     ▪ Tankplan, Grain, Bulklim, LoadMan, DastyMAN, Ullage, Multi-Voyage Module;
  6. RoRo;
  7. Passenger vessel.

• Authorized TRANSAS Instructor for:
  1. NTPRO 5000 Simulator, ECDIS, ICE Nav., AIS, SAR, ANTY PIRACY (as per IMO Model Course 6.09);
  2. ECDIS NS4000;
  3. PISCES II;
  4. Model Wizard 6.0;
  5. VTS/GMDSS;
  6. Liquid Cargo Handling Simulators (LCHS 5000);
  7. DP & AH Simulator (as per IMO Model Course 5.25).

Certificates:
  2. Search and Rescue;
  3. Fire Prevention and Fire Fighting;
  4. Advanced Fire Fighting;
  5. Medical First Aid and Medical Care;
  6. Proficiency in Survival Craft and Rescue Boats;
  7. Proficiency in Fast Rescue Boats;
  8. Dangerous Cargo Handling (IMDG);
  9. Oil Tanker Familiarisation;
  10. Bridge Team Management (BTM);
  11. Bridge Resource Management (BRM);
  12. Maritime Crew Resource Management (MCRM);
  13. Ship Simulator and Bridge Teamwork (SSBTW);
  14. Ship Security Officer (SSO);
  15. Large Ship Handling and Manoeuvring;
  16. The Operational Use of Electronic Chart Display and Information Systems (ECDIS);
  17. Passage Planning Instructor;
  18. Risk Management & Accident Investigation and Analysis;
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>19.</strong> Safety Management System Familiarization Training</td>
<td><strong>20.</strong> Safety &amp; Security Awareness;</td>
</tr>
<tr>
<td><strong>21.</strong> Marine Environmental Awareness;</td>
<td><strong>22.</strong> Ships Inventory &amp; Planned Maintenance.</td>
</tr>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td>Two (2) academic handbooks and a textbook, University of Zadar, Nautical Department</td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td>Latest update for all above numerated additional information can be found on the following link - “Centar za znanstvene informacije - IRB” (CROSBI): <a href="https://bib.irb.hr/lista-radova?autor=356022">https://bib.irb.hr/lista-radova?autor=356022</a></td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td>Latest update for all above numerated additional information can be found on the following link - “Centar za znanstvene informacije - IRB” (CROSBI): <a href="https://bib.irb.hr/lista-radova?autor=356022">https://bib.irb.hr/lista-radova?autor=356022</a></td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>Latest update for all above numerated additional information can be found on the following link - “Centar za znanstvene informacije - IRB” (CROSBI): <a href="https://bib.irb.hr/lista-radova?autor=356022">https://bib.irb.hr/lista-radova?autor=356022</a></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</td>
<td><strong>PRIZES AND AWARDS, STUDENT EVALUATION</strong></td>
</tr>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
<td>As a Master of the ship nominated for the <em>Blue Ribbon Herald</em> 1990 for extraordinary rescue of sailors at sea for help and salvage at sea in 1988</td>
</tr>
<tr>
<td>First and last name and title of teacher</td>
<td>Zoran Blažević, Ph.D.</td>
</tr>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Radio Detection Systems, Electronic Warfare</td>
</tr>
<tr>
<td><strong>GENERAL INFORMATION ON COURSE TEACHER</strong></td>
<td><strong>INFORMATION ON CURRENT EMPLOYMENT</strong></td>
</tr>
<tr>
<td>Address</td>
<td>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td>Telephone number</td>
<td>Date of employment June 1, 2016</td>
</tr>
<tr>
<td>E-mail address</td>
<td></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td></td>
</tr>
<tr>
<td>Scientist ID</td>
<td></td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Professor</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Field of research</td>
<td>Electrical Engineering</td>
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<tr>
<td>Function</td>
<td>High education and research</td>
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</tbody>
</table>

### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>May 30, 2005</td>
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</tbody>
</table>

### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Field of training</td>
<td></td>
</tr>
</tbody>
</table>

### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English 4/5</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
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</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

### COMPETENCES FOR THE COURSE

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Radio-communications, Radars, Mobile Communications, Measurements in Wireless Systems, Satellite Positioning Systems; at Graduate study of Communications and Information Technology, and at former Telecommunication Course at University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, master level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td>Skiljo, Maja; Blazevic, Zoran; Poljak, Dragan Indoor Channel Characterization for GPR ElectromagneticCompatibility// Proceedingsof 2019 International Conference on Software, Telecommunications and Computer Networks (SoftCOM) Split, 2019. str. 1-5 doi:10.23919/SOFTCOM.2019.8903675 (predavanje, međunarodna recenzija, cjeloviti rad (inextenso), znanstveni)</td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Blažević, Zoran; Škiljo, Maja</td>
</tr>
<tr>
<td>Škiljo, Maja; Konsa, Toni; Blažević, Zoran; Poljak, Dragan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Split, 2018. str. 1-4 (predavanje, međunarodna recenzija, cjeloviti rad (inextenso), znanstveni)</td>
</tr>
<tr>
<td>Škiljo, Maja; Sanader, Željko; Blažević, Zoran</td>
<td></td>
</tr>
<tr>
<td>Škiljo, Maja; Blažević, Zoran; Poljak, Dragan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ultra-wideband Parabolic Bicone Antenna for Ground Penetrating Radar // 2015 International Conference on Software, Telecommunications and Computer Networks / Rožič, Nikola ; Begušić, Dinko (ur.).</td>
</tr>
<tr>
<td></td>
<td>Split, 2015. (predavanje, međunarodna recenzija, cjeloviti rad (inextenso), znanstveni)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIZES AND AWARDS, STUDENT EVALUATION</td>
</tr>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
</tr>
<tr>
<td>Best scientific paper Mipro 2005</td>
</tr>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the</td>
</tr>
<tr>
<td>Radiocommunications</td>
</tr>
<tr>
<td>2020: 5.0 (+-0.1)</td>
</tr>
<tr>
<td>2019 5.0 (+-0.0)</td>
</tr>
<tr>
<td>2018: 5.0 (+- 0.0)</td>
</tr>
<tr>
<td>2017: 4.6 (+-0.7)</td>
</tr>
<tr>
<td>2016: 5.0 (+- 0.1)</td>
</tr>
<tr>
<td>form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
</tr>
<tr>
<td>First and last name and title of teacher</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>141 brigade 20 Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>098363968</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:rino.bosnjak@pfst.hr">rino.bosnjak@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1975</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>328504</td>
</tr>
</tbody>
</table>

Research or art rank, and date of last rank appointment

<table>
<thead>
<tr>
<th>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</th>
<th>Assistant Professor 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Area of technical sciences, filed of traffic and transport technology</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1\textsuperscript{st} April 2011</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>teaching/research assistant</td>
</tr>
<tr>
<td>Field of research</td>
<td>technology of liquid cargo, modern transport technologies, e-navigation and autonomous ships; ergonomics of navigation subsystems</td>
</tr>
<tr>
<td>Function</td>
<td>Deputy of Training Centre Manager</td>
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</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Master of Maritime Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Faculty of Maritime Studies in Split</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>26\textsuperscript{th} January 2000</td>
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**INFORMATION ON ADDITIONAL TRAINING**

<table>
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<th>Year</th>
<th>from 2000 until 2011</th>
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<tr>
<td>Place</td>
<td>Ship and abroad</td>
</tr>
<tr>
<td>Institution</td>
<td>ER Schiffahrt and GearBulk</td>
</tr>
<tr>
<td>Field of training</td>
<td>Master Mariner</td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, 5</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td></td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years</td>
<td>1. Bošnjak, R.; Kezić, D.; Vidan, P.; Metodologija sinteze nadzornika pomoću vremenskih Petrijevih mreža Shipbuilding :</td>
</tr>
<tr>
<td>in the field of the course (5 works at most)</td>
<td>Theory and Practice of Naval Architecture, Marine Engineering and Ocean Engineering. Vol 68 (2017) , Number 3; 57-66 (paper, scientific).</td>
</tr>
</tbody>
</table>

| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? | Lecturer on courses Ergonomics of Navigation Subsystem, Modern Transport Technologies, Liquid Cargo Transport Technology and Fundamental Safety. |

**PRIZES AND AWARDS, STUDENT EVALUATION**

| Prizes and awards for teaching and scholarly/artistic work | |

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Adelija Ćulić-Viskota, Ph.D.</th>
</tr>
</thead>
</table>
| The course he/she teaches in the proposed study programme | Maritime English I  
Maritime English II  
Naval English I  
Naval English II |

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Rudera Boškovića 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>+385(0)913807032</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:adelija@pist.hr">adelija@pist.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1960</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>278400</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Senior lecturer, 2019</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Humanities, linguistics, anglistics</td>
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**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
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</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>01/03/1993</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Teaching</td>
</tr>
<tr>
<td>Function</td>
<td>Head of Chair for Foreign Languages</td>
</tr>
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**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Ph.D.</th>
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</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Zagreb, Faculty Humanities and Social Sciences</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>08/11/2008</td>
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**INFORMATION ON ADDITIONAL TRAINING**

| Place | Szczecin |
| Institution | Maritime University |
| Field of training | Maritime English |
| | 2017  
Frankfurt  
ele– European Language Competence Training Consulting Frankfurt a.M. |
| Intercultural competence in English |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | Italian (5) |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | German (3) |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) |  |

### COMPETENCES FOR THE COURSE

- **Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme):**
  - Maritime English PEIT-Graduate
  - Maritime English I and II PN
  - Maritime English I, II, III, IV, V, VI PTJM

- **Authorship of university/faculty textbooks in the field of the course:**
  - Engleski jezik, teaching materials for students of PTJM

- **Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most):**
  2. Ćulić-Viskota, Adelija; Maciej Denc. From Content Centeredness to Learner-Centeredness in Teaching English for Specific Purposes. // Transactions on Maritime Science. 5. (2016), 2; 172-178 (paper, professional).

- **Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most):**
  -  

- **Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most):**
  - Courses in methodology and glotodidactics during the studies; MEITC (Maritime English Instructor's Training Course), Szczecin 2005.

### PRIZES AND AWARDS

- Prizes and awards for teaching and scholarly/artistic work
  -  

### GENERAL INFORMATION ON COURSE TEACHER

| First and last name and title of teacher | Dorde Dobrota, Ph.D. |
| The course he/she teaches in the proposed study programme | Marine Hydraulics and Pneumatics |
| Address | Mosorska cesta 3, Omiš |
| Telephone number | 098/9903948 |
| E-mail address | ddobrota@pfst.hr |
**Personal web page**

<table>
<thead>
<tr>
<th>Year of birth</th>
<th>15th January 1963</th>
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</thead>
<tbody>
<tr>
<td>Scientist ID</td>
<td>322351</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Assistant Professor – 8th May 2019</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Lecturer - 31st May 2015</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Area of technical sciences, filed of traffic and transport technology</td>
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**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
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<tbody>
<tr>
<td>Date of employment</td>
<td>29th April 2010</td>
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<tr>
<td>Name of position</td>
<td>Lecturer</td>
</tr>
<tr>
<td>Field of research</td>
<td>Mechanical engineering - marine engineering</td>
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**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>29th January 2019</td>
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**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
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<tbody>
<tr>
<td>Place</td>
</tr>
<tr>
<td>Institution</td>
</tr>
<tr>
<td>Field of training</td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>English language</td>
<td>4</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<p>| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Mechanisms and Vibrations Undergraduate study Marine Engineering |
| Authorship of university/faculty textbooks in the field of the course |
| Professional and scholarly articles published in the last five years in |</p>
<table>
<thead>
<tr>
<th>subjects of teaching methodology and teaching quality (5 works at most)</th>
<th>Nove tehnologije u dijagnostici i upravljanju brodskih porivnih sustava (New Technologies in the Diagnosis and Management of Marine Propulsion Systems) (250-2502209-2364)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</td>
<td></td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

Prizes and awards for teaching and scholarly/artistic work
<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Zvonimir Forker, M.A.</th>
</tr>
</thead>
</table>
| The course he/she teaches in the proposed study programme | - Military History  
- History of Naval Warfare |
| GENERAL INFORMATION ON COURSE TEACHER | |
| Address | Priora Petra 5, 21000 Split |
| Telephone number | 091 529 3812 |
| E-mail address | zforker@ffst.hr |
| Personal web page | |
| Year of birth | 1981. |
| Scientist ID | 374520 |
| Research or art rank, and date of last rank appointment | |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | |
| Area and field of election into research or art rank | |
| INFORMATION ON CURRENT EMPLOYMENT | |
| Institution where employed | Faculty of Humanities and Social Sciences, University of Split |
| Date of employment | 01. 01. 2019. |
| Name of position (professor, researcher, associate teacher, etc.) | teaching/research assistant |
| Field of research | Ancient history |
| Function | |
| INFORMATION ON EDUCATION – Highest degree earned | |
| Degree | Master’s degree in History and Archaeology |
| Institution | Faculty of Humanities and Social Sciences in Zadar, University of Split |
| Place | Zadar |
| Date | 2006. |
| MOTHER TONGUE AND FOREIGN LANGUAGES | |
| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English (5) |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | German (2) |
| COMPETENCES FOR THE COURSE | |
| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | |
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | |
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? | Study of History, Faculty of Humanities and Social Sciences in Zadar, University of Split
---|---

| First and last name and title of teacher | Ante Gelo, M.Eng. |
| The course he/she teaches in the proposed study programme | Marine Electrical Engineering and Electronics I. |

**GENERAL INFORMATION ON COURSE TEACHER**

| Address | Kupreška 14, Split |
| Telephone number | 0918863642 |
| E-mail address | ante.gelo@morh.hr |
| Year of birth | 1978 |

**INFORMATION ON CURRENT EMPLOYMENT**

| Institution where employed | Ministry of defence |
| Date of employment | 01.9.2004. |
| Name of position (professor, researcher, associate teacher, etc.) | Associate teacher |
| Field of research | Information and communication systems, Maritime Surveillance |
| Function | Staff officer, Navy Command |

**INFORMATION ON EDUCATION – Highest degree earned**

| Degree | Master degree |
| Institution | University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture |
| Place | Zagreb |
| Date | February 23rd 2007. |

**INFORMATION ON ADDITIONAL TRAINING**

| Year | |
| Place | |
| Institution | |
| Field of training | |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian language |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English language, (4) |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | |

**COMPETENCES FOR THE COURSE**
<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?-pedagoške kompetencije?</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>PRIZES AND AWARDS, STUDENT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
</tr>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Stipe Galić, M.Eng.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Seamanship III Astronomical Navigation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENERAL INFORMATION ON COURSE TEACHER</th>
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</thead>
<tbody>
<tr>
<td>Address</td>
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<tr>
<td>Telephone number</td>
</tr>
<tr>
<td>E-mail address</td>
</tr>
<tr>
<td>Personal web page</td>
</tr>
<tr>
<td>Year of birth</td>
</tr>
<tr>
<td>Scientist ID</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
</tr>
<tr>
<td><strong>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>Area and field of election into research or art rank</strong></td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

| **Institution where employed** | University of Split- Faculty of Maritime Studies |
| **Date of employment** | 28th September 2011 |
| **Name of position (professor, researcher, associate teacher, etc.)** | teacher |
| **Field of research** | maritime transport |
| **Function** | teacher at the undergraduate level |

**INFORMATION ON EDUCATION – Highest degree earned**

| **Degree** | Master degree in Marine Engineering |
| **Institution** | University of Split Faculty of Maritime Studies |
| **Place** | Split |
| **Date** | |

**INFORMATION ON ADDITIONAL TRAINING**

| **Year** | |
| **Place** | Split |
| **Institution** | University of Split Faculty of Maritime Studies |
| **Field of training** | |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| **Mother tongue** | Croatian language |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | English language, 5 (excellent) |

**COMPETENCES FOR THE COURSE**

| **Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)** | Three years of experience working on a ship (3), five years (5) of experience at the Faculty of Maritime Studies as a teaching/research assistant teaching professional courses and three years of experience working as a lecturer. |
| **Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)** | Stanivuk, Tatjana; Galić, Stipe; Tomović, Nena; Kordić, Biljana // Svjetionici jadrana - sigurnost plovidbe i/ili robinzonski turizam // 38th Conference on Transportation Systems with International Participation AUTOMATION IN TRANSPORTATION 2018 / Šakić, Željko (ur.). Zagreb: KoREMA, 2018. p. 53-56 (lecture, international review, in extenso, scientific) |
| | Stanivuk, Tatjana; Relja, Ajka; Galić, Stipe; Šalov, Ivan |
Modeliranje brodske ravnoteže i njihanja nastalog utjecajem morskih valova // XV Međunarodno savjetovanje „Saobraćajni, ekološki i ekonomski problemi i perspektive rješavanja u zemljama zapadnog Balkana s osvrtom na Bosnu i Hercegovinu” / Jusufranić, Jasmin ; Imamović, Mirsad (ur.). Travnik: Internacionalni univerzitet Travnik u Travniku, 2017. p. 352-360 (lecture, international review, in extenso, scientific)

- Stanivuk, Tatjana; Galić, Stipe; Bojanić, Mia
  Mathematics as a Science and Marine Activity Follow Each Other Throughout History // Transactions on Maritime Science, 6 (2017), 1; 55-60 doi:10.7225/toms.v06.n01.006 (international review, paper, scientific)

- Galić, Stipe; Stanivuk, Tatjana; Marušić, Ana

| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? |

**PRIZES AND AWARDS, STUDENT EVALUATION**

Prizes and awards for teaching and scholarly/artistic work

| First and last name and title of teacher | Stjepan Gluščić, Ph.D. |
| The course he/she teaches in the proposed study programme | Criminal law, Misdemeanour law, State border control |

**GENERAL INFORMATION ON COURSE TEACHER**

| Address | Avenija Gojka Suška 1 |
| Telephone number | |
| E-mail address | sgluscic@fkz.hr |
| Personal web page | |
| Year of birth | 1962 |
| Scientist ID | 239261 |
| Research or art rank, and date of last rank appointment | |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | research associate 24.02.2015 assistant professor |
### Area and field of election into research or art rank

<table>
<thead>
<tr>
<th>INFORMATION ON CURRENT EMPLOYMENT</th>
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<tbody>
<tr>
<td>Institution where employed</td>
</tr>
<tr>
<td>Date of employment</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
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<tr>
<td>Field of research</td>
</tr>
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### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Institution</td>
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<tr>
<td>Place</td>
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<tr>
<td>Date</td>
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### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
<th>Place</th>
<th>Institution</th>
<th>Field of training</th>
</tr>
</thead>
<tbody>
<tr>
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### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
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<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language (3)</td>
</tr>
</tbody>
</table>

### COMPETENCES FOR THE COURSE

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Fundamentals of Criminal Law, Military Studies Zagreb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Criminal Procedure Law, Professional Study in Criminalistics College of Police Zagreb</td>
</tr>
<tr>
<td></td>
<td>Criminal Procedure Practicum, Criminalistics Specialist Study Program, College of Police Zagreb</td>
</tr>
<tr>
<td></td>
<td>Police Law, Faculty of Law in Mostar</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Pavić, K., Gluščić, S.: Odnos policije i državnog odvjetništva prema VII. Noveli ZKP, HLJKPP br. 2/2017 ( str. 483. – 498.).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional, science and artistic projects carried out in the last five years (5 at most)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Impact of amendments to the Criminal Procedure Act on the detection, clarification and proving of crimes in the field of general crime.</td>
</tr>
<tr>
<td>• Some features of the disappearance of persons in the territory of the Republic of Croatia.</td>
</tr>
<tr>
<td>• Impact of various factors on road safety.</td>
</tr>
<tr>
<td>• Croatia’s judicial cooperation in criminal matters in the EU and the region: the legacy of the past and the challenges of the future.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Teacher Education in Zagreb, Additional program in pedagogical and didactic field (1995)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Results of student evaluation taken in the last five years for the course that is comparable to the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017/2018 – 4.78</td>
</tr>
<tr>
<td>2018/2019 – 4.78</td>
</tr>
</tbody>
</table>
First and last name and title of teacher | Anita Gudelj, Ph.D.
---|---
The course he/she teaches in the proposed study programme | Applied Computer Science

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Velebitska 58, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>913807023</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:anita@pfst.hr">anita@pfst.hr</a></td>
</tr>
</tbody>
</table>

Year of birth | 1970
Scientist ID | 278411

Research or art rank, and date of last rank appointment | Scientific advisor 6th June 2019
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Associate Professor 14th December 2016

Area and field of election into research or art rank | scientific area of social sciences - field of information and communication sciences – branch information systems and informatology

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1st March 1997</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate Professor</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Zagreb, Faculty of Organisation and Informatics</td>
</tr>
<tr>
<td>Place</td>
<td>Varaždin</td>
</tr>
<tr>
<td>Date</td>
<td>2nd December 2010</td>
</tr>
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</table>

**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>Field of training</td>
<td></td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, 4</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

---

396
<p>| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | The application of electronic computers 1, The application of electronic computers, Nautical Studies, undergraduate study programme |
| Authorship of university/faculty textbooks in the field of the course | The application of electronic computers, textbook |
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) |  |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) |  |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? | Mathematics and Informatics, University of Split, Fakultet prirodoslovno-matematičkih znanosti i odgojnih područja u Splitu, teacher of mathematics and informatics |
| PRIZES AND AWARDS, STUDENT EVALUATION |  |
| Prizes and awards for teaching and scholarly/artistic work |  |</p>
<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Darko Hren, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Military Psychology</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Rendićeva 33, 21000 Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>0915001173</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:dhren@ffst.hr">dhren@ffst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td>-</td>
</tr>
<tr>
<td>Year of birth</td>
<td>1973</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>277083</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Higher scientific collaborator (17.5.2019.)</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Associate Professor (25.9.2019.)</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Interdisciplinary field of science - educational sciences (psychology, pedagogy)</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Faculty of Humanities and Social Sciences, University of Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1.4.2009.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>research on research (meta-research), education</td>
</tr>
<tr>
<td>Function</td>
<td>-</td>
</tr>
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</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Faculty of Humanities and Social Sciences, University of Zagreb</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>20.10.2008.</td>
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**INFORMATION ON ADDITIONAL TRAINING**

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<th>Year</th>
<th>1998-2002</th>
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<tbody>
<tr>
<td>Place</td>
<td>Zagreb</td>
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<tr>
<td>Institution</td>
<td>Institute for Integrative Gestalt Therapy Würzburg</td>
</tr>
<tr>
<td>Field of training</td>
<td>Gestalt psychotherapy</td>
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</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English (5)</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Social psychology (Sociology - undergraduate; Pedagogy - graduate)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Psychology of Motivation and socialization in the Classroom (Pedagogy - graduate; Teacher Education - integrated undergraduate and graduate);</td>
</tr>
<tr>
<td></td>
<td>Effective Communication (Pedagogy - graduate);</td>
</tr>
<tr>
<td></td>
<td>Introduction to Scientific Literacy (Pedagogy - undergraduate)</td>
</tr>
<tr>
<td></td>
<td>Introduction to Qualitative Methods in Education (Pedagogy - graduate)</td>
</tr>
<tr>
<td></td>
<td>Psychology of teaching and learning (Pedagogy - undergraduate; Teacher Education - integrated bachelor and graduate)</td>
</tr>
<tr>
<td></td>
<td>Study Skills (Pedagogy - undergraduate);</td>
</tr>
<tr>
<td></td>
<td>Introduction to Scientific Literacy (Pedagogy - undergraduate);</td>
</tr>
<tr>
<td></td>
<td>Basic Statistics for Linguists (Humanistic Sciences - postgraduate)</td>
</tr>
<tr>
<td></td>
<td>Statistical Analysis in Practice (Humanistic Sciences - postgraduate)</td>
</tr>
</tbody>
</table>
### Quasiexperimental and Nonexperimental Study Designs

<table>
<thead>
<tr>
<th>Study Designs</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quasiexperimental and Nonexperimental Study Designs</td>
<td>(Translational Research in Biomedicine and Epidemiology - postgraduate)</td>
</tr>
</tbody>
</table>

|-----------------------------------------------------------------------------|---------------------------------------------------------------------------|

<table>
<thead>
<tr>
<th>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
<th>Scientifi-in-Charge <em>Methods in Research on Research</em> (MiRoR; Marie Slodowska Curie Actions, <em>Horizon 2020</em>, Innovative Training Networks) (<a href="http://miror-ejd.eu/">http://miror-ejd.eu/</a>)</th>
</tr>
</thead>
</table>

### PRIZES AND AWARDS, STUDENT EVALUATION

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Gorana Jelić Mrčelić, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Ship Maintenance</td>
</tr>
</tbody>
</table>

### GENERAL INFORMATION ON COURSE TEACHER

<table>
<thead>
<tr>
<th>Address</th>
<th>Vukovarska 57, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>913806998</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:gjelic@pfs.hr">gjelic@pfs.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1973</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>252566</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Full Professor 28th November 2019</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Biotechnical sciences, agriculture, ecology and environmental protection</td>
</tr>
</tbody>
</table>

### INFORMATION ON CURRENT EMPLOYMENT

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1st June 1996</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Full Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>ecology and environmental protection</td>
</tr>
<tr>
<td>Function</td>
<td>Vice Dean for development and international cooperation</td>
</tr>
</tbody>
</table>

### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Zagreb, Faculty of Agriculture</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>26th November 2004</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>INFORMATION ON ADDITIONAL TRAINING</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td></td>
</tr>
<tr>
<td>Place</td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>Field of training</td>
<td></td>
</tr>
<tr>
<td>MOTHER TONGUE AND FOREIGN LANGUAGES</td>
<td></td>
</tr>
<tr>
<td>Mother tongue</td>
<td>Croatian language</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, 5</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language, 3</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>French language, 2</td>
</tr>
<tr>
<td>COMPETENCES FOR THE COURSE</td>
<td></td>
</tr>
</tbody>
</table>
| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Undergraduate study programme Maritime Management: Maritime History  
Undergraduate study programme Marine Engineering: Corrosion and Material Protection  
Undergraduate study programme Nautical Studies: Ship Maintenance  
Graduate study programme Maritime Management, Marine Engineering, Nautical Studies: Marine Technologies  
Graduate study programme Maritime Management, Marine Engineering, Nautical Studies: Integral Coastal Zone Management |
| Authorship of university/faculty textbooks in the field of the course | |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 1. Čampara, Leo; Slišković, Merica; Jelić Mrčelić, Gorana. 2019. Key Ballast Water Management Regulations with a View on Ballast Water Management Systems Type Approval Process. Naše more 66(2)  
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | |
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

**PRIZES AND AWARDS, STUDENT EVALUATION**

Prizes and awards for teaching and scholarly/artistic work

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Zdeslav Jurić, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Marine Refrigerating and Air-Conditioning Systems Thermodynamics and Heat Transfer</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Iločka 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>0</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:zdeslav@pfst.hr">zdeslav@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td><a href="http://www.pfst.hr/~zjuric">www.pfst.hr/~zjuric</a></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1974</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>276782</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Assistant professor, 10 May 2016</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Technical sciences, marine engineering, process power engineering</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

| Institution where employed | University of Split, Faculty of Maritime Studies |
| Date of employment | 04/01/2002 |
| Name of position (professor, researcher, associate teacher, etc.) | Assistant professor |
| Field of research | Process power engineering |
| Function | Vice-Dean for Student and Academic Affairs |

**INFORMATION ON EDUCATION – Highest degree earned**

| Degree | Ph.D. |
| Institution | University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture |
| Place | Split |
| Date | 2/23/2011 |

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 2011 |
| Place | Zagreb |
| Institution | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture |
| Field of training | Measures for power efficiency on board ships |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English - 3 |
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)

**COMPETENCES FOR THE COURSE**

Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)

Thermodynamics and heat transfer; Marine engineering; undergraduate study
Technical mechanics; Marine Yacht and Marina Management Technologies, Maritime Management, Nautical Studies; undergraduate studies
Ship’s refrigerating and air-conditioning plants; Marine Engineering, undergraduate study

Authorship of university/faculty textbooks in the field of the course

Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)


Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)

Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

**PRIZES AND AWARDS**

Prizes and awards for teaching and scholarly/artistic work

**GENERAL INFORMATION ON COURSE TEACHER**

First and last name and title of teacher  Živko Jurišić, M.Sc.Eng.
The course he/she teaches in the proposed study programme  Technical mechanics I, Technical mechanics II, Thermodynamics and Heat Transfer

Address  Dinka Šimunovića 9, Split
Telephone number  0959095290
E-mail address  zivko.jurisic2015@gmail.com; zivko.jurisic@morh.hr
Personal web page
Year of birth 1969.
Scientist ID /
Research or art rank, and date of last rank appointment /

402
<table>
<thead>
<tr>
<th>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</th>
<th>Assistant, 07.01.2020.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Technical sciences, Mechanical engineering</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Ministry of Defense, Croatian Navy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>05.01.1998.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Support department, Croatian Navy Fleet</td>
</tr>
<tr>
<td>Field of research</td>
<td>Logistics</td>
</tr>
<tr>
<td>Function</td>
<td>Head of the logistics</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Master of Science in Engineering</th>
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</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>September 28th 2012.</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 1) 2017.  
2) 2019. |
|---|---|
| Place | 1) Split  
2) Zagreb |
| Institution | 1) FESB Split,  
2) Croatian Defence Academy "Dr. Franjo Tuđman" |
| Field of training | 1) PhD student, Mechanical engineering, Welding technology  
2) Logistics, Functional officer's education, 3rd level |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, (3)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
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</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
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</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>/</th>
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<tbody>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td>/</td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td>/</td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in</td>
<td>/</td>
</tr>
<tr>
<td>subjects of teaching methodology and teaching quality (5 works at most)</td>
<td>/</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>/</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? - pedagoške kompetencije?</td>
<td>/</td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
<th>/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
<td>University of Split, Student evaluation of academic work winter semester 2019/2020. - average 4.8 (maximum 5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Darija Jurko, M.Eng.</th>
</tr>
</thead>
</table>
| The course he/she teaches in the proposed study programme | Hydroacoustics and Ship’s Physical Fields  
Naval Combat System I  
Naval Combat system II  
Naval Combat Systems |

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Pujanke 28, 21000 Split, Croatia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>+385 99 434 7377</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:dgvozden@morh.hr">dgvozden@morh.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td>/</td>
</tr>
<tr>
<td>Year of birth</td>
<td>1975</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>/</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>/</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>/</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Engineering (Technical Science), Electrical Engineering</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Croatian Defence Academy - Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>01.01.2018.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate teacher</td>
</tr>
<tr>
<td>Field of research</td>
<td>Systems Engineering</td>
</tr>
<tr>
<td>Function</td>
<td>Maritime Operations teacher</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**
| **Degree** | Master degree in Engineering |
| **Institution** | Faculty of Electrical Engineering and Computing |
| **Place** | Zagreb |
| **Date** | Nostrificated in 2003. |

**INFORMATION ON ADDITIONAL TRAINING**

| **Year** | 2019 |
| **Place** | Split; Zagreb |
| **Institution** | ESF – InteRiv, Dekaform d.o.o., WIPO |
| **Field of training** | Educational process and teacher competencies in high education; E-learning (Moodle); ISO 9001-9015 ; Intellectual properties |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| **Mother tongue** | Croatian |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | English 5 |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | Italian 2 |

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Karna H., Masnov A., Jurko D., Perić T., Cross-Project Estimation of Software Development Effort Using In House Sources and Data Mining Methods - an Experiment; Proceedings of the 27th Conference on Software, Telecommunications and Computer Networks (SoftCOM 2019) / Rožić, Nikola ; Begušić, Dinko - Split, 2019. |
| Authorship of university/faculty textbooks in the field of the course | |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | Cooperative Unmmaned Vehicle in the Maritime Environment (CUV-ME), IP-2016-06-2082 – as part of the CroMarX project (Cooperative robotics in surveillance and research of the sea); Naval Information Warfare Pacific / Croatian ministry of Defence and UNIZG-FER (LABUST), as liaison and coordinator for the Croatian Navy/Defence Academy |
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | |

**PRIZES AND AWARDS, STUDENT EVALUATION**

| Prizes and awards for teaching and scholarly/artistic work | |
| Results of student evaluation taken in the last five years for the course that is | University of Split students questionnaire - 5 |
comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Ana Karaman, M.Eng.</th>
</tr>
</thead>
</table>
| The course he/she teaches in the proposed study programme | Elements of maritime transportI  
Elements of maritime transportII |

### GENERAL INFORMATION ON COURSE TEACHER

<table>
<thead>
<tr>
<th>Address</th>
<th>Pomorska 8, Jesenice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>0914440407</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:anakaraman@gmail.com">anakaraman@gmail.com</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1964</td>
</tr>
<tr>
<td>Scientist ID</td>
<td></td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Naval architecture, shipbuilding</td>
</tr>
</tbody>
</table>

### INFORMATION ON CURRENT EMPLOYMENT

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>MORH</th>
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<tbody>
<tr>
<td>Date of employment</td>
<td>01.11.1998</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>associate teacher</td>
</tr>
<tr>
<td>Field of research</td>
<td>Naval architecture, shipbuilding</td>
</tr>
<tr>
<td>Function</td>
<td>Logistic officer</td>
</tr>
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</table>

### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>Master degree in Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>December 15th 1989</td>
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### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
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<tr>
<td>Place</td>
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<tr>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>Field of training</td>
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### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, (4)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language, (3)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

### COMPETENCES FOR THE COURSE
<table>
<thead>
<tr>
<th><strong>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</strong></th>
<th>Teacher of Shipbuilding and Damage Control in school for officers and petty officers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Authorship of university/faculty textbooks in the field of the course</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?pedagoške kompetencije?</strong></td>
<td></td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

| Prizes and awards for teaching and scholarly/artistic work |  |
| Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) |  |

---

| **First and last name and title of teacher** | Hrvoje Karna, Ph.D. |
| **The course he/she teaches in the proposed study programme** | Applied Computer Science |

**GENERAL INFORMATION ON COURSE TEACHER**

<p>| Address | Dinka Šimunovića 19, Split |
| Telephone number | 098 93 35 442 |
| E-mail address | <a href="mailto:hrvoje.karna@morh.hr">hrvoje.karna@morh.hr</a> |
| Personal web page | - |
| Year of birth | 1978 |
| Scientist ID | - |
| Research or art rank, and date of last rank appointment | Postdoctoral researcher, October 6th 2018. |</p>
<table>
<thead>
<tr>
<th>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</th>
<th>Lecturer, October 6th 2018.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Information Technology; Computing</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Croatian Defence Academy</th>
</tr>
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<tbody>
<tr>
<td>Date of employment</td>
<td>06.10.2018.</td>
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<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Postdoctoral researcher and Lecturer</td>
</tr>
<tr>
<td>Field of research</td>
<td>Information Technology; Computing</td>
</tr>
<tr>
<td>Function</td>
<td>Postdoctoral researcher and Lecturer</td>
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</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Doctoral degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture (FESB)</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>July 8th 2016.</td>
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</table>

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 1) 2020  
2) 2017  
3) 2012  
4) 2011  
5) multiple |
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>Zagreb/Split/WBT</td>
</tr>
</tbody>
</table>
| Institution | 1) DEKAFORM (Zagreb)  
2) LABO (Zagreb)  
3) NETMedia (Split)  
4) Oracle University (Zagreb)  
5) Siemens (Web-based training) |
| Field of training | 1) ISO 9001:2015 Quality Management System (QMS)  
2) Microsoft Power BI (BusinessIntelligence)  
3) Visual Studio 2012,.NET Framework 4.5 and Entity Framework  
4) Oracle Siebel 8.1 x Integration and Oracle Siebel 8.1 x Enterprise Integration Manager  
5) Business Conduct Guidelines; Global Competition; Information and Corporate Security; Global Bribery and Corruption Awareness; Protection against Social Engineering; Unconscious Bias - Fundamentals |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, (5)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**
| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Software Engineering (Computing, FESB - Guest Lecturer)  
Database systems (Computing, FESB - External Associate)  
Computer Networks (Computing, FESB - Student Assistant) |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td>-</td>
</tr>
</tbody>
</table>
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 1. Karna, H.; Gotovac, S.; Vicković, L.; Mihanović, L. The Effects of Turnover on Expert Effort Estimation. // Journal of information and organizational sciences (2020)  
doi:10.31341/jios  
doi:10.1002/spe.2651  
doi:10.31341/jios  
6045971, 5  
doi:10.23919/SOFTCOM.2019.8903752  
doi:10.1109/SOFTCOM.2015.7314091  
doi:10.1109/SOFTCOM.2014.7039106  
doi:10.5220/0005002600260035 |
<p>| Professional and scholarly articles published in the last five years in | - |</p>
<table>
<thead>
<tr>
<th>Subject</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Subjects of teaching methodology and teaching quality (5 works at most)</td>
<td>-</td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>-</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological- psychological- didactic- pedagogical group of competences? - pedagoške kompetencije?</td>
<td>-</td>
</tr>
</tbody>
</table>

### Prizes and Awards, Student Evaluation

| Prizes and awards for teaching and scholarly/artistic work | University of Split students questionnaire 2020  
Computer Applications  
Global Index: average: 4.9 / maximum 5 |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
<td>-</td>
</tr>
</tbody>
</table>

--

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Marko Katalinić, Ph.D.</th>
</tr>
</thead>
</table>
| The course he/she teaches in the proposed study programme | Elements of maritime transport I  
Elements of maritime transport II |

### General Information on Course Teacher

<table>
<thead>
<tr>
<th>Address</th>
<th>Starčevićeva 24D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>+385 (0)21 619453</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:marko.katalinic@pfst.hr">marko.katalinic@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td>-</td>
</tr>
<tr>
<td>Year of birth</td>
<td>1985</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>342985</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Scientific associate, 02.10.2019.</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>-</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Technical field, Naval Architecture</td>
</tr>
</tbody>
</table>

### Information on Current Employment

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split - Faculty of Maritime Studies (PFST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>11/2013</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Assistant professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Naval Architecture</td>
</tr>
<tr>
<td>Function</td>
<td>Assistant professor</td>
</tr>
</tbody>
</table>

### Information on Education – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Zagreb – Faculty of Mechanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb, Croatia</td>
</tr>
<tr>
<td>Date</td>
<td>31.05.2019</td>
</tr>
</tbody>
</table>
### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
<th>2010-2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>Liege (Belgija), Nanstes (Francuska), La Spezia (Italija)</td>
</tr>
<tr>
<td>Institution</td>
<td>Universite de Liege (Belgium), Ecole Centrale de Nantes (France), Università degli Studi di Genova (Italy)</td>
</tr>
<tr>
<td>Field of training</td>
<td>Integrated Advanced Ship Design</td>
</tr>
</tbody>
</table>

### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td>Italian</td>
<td>3</td>
</tr>
<tr>
<td>French</td>
<td>2</td>
</tr>
</tbody>
</table>

### COMPETENCES FOR THE COURSE

- Construction resistance and propulsion of yachts:
  - Maritime Yacht and Marine Technologies at PFST, undergraduate.
  - Ship construction.
  - Marine Engineering at PFST, undergraduate.
  - Means of maritime transport I & II
  - Marine Engineering at PFST, undergraduate.
  - Ship propulsion system, Marine Engineering
  - Marine Engineering at PFST, graduate.

### Professional and scholarly articles published in the last five years in the field of the course (5 works at most)

- Mudronja, Luka; Matić, Petar; Katalinić, Marko. Data-based modelling of significant wave height in the Adriatic Sea. Transactions on Maritime Science, 6 (2017), 1, 5-13
- Tomac, Tomislav; Milat, Arijana; Dundara, Dani; Kuzmanović, Obrad; Radolović, Vito; Vujasinović, Jasenko; Katalinić, Marko. Višekriterijska optimizacija laganih modularnih sendvič panela. // Zbornik radova 21. simpozija Teorija i praksa brodogradnje, in memoriam prof. Leopold Sorta (SORTA 2014)/ Dejhalla, Roko; Degiuli, Nastia; Matulja, Dunja; Mrakovčić, Tomislav; Zamarin, Albert (ur.) Rijeka:Tehnički fakultet, Sveučilište u Rijeci ; Brodogradište Viktor Lenac, 2014. str. 407-418
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | Croatian Science Foundation - project MODUS  
Croatian Science Foundation - project DATAS  
EU-FP7 CO-PATCH  
EU-FP7 MOSAIC  
Internal funding PFST – SeaMotion Database |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences</td>
<td><strong>PRIZES AND AWARDS, STUDENT EVALUATION</strong></td>
</tr>
<tr>
<td><strong>Prizes and awards for teaching and scholarly/artistic work</strong></td>
<td><strong>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</strong></td>
</tr>
<tr>
<td><strong>First and last name and title of teacher</strong></td>
<td><strong>Danko Kezić, Ph.D.</strong></td>
</tr>
</tbody>
</table>
| **The course he/she teaches in the proposed study programme** | Marine Electrical Engineering and Electronics I.  
Automation of Marine Engine Systems  
Marine Power Electronics |
<p>| <strong>GENERAL INFORMATION ON COURSE TEACHER</strong> | <strong>GENERAL INFORMATION ON COURSE TEACHER</strong> |
| Address | Velebitska 7 |
| Telephone number | 0 |
| E-mail address | <a href="mailto:danko.kezic@pfst.hr">danko.kezic@pfst.hr</a> |
| Personal web page | <a href="http://www.pfst.hr/~danko">www.pfst.hr/~danko</a> |
| Year of birth | 1960 |
| Scientist ID | 197501 |
| Research or art rank, and date of last rank appointment | Distinguished Professor, 29th September 2016 |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Area of technical sciences, filed electronics (scientific advisor), filed of traffic and transport technology (research associate) |
| Area and field of election into research or art rank | <strong>INFORMATION ON CURRENT EMPLOYMENT</strong> |
| Institution where employed | University of Split, Faculty of Maritime Studies |
| Date of employment | 1st December 1992 |
| Name of position (professor, researcher, associate teacher, etc.) | Distinguished Professor |
| Field of research | Marine Electrical Engineering, Power Electronics, Automation |
| Function | <strong>INFORMATION ON EDUCATION – Highest degree earned</strong> |
| Degree | PhD |
| Institution | Faculty of Electrical Engineering and Computing in Zagreb |
| Place | Zagreb |
| Date | 12th April 2003 |
| <strong>INFORMATION ON ADDITIONAL TRAINING</strong> | <strong>INFORMATION ON ADDITIONAL TRAINING</strong> |</p>
<table>
<thead>
<tr>
<th><strong>Year</strong></th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Place</strong></td>
<td>Split</td>
</tr>
<tr>
<td><strong>Institution</strong></td>
<td>Faculty of Maritime Studies in Split</td>
</tr>
<tr>
<td><strong>Field of training</strong></td>
<td>Maintenance of maritime simulator</td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language 4</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language 3</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Participated in the formation of Electrical Engineering and Electronics study programme at the Faculty of Maritime Studies in Dubrovnik and introduced the following courses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microelectronics I, (lectures and exercises from 1993, lectures from 1993. until 1995) - in Dubrovnik,</td>
<td></td>
</tr>
<tr>
<td>Microelectronics II, (lectures and exercises from 1993, lectures from 1993. until 1995) - in Dubrovnik,</td>
<td></td>
</tr>
<tr>
<td>Microelectronics III, (lectures and exercises from 1993, lectures from 1993. until 1995) - in Dubrovnik,</td>
<td></td>
</tr>
<tr>
<td>Maintenance and Accuracy of Marine Electronics, (lectures and exercises from 1993, lectures from 1993. until 1998) - in Dubrovnik and in Split</td>
<td></td>
</tr>
<tr>
<td>Measurements in Electronics, (lectures and exercises from 1993, lectures from 1993. until 1995) - in Dubrovnik,</td>
<td></td>
</tr>
<tr>
<td>Marine power electronics, (lectures and exercises from 1993, lectures from 1993. until 1998) - in Dubrovnik</td>
<td></td>
</tr>
<tr>
<td>At the Faculty of Maritime Studies, University of Split has been teaching courses B1.4. and B1.6. since 1995, and has updated the course - Ship computers and information systems (lectures and exercises since 1993) – in Dubrovnik and in Split</td>
<td></td>
</tr>
<tr>
<td>Since academic year 2004/2005 has been involved in the introduction of new study programmes at the three-year university undergraduate study programme Maritime electrical and information technologies and at the university graduate study programme Maritime electrical technologies – Bologna process.</td>
<td></td>
</tr>
<tr>
<td>Introduces the following courses at the university undergraduate study programme:</td>
<td></td>
</tr>
<tr>
<td>Computer Control Technologies in Technical Systems,</td>
<td></td>
</tr>
<tr>
<td>Maritime Electronic Security Systems,</td>
<td></td>
</tr>
<tr>
<td>Computer Networks.</td>
<td></td>
</tr>
<tr>
<td>Introduces and updates the following courses at the university graduate study programme:</td>
<td></td>
</tr>
<tr>
<td>Mechatronics,</td>
<td></td>
</tr>
<tr>
<td>Discrete Control Systems.</td>
<td></td>
</tr>
<tr>
<td>Introduces the following course at the vocational postgraduate master’s study programme – Nautical Studies:</td>
<td></td>
</tr>
</tbody>
</table>
| The Use of Maritime Simulators and Trainers.
Introduces the following course at the inter-university postgraduate study programme – Nautical Studies: Guidance of Robotic Production Systems

Authorship of university/faculty textbooks in the field of the course
Radiotehnika za pomorske nautičare - web teaching material 2014

Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)

Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)

Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

PRIZES AND AWARDS, STUDENT EVALUATION
Prizes and awards for teaching and scholarly/artistic work

First and last name and title of teacher  Branko Klarin, Ph.D.
The course he/she teaches in the proposed study programme  Technical Mechanics 2

GENERAL INFORMATION ON COURSE TEACHER
Address  A. Hebranga 7, 23000 Zadar
Telephone number  091-6305950
E-mail address  Branko.Klarin@fesb.hr
Personal web page  www.fesb.hr/~bklarin
Year of birth  1962.
Scientist ID  3118339
Research or art rank, and date of last rank appointment  Scientific advisor, 11.05.2011.
<table>
<thead>
<tr>
<th>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</th>
<th>Professor, 17.02.2016.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Technical sciences, machine engineering</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Fakultet elektrotehnike, strojarstva i brodogradnje - Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>01.06.1991.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Renewable energy systems</td>
</tr>
<tr>
<td>Function</td>
<td>Full professor</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>D.sc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Fakultet elektrotehnike, strojarstva i brodogradnje - Split</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>03.12.2004.</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th>Place</th>
<th>Institution</th>
<th>Field of training</th>
</tr>
</thead>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English, 4</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>German, 2</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Fluid Mechanics, on-line course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td>Fluid Mechanics, on-line course</td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td>1. Andrun, Martina; Blagojević, Branko; Bašić, Josip; Klarin, Branko: Impact of CFD Simulation Parameters in Prediction of Ventilated Flow on a Surface–Piercing Hydrofoil. // Ship Technology Research - Schiffstechnik (2020) (međunarodna recenzija, prihvaćen)</td>
</tr>
</tbody>
</table>
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)

<table>
<thead>
<tr>
<th>Title</th>
<th>Journal/Conference</th>
<th>DOI</th>
</tr>
</thead>
</table>

Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)

- ME4 CataLOgue – Croatian catalogue of knowledge, skills and competences for machine engineering studies based on learning outcomes – Training for teachers and administrative personnel

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?-

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME4 CataLOgue – Croatian catalogue of knowledge, skills and competences for machine engineering studies based on learning outcomes – Training for teachers and administrative personnel</td>
<td></td>
</tr>
</tbody>
</table>

PRIZES AND AWARDS, STUDENT EVALUATION

- Prizes and awards for teaching and scholarly/artistic work
- Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)
- Dean’s acknowledgement for best ranked 10% teachers in institution

First and last name and title of teacher

<table>
<thead>
<tr>
<th>Name and Title</th>
<th>Mathematics I, Mathematics II, Mathematics III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikola Koceić-Bilan, Full professor</td>
<td></td>
</tr>
</tbody>
</table>

GENERAL INFORMATION ON COURSE TEACHER

<table>
<thead>
<tr>
<th>Information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Domovinskog rata 27c, Split</td>
</tr>
<tr>
<td>Telephone number</td>
<td>021619265</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:koceic@pmfst.hr">koceic@pmfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Scientist ID</td>
<td>261533</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Senior scientist, 12. 12. 2017.</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Full professor, 25. 1. 2018.</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Natural sciences, Mathematics</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Faculty of science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>15.11.1999.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Full professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Geometric topology, Algebraic topology, Shape theory, Mathematical education</td>
</tr>
<tr>
<td>Function</td>
<td>Dean</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Zagreb</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>23.10.2006.</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>Field of training</td>
<td></td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English 5</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian 2</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

- Fundamentals of mathematical analysis, Set theory, Statistics (BSc level in Mathematics – University of Split, University of Mostar)
- Measure and integral, Methods of teaching mathematics
- Constructive methods in geometry (MsC level in Mathematics – University of Split, University of Mostar)
- Introduction to Statistical Methods II, American College of Management and Technology, Dubrovnik
- Homotopy, shape and coarse shape, The coarse shape groups, Research in mathematical education (PhD, postgraduate study in Mathematics – University of Zagreb)

<table>
<thead>
<tr>
<th>Authorship of university/faculty textbooks in the field of the course</th>
<th>Koceić Bilan, Nikola; Mirošević, Ivančica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td>Box homotopy and the reduction of pro*-HTop category // Homology homotopy and applications 22 (2020) , 1; 55-68 Koceić Bilan, Nikola; Mirošević, Ivančica</td>
</tr>
</tbody>
</table>
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | Functorial reducing pro*-Grp category to pro-Grp // Topology and Its Applications 263 (2019) ; 74-89  
Koceić Bilan, Nikola; Ćuka, Zdravko  
Topological coarse shape groups of compact metric spaces// Rad HAZU 21 (2017)  
Koceić Bilan, Nikola  
Continuity of coarse shape groups // Homology homotopy and applications 18 (2016) , 2; 209-215  
Koceić Bilan, Nikola  
Computing coarse shape groups of solenoids // Mathematical communications 14 (2014) ; 243-251 |
|---|---|
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | Guberina, Antonija; Koceić Bilan, Nikola  
Mirošević, Ivančica; Koceić-Bilan, Nikola; Jurko, Josipa  
Različiti nastavno-metodički pristupi čunjosiječnicama // Math.e : hrvatski matematički elektronski časopis. 27 (2015) ; 1-10  
Koceić Bilan, Nikola; Jelić, Ivan  
On intersections of the exponential and logarithmic curves // Annales Mathematicae et Informaticae 43 (2014) ; 159-170  
Koceić Bilan, Nikola; Smajić, Nikolina; Trombetta Burić, Luisa  
Konstruktivna geometrija u nastavi matematike // Osječki matematički list. 13 (2013) , 1; 74-83  
Koceić Bilan, Nikola; Trombetta Burić, Luisa; Lebedina, Ana  
Klasični grčki problemi // Zbornik radova Fakulteta strojarstva i računarstva Sveučilišta u Mostaru. 2012 (2012) ; 47-56 |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? | "Grubi oblik i klasifikacija natkrivanja", voditelj; V. Matijević, PMF, Split (researcher)  
HR.3.1.15 ESF: Razvoj modernih studijskih programa za izobrazbu nastavnika informatike, tehniike, biologije, kemije, fiziike i matematike na temeljima razvoja Hrvatskog kvalifikacijskog okvira, 2015-2016, European Social Fund. (principle investigator)  
„Ne knjiga nego znanje“ (Sveučilište u Splitu, uvodenje inovativnog sustava za učenja matematičkih kolegija) (group leader) |

**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
<th>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results of students evaluation in the last five years are always above 4.5 (average) at all courses (Department of Mathematics, Faculty of science)</td>
<td></td>
</tr>
<tr>
<td>First and last name and title of teacher</td>
<td>Silvana Kokan, M.Ed.</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------</td>
</tr>
</tbody>
</table>
| The course he/she teaches in the proposed study programme | Maritime English I  
Maritime English II  
Naval English I  
Naval English II |

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Kocunarski prilaz II / 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>091 531 76 71</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:skokanhr@yahoo.com">skokanhr@yahoo.com</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td>/</td>
</tr>
<tr>
<td>Year of birth</td>
<td>1964</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Croatian Defence Academy „Dr. Franjo Tuđman“</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>15 January 1997</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate teacher</td>
</tr>
<tr>
<td>Field of research</td>
<td>/</td>
</tr>
<tr>
<td>Function</td>
<td>Teacher</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Master's degree in English Language and Literature and Italian Language and Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Faculty of Humanities and Social Sciences, University of Split</td>
</tr>
<tr>
<td>Place</td>
<td>Zadar</td>
</tr>
<tr>
<td>Date</td>
<td>March, 1989</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 2001  
2001 |
|------|-------|
| Place | USA, San Antonio, Texas  
Great Britain, Plymouth |
| Institution | Defence Language Institute  
St Mark and John's College |
| Field of training | Foreign Language Training for Military Personnel  
English for Specific Purposes – course design |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English, 5</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian, 5</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>French, 2</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Designing and conducting ESP courses for military personnel:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- English skills for PSO Logisticians</td>
</tr>
<tr>
<td></td>
<td>- English skills for Staff Officers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Authorship of university/faculty textbooks in the field of the course</th>
<th>/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td>/</td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td>/</td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>/</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences</td>
<td>English Language and Literature Degree</td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
<th>Croatian Defence Academy Award for Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
<td>University of Split</td>
</tr>
<tr>
<td></td>
<td>Student evaluation: average grade 4.8 /5</td>
</tr>
</tbody>
</table>

**Title, name, surname**

| Maja Krčum, PhD, Associate Professor |

**Course to be taught in the suggested lifelong learning programme**

| ONBOARD ELECTRIC POWER SYSTEM |

**GENERAL INFORMATION ON THE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>BIJANKINJJEVA 8, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone</td>
<td>++385(0)913807000</td>
</tr>
<tr>
<td>e-mail address</td>
<td><a href="mailto:mkrcum@pfst.hr">mkrcum@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1958</td>
</tr>
<tr>
<td>Researcher ID in the Register of researches</td>
<td>173265</td>
</tr>
<tr>
<td>Research or art position and the date of the last appointment</td>
<td>Senior scientific associate 26.02.2020.</td>
</tr>
<tr>
<td>Research and teaching position, art and teaching position or teaching position and date of the last appointment</td>
<td>Associate professor 09.03.2020.</td>
</tr>
<tr>
<td>Area and field of election in research or art position</td>
<td>Technical sciences, field of transport and transport technology, branch of maritime and river transport</td>
</tr>
</tbody>
</table>

### INFORMATION ON CURRENT EMPLOYMENT

| Institution where employed | University of Split, Faculty of Maritime Studies |
| Date of employment | 1.11.1999. |
| Name of position (professor, researcher, associate teacher, etc.) | Associate professor |
| Field of research | Power systems, Electrical machines, Application of high voltage technologies, Quality management |
| Function | Head of the Department of Maritime Electrotechnical and Information Technologies / Director of the Quality Center |

### INFORMATION ON EDUCATION – highest degree earned

| Degree | Ph. D. degree in Technical science |
| Institution | University of Rijeka, Faculty of Maritime Studies |
| Place | Rijeka |
| Date | 26.07.2012. |

### INFORMATION ON ADDITIONAL TRAINING

| Year | 2016 |
| Place | Split |
| Institution | Hrvatski registar brodova |
| Field of additional training | Tranzit in norma ISO 9001:2015 |

### MOTHER TONGUE AND OTHER LANGUAGES

| Mother tongue | Croatian |
| Foreign language and knowledge of the language on a scale from 2 (sufficient) to 5 (excellent) | English, 5 |
| Foreign language and knowledge of the language on a scale from 2 (sufficient) to 5 (excellent) | Italian, 4 |

### COMPETENCES FOR TEACHING THE COURSE

<p>| Earlier experience in teaching similar courses (state course name) | 1. High voltage technologies in maritime affairs - graduate study of ship engineering, Faculty of Maritime Studies in Split 2. Onboard electric Power System I and II - Faculty of Maritime Studies in Split 3. Electric motor drives - Faculty of Maritime Studies in Split |
| Authorship of university/faculty textbooks from similar areas | 1. Krčum, Maja: Repetitorij s laboratorijskim vježbama iz električnih strojeva, sveučilište u splitu, Studijski centar za stručne studije, split, 2009. |</p>
<table>
<thead>
<tr>
<th>Professional and scholarly articles published in the last five years in areas of teaching methodology and teaching quality (5 works at most)</th>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
</tr>
</thead>
</table>

**RECOGNITION AND AWARDS**

Recognition and awards for teaching and research/art work

---

**First and last name and title of teacher**

Associate professor Nikša Krnić, Ph. D

**The course he/she teaches in the proposed study programme**

Technology of material

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Telephone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruđera Boškovića 32</td>
<td>+38521305912</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E-mail address</th>
<th>Personal web page</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:nkrnic@fesb.hr">nkrnic@fesb.hr</a></td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year of birth</th>
<th>Scientist ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1956.</td>
<td>122696</td>
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</tbody>
</table>

**Research or art rank, and date of last rank appointment**

Senior Research Associate, 2011.
<table>
<thead>
<tr>
<th>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</th>
<th>Associate professor, May 2018.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Technical sciences, scientific field of Mechanical engineering</td>
</tr>
</tbody>
</table>

### INFORMATION ON CURRENT EMPLOYMENT

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty Electrical Engineering, Mechanical Engineering and Naval Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1984.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Teaching courses in materials, technology and tribology</td>
</tr>
<tr>
<td>Function</td>
<td>-</td>
</tr>
</tbody>
</table>

### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>Ph.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Zagreb, Faculty of Mechanical Engineering and Naval architecture</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>1999.</td>
</tr>
</tbody>
</table>

### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>Berlin, Njemačka</td>
</tr>
<tr>
<td>Institution</td>
<td>Technische Universitat Berlin, Fuege- und Schweisstechnik</td>
</tr>
<tr>
<td>Field of training</td>
<td>Welding</td>
</tr>
</tbody>
</table>

### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English (4)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>German (4)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>French (2)</td>
</tr>
</tbody>
</table>

### COMPETENCES FOR THE COURSE

**Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)**

- FESB vocational study, undergraduate study, graduate study, postgraduate study of mechanical engineering and shipbuilding
- Faculty of Maritime studies
- University Department of Professional Studies
- University of Applied Sciences Velika Gorica

**Authorship of university/faculty textbooks in the field of the course**


**Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)**

Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)

<table>
<thead>
<tr>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences</td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award of Croatian Welding Society</td>
</tr>
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</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Zlatan Kulenović, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Technical Mechanic I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
<th>Put Plokita 83, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>021 537 769</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:zlatan@pfst.hr">zlatan@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1954</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>226014</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Scientific advisor with tenure 2nd February 2009</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Distinguished Professor 2nd February 2009</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Area of technical sciences, field of mechanical engineering</td>
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</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
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<th>Institution where employed</th>
<th>Faculty of Maritime Studies, University of Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>since 1996</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Mechanical engineering - marine engineering, machine and construction mechanics, technical physics</td>
</tr>
<tr>
<td>-------------------</td>
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</tbody>
</table>

**Function**

**INFORMATION ON EDUCATION – Highest degree earned**

- **Degree**: PhD in technical sciences
- **Institution**: Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb.
- **Place**: Zagreb
- **Date**: 9th July 1987

**INFORMATION ON ADDITIONAL TRAINING**

- **Year**: 1980 -1982, 1984 -1986
- **Place**: Zagreb
- **Institution**: Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb.
- **Field of training**: Experimental methods of construction mechanics

**MOTHER TONGUE AND FOREIGN LANGUAGES**

- **Mother tongue**: Croatian language
- **German language**: (3)
- **English language**: (3)
- **Russian language**: (2)

**COMPETENCES FOR THE COURSE**

| Authorship of university/faculty textbooks in the field of the course | 1. Z. Kulenović, Zbirka riješenih ispitnih zadataka iz otpornosti materijala, Univerzitet u Banja Luci, Mašinski fakultet, Banja Luka 1980.  
15. Z. Kulenović, Elementi brodskih strojeva i konstrukcija, Pomorski fakultet Sveučilišta u Splitu, Split 2012.  
| --- | --- |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 1. V. Vetma, Z. Kulenović, R. Antonić, Ispitivanje značajki i utjecaj brodskog vijka na propulziju ribarskog broda, Naše more 61 (2014), 1-2, 17-27.  
5. I. Vujović, I. Kuzmanić, Z. Kulenović, Relationship of Advances in Electronics and Maritime Traffic, with Case Study |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>University in Banja Luka High school Hvar</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</td>
<td></td>
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</tbody>
</table>
Instruktor BS simulatora Transas ERS 5000; 2013: Instruktor BS simulatora Transas ERS 5000; 2009: AutoCAD-a: crtanje u ravnini, napredno crtanje u ravnini, 3D modeliranje. 2007: Instruktor BS simulatora Transas ERS 4000;

Place Split, Kotor
Institution Croatian regista of shipping Faculty of Maritime Studies u Kotoru, Učilište ALGEBRA,
Field of training Brodsko strojarstvo

MOTHER TONGUE AND FOREIGN LANGUAGES
Mother tongue Croatian
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) Engleski (5)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) Ruski (3)
Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) Njemački (2)

COMPETENCES FOR THE COURSE
Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) Marine propulsion systems Marine engines Preparation and management of instalation Maintenance management Technical supervision and classification Maintenance systems Maintenance and reliability of marine machine systems.


stroke Slow Speed Marine Diesel Engine, Transactions on maritime science, ToMS. Vol. 1 (2012), No. 2, str.89-95

| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | Voditelj projekta za Faculty of Maritime Studies „Funkcionalna integracija University of Split, PMF-ST, PF-ST te KTF-ST kroz razvoj znanstveno-istraživačke infrastrukture u Zgradi tri fakulteta (KK.01.1.1.02.0018)” financiranog od strane EU

| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences | |

| PRIZES AND AWARDS, STUDENT EVALUATION | Matični odbor za područje tehničkih znanosti: Odluka o znanstvenoj izvrsnosti 04.07.2018. |

| Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) | |

| First and last name and title of teacher | Ivica Kuzmanić, M.Sc.Eng. |
| The course he/she teaches in the proposed study programme | Marine Electrical Engineering and Electronics I. |

| GENERAL INFORMATION ON COURSE TEACHER | |
| Address | Sukoišanska 23, Split |
| Telephone number | 091 7633 408 |
| E-mail address | ikuzman@pfst.hr |
| Personal web page | www.pfst.hr/~ikuzman |
| Year of birth | 1953 |
| Scientist ID | 153406 |
| Research or art rank, and date of last rank appointment | Scientific assistant, 17. 10. 1992. |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | High school professor in a permanent position, 14. 6. 2006. |
| Area and field of election into research or art rank | Technical sciences, electrotechnics |

### INFORMATION ON CURRENT EMPLOYMENT

| Institution where employed | Faculty of Maritime Studies University of Split |
| Date of employment | 1. 1. 1985. |
| Name of position (professor, researcher, associate teacher, etc.) | High school professor in a permanent position |
| Field of research | Electrotechnics, Automatisation |
| Function | Head of PEIT studies, former vice-dean, editor of the international scientific journal "Transaction on Maritime Science" |

### INFORMATION ON EDUCATION – Highest degree earned

| Degree | Magistar znanosti |
| Institution | Elektrotehnički fakultet Sveučilišta u Zagrebu |
| Place | Zagreb |
| Date | 28. 2. 1991. |

### INFORMATION ON ADDITIONAL TRAINING

| Year | 1978, 1980, 1983, |
| Place | Radovljica |
| Institution | IBM fro Central Europe |
| Field of training | Informatics |

### MOTHER TONGUE AND FOREIGN LANGUAGES

| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English 4 |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | Italian 2 |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | |

### COMPETENCES FOR THE COURSE

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Lecture of this and related courses for 35 years. Fundamentals of Electrical Engineering and Electronics, Marine Electrical Engineering and Electronics, Marine Electrical Engineering, Electrical Engineering, Fundamentals of Electrical Engineering I and II, (PN, BS, PSP, RT, PEIT, PTJM, PM) |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 1. Kuzmanić, I., Vujović, I., Šoda, J.: Corrosion Monitoring in Marine Environment Using Wavelet Description, Key Engineering Materials, 478, 2011., (p.p. 40-45)  

| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | 1. Kuzmanić, I., Vujović, I.: Observation of Damage to Materials for Educational Purposes at the BSc Level, in: Design and Analysis of Materials and Engineering Structures, Öechner, A., da Siva, L. F. M., Altenbach, H. (eds), New York: Springer-Verlag, 2013., p.p. 27-36 |

| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) |  |

<p>| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences |  |</p>
<table>
<thead>
<tr>
<th>PRIZES AND AWARDS, STUDENT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prizes and awards for teaching and</td>
</tr>
<tr>
<td>scholarly/artistic work</td>
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<tr>
<td>Results of student evaluation taken</td>
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<td>in the last five years for the course</td>
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<tr>
<td>that is comparable to the course</td>
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<tr>
<td>described in the form (evaluation</td>
</tr>
<tr>
<td>organizer, average grade, note on</td>
</tr>
<tr>
<td>grading scale and course evaluated)</td>
</tr>
<tr>
<td>First and last name and title of teacher</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
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</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Šimićeva 56, 21000 Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>091 2257401</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:nenad.leder@pfst.hr">nenad.leder@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td>-</td>
</tr>
<tr>
<td>Year of birth</td>
<td>1958</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>192292</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Senior research associate, 22nd January 2018</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Assistant Professor, 1st June 2017</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Area of natural sciences, field of interdisciplinary natural science</td>
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**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
</tr>
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<tbody>
<tr>
<td>Date of employment</td>
<td>1st June 2017</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Professor</td>
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<tr>
<td>Field of research</td>
<td>Geophysics</td>
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<td>Function</td>
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**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
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<tbody>
<tr>
<td>Institution</td>
<td>University of Zagreb, Faculty of Science, Department of Geophysics</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>22nd October 2004</td>
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**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Place</td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>Field of training</td>
<td></td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, 5 (excellent)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language, 3 (good)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Lectures and exercises:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures and exercises:</td>
<td></td>
</tr>
<tr>
<td>Physics (Undergraduate university study programme of Geodesy, Faculty of Civil Engineering, Architecture and Geodesy, University of Split)</td>
<td></td>
</tr>
</tbody>
</table>

433
• Two courses at the postgraduate study programme (Faculty of Civil Engineering, Architecture and Geodesy, University of Split)
• Maritime Meteorology (Faculty of Maritime Studies in Split)
• Marine Meteorology and Ocean Science (Faculty of Maritime Studies in Split)
• Maritime Geography (Faculty of Maritime Studies in Split)
• Maritime Nautical Engineering (Faculty of Maritime Studies in Split)

<table>
<thead>
<tr>
<th>Authorship of university/faculty textbooks in the field of the course</th>
<th>-</th>
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</thead>
<tbody>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td>-</td>
</tr>
</tbody>
</table>
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | 1. 2013-2014 Coastal cities water pollution control project 2 IBRD 7640/hr, PART 3.2 Sea water quality monitoring, MENP/M-C-1 Consulting services for the definition of the Monitoring and Observation system for ongoing assessment of the Adriatic Sea, Ministry of Construction and Physical Planning, co-project manager.
3. 2019 – VIF project entitled “Pomorska meteorološka mjerenja i istraživanja, Faculty of Maritime Studies in Split, project manager. |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? | - |
| PRIZES AND AWARDS, STUDENT EVALUATION | - |
| Prizes and awards for teaching and scholarly/artistic work | Award for the best poster on 39th CIESM Congress (Commission Internationale pour l’ Exploration Scientifique de la Mer Méditerranée) held in Venice in 2010:
<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Zvonimir Lušić, Ph.D.</th>
</tr>
</thead>
</table>
| The course he/she teaches in the proposed study programme | Terrestrial Navigation  
Astronomical Navigation  
Tactical Navigation |

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Vinkovačka 13, Trogir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>0</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:zlusic@pfst.hr">zlusic@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1971</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>288482</td>
</tr>
</tbody>
</table>
| Research or art rank, and date of last rank appointment | Senior research associate  
15th June 2016 |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Associate Professor  
14th December 2016 |
| Area and field of election into research or art rank | Area of technical sciences, filed of traffic and transport technology, branch maritime and river transport |

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Faculty of Maritime Studies, University of Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1st May 2005</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Maritime Navigation</td>
</tr>
<tr>
<td>Function</td>
<td>Head of Nautical Studies Department</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
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<tbody>
<tr>
<td>Institution</td>
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<tr>
<td>Place</td>
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<tr>
<td>Date</td>
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</table>

**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th>2013 and 2017</th>
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<tbody>
<tr>
<td>Place</td>
<td>Portorož/Gdynia</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Maritime Studies in Portorož/Gdynia Maritime University</td>
</tr>
<tr>
<td>Field of training</td>
<td>Application of navigation simulator in research and teaching</td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language 4</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Navigation I, II, III, IV (Nautical Studies, two and four-year university study programme)  
Navigation I and II (Management Of Yachts And Marinas, two-year university study programme) |
<table>
<thead>
<tr>
<th>Course Details</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals of Navigation (Marine Engineering, undergraduate study programme)</td>
<td>Elements of Navigation (Maritime Management / Maritime Yacht and Marine Technologies, undergraduate study programme)</td>
</tr>
<tr>
<td>Onboard Internship(Nautical Studies, undergraduate study programme)</td>
<td>Internship (Nautical Studies, undergraduate study programme)</td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td>1. Lušić, Z.: Astronomski naučni rad bez obzira na primjetnost promatrajuće komete, Faculty of Maritime Studies in Split, 2012.</td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td>1. Lušić, Z.: Novi preddiplomski studij Pomorske nautike na Pomorskom fakultetu u Splitu, Kapetanov glasnik 29-2014, HHI/PFST, Split, 2014, 22-25.</td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>• Scientific (in-house) project &quot;Primjena radio lociranja u SAR operacijama&quot; - University of Split - Faculty of Maritime Studies, 2018. - project manager Assoc. Prof. Zvonimir Lušić, PhD</td>
</tr>
<tr>
<td>• Scientific project &quot;Istraživanje okolišnih utjecaja na rad satelitskih navigacijskih sustava u pomorskoj navigaciji&quot;, Faculty of Maritime Studies, University of Rijeka, principal investigator: Full Prof. Serđo Kos, PhD, Zvonimir Lušić, PhD</td>
<td></td>
</tr>
<tr>
<td>• Project entitled Medusa-Pomorski obrazovni standard u brodarstvu i brodskom menadžmentu, project coordinator Faculty of Maritime Studies in Rijeka, project manager Assoc. Prof. Ana Perić Hadžić, PhD, partner Faculty of Maritime Studies in Split, PhD, Zvonimir Lušić, PhD</td>
<td></td>
</tr>
<tr>
<td>• Project entitled &quot;Internacionalizacija studijskih programa Morskog ribarstva i Vojnog pomorstva Sveučilišta u Splitu&quot; (UP.03.1.1.02.0046), University of Split, project manager on behalf of the Faculty of Maritime Studies: Assoc. Prof. Merica</td>
<td></td>
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</table>
Slišković, PhD, Zvonimir Lušić, PhD member of a project team, 2018...
• Study entitled "Zajednička metodologija za analizu potencijalnih tokova prometa" and "Analiza potencijalnih tržišnih tokova luke Split" within international project CHARGE, subcontractor Faculty of Maritime Studies in Split, contractor L.U. Split, 2018.

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?
Experience in teaching, training and education of seafarers since 2002, six years of sailing on ships, and as a part of formal education

<table>
<thead>
<tr>
<th>PRIZES AND AWARDS, STUDENT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
</tr>
</tbody>
</table>

First and last name and title of teacher Nikola Mandić, Ph.D.
The course he/she teaches in the proposed study programme Maritime Law

GENERAL INFORMATION ON COURSE TEACHER
Address Split, Rudera Boškovića 37
Telephone number 021/619483
E-mail address nmandic@pfst.hr
Personal web page -
Year of birth 1985
Scientist ID 301594
Research or art rank, and date of last rank appointment Research associate, 30th December 2015
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment Assistant Professor, 2nd November 2016
Area and field of election into research or art rank Interdisciplinary field of science, fields: law and traffic and transport technology

INFORMATION ON CURRENT EMPLOYMENT
Institution where employed University of Split, Faculty of Maritime Studies
Date of employment 1st January 2008
Name of position (professor, researcher, associate teacher, etc.) Assistant Professor
Field of research maritime law, shipping agency and forwarding
Function Head of Chair of Joint and Common Courses

INFORMATION ON EDUCATION – Highest degree earned
Degree PhD
Institution University of Mostar, Faculty of Law
Place Mostar
Date 20th March 2015

INFORMATION ON ADDITIONAL TRAINING
Year -
Place -
Institution -
Field of training -

MOTHER TONGUE AND FOREIGN LANGUAGES
Mother tongue Croatian language
<table>
<thead>
<tr>
<th>Competence</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language (4)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
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<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>-</td>
</tr>
<tr>
<td>COMPETENCES FOR THE COURSE</td>
<td>Maritime Law I, Maritime Law II, Traffic Law, Maritime Agencies and Shipping and Maritime Contracting, undergraduate and graduate study programmes Nautical Studies, Maritime Management and Maritime Yacht and Marine Technologies</td>
</tr>
</tbody>
</table>
| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | 1. Amižić Jelovčić, P.; Primorac, Ž.; Mandić, N.: Obalna straža Republike Hrvatske – pravni okvir, Faculty of Law, Split, 2017.  
| Authorship of university/faculty textbooks in the field of the course                                              | 1. Petrinović, R.; Mandić, N.; Siriščević, E.: The Importance of Maritime Law in Seafarer Training Pursuant to Amendments to the STCW Convention, Transactions on Maritime Science, god. 5, br. 1, Split, 2016., p. 53-64.  
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | -                                                                                                                                       |
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | -                                                                                                                                       |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | Developing a Modern Legal and Insurance Regime for Croatian Marinas – Enhancing Competitiveness, Safety, Security and Marine Environmental Standards, coordinator: Croatian Academy of Sciences and Arts – Adriatic Institute, financed by Croatian Science Foundation (2016 – 2019) |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological- | Teaching Competences in Higher Education: Learning and Teaching, Faculty of Humanities and Social Sciences in Rijeka, 2017, 10 ECTS credits |
| **First and last name and title of teacher** | Ivan Matijević, Ph.D. |
| **The course he/she teaches in the proposed study programme** | Military History, History of Naval Warfare |

### GENERAL INFORMATION ON COURSE TEACHER

| **Address** | Poljička cesta 35, 21000 Split |
| **Telephone number** | + 385 21 541 908 |
| **E-mail address** | ivan.matijevic@ffst.hr |
| **Personal web page** | http://ffst.academia.edu/IvanMatijević |
| **Year of birth** | 1982 |
| **Scientist ID** | 320090 |
| **Research or art rank, and date of last rank appointment** | Research Associate 15/05/2015 |
| **Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment** | Professor Assistant 29/04/2016 |
| **Area and field of election into research or art rank** | Humanities, History |

### INFORMATION ON CURRENT EMPLOYMENT

| **Institution where employed** | Faculty of Humanities and Social Sciences |
| **Date of employment** | 29/04/2016 |
| **Name of position (professor, researcher, associate teacher, etc.)** | Professor Assistant |
| **Field of research** | History of the Roman Empire, Roman army and administration |
| **Function** | Professor Assistant |

### INFORMATION ON EDUCATION – Highest degree earned

| **Degree** | Ph.D. |
| **Institution** | Zadar University |
| **Place** | Zadar |
| **Date** | 24/04/2015 |

### INFORMATION ON ADDITIONAL TRAINING

| **Year** | 2013 |
| **Place** | Rome |
| **Institution** | École française de Rome |
| **Field of training** | Roman military history |

### MOTHER TONGUE AND FOREIGN LANGUAGES

| **Mother tongue** | Croatian |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | English (5) |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | Italian (3) |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | |
### COMPETENCES FOR THE COURSE

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Yes. Holding the course „The Art of Warfare in the Ancient World“, Department of History, Faculty of Humanities and Social Sciences Split. |
| Authorship of university/faculty textbooks in the field of the course | - |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 2018. The second season of archaeological excavations in the Episcopal Centre in Salona east of the *Porta Caesarea*, *Vjesnik za arheologiju i historiju dalmatinsku* 111, Split 2018, 167-177.  
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | - |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | - |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences | Faculty of Humanities and Social Sciences in Zadar, University of Split |

### PRIZES AND AWARDS, STUDENT EVALUATION

| Prizes and awards for teaching and scholarly/artistic work | - |

### GENERAL INFORMATION ON COURSE TEACHER

| First and last name and title of teacher | Dario Matika, Ph.D. |
| The course he/she teaches in the proposed study programme | Basic Naval Principles and Practices  
Military Leadership  
Military Management  
Naval Combat Systems I  
Naval Combat Systems II |

### ADDRESS

<p>| Address | Podrebernica 15b, 10000 Zagreb |
| Telephone number | 097-6518-058 |
| E-mail address | <a href="mailto:dario.matik1@gmail.com">dario.matik1@gmail.com</a> |
| Personal web page | - |</p>
<table>
<thead>
<tr>
<th><strong>Year of birth</strong></th>
<th>1961</th>
</tr>
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<tr>
<td><strong>Scientist ID</strong></td>
<td>192005</td>
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<tr>
<td><strong>Research or art rank, and date of last rank appointment</strong></td>
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<tr>
<td><strong>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</strong></td>
<td>Full professor, 2015</td>
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<tr>
<td><strong>Area and field of election into research or art rank</strong></td>
<td>Automation and Robotics, Security and Defence</td>
</tr>
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<td><strong>INFORMATION ON CURRENT EMPLOYMENT</strong></td>
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<td><strong>Date of employment</strong></td>
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<tr>
<td><strong>Name of position (professor, researcher, associate teacher, etc.)</strong></td>
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<td><strong>Field of research</strong></td>
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<tr>
<td><strong>Function</strong></td>
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<tr>
<td><strong>INFORMATION ON EDUCATION – Highest degree earned</strong></td>
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</tr>
<tr>
<td><strong>Degree</strong></td>
<td>Doctoral degree</td>
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<tr>
<td><strong>Institution</strong></td>
<td>University of Maribor</td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>Maribor</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>1996</td>
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<td><strong>Year</strong></td>
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<td><strong>Place</strong></td>
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<tr>
<td><strong>Institution</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Field of training</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MOTHER TONGUE AND FOREIGN LANGUAGES</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mother tongue</strong></td>
<td>Croatian language</td>
</tr>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td>English language, (4)</td>
</tr>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td>Italian language, (5)</td>
</tr>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COMPETENCES FOR THE COURSE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Authorship of university/faculty textbooks in the field of the course</strong></td>
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</tr>
<tr>
<td><strong>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</strong></td>
<td></td>
</tr>
</tbody>
</table>

[https://www.bib.irb.hr/pregled/znanstvenici/192005](https://www.bib.irb.hr/pregled/znanstvenici/192005)


1. Mišigoj-Durakovic, M., Soric, M., Matika, D., Jukic, I., Durakovic, Z., „Which is more important for reducing the odds of metabolic syndrome in men: Cardiorespiratory or muscular fitness“, Obesity Volume 24, Issue 1, pages 238-244, January 2016, Original Scientific Paper, Indexing in: Thomson Reuters, Current Contents (CC)


| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | 1. NATO project “MORUS - Unmanned system for maritime security and environmental monitoring”
2. FP 6 EU projektu “European Illicit Trafficking Countermeasures Kit”, project No. 511471 ”
3. NATO project “Control of Illicit Trafficking in Threat Materials and Humans” NATO PST.EAP.SFPP 980526
4. FP 7 “Developing Croatian Underwater Robotics Research Potential” (CURE) project No. 229553
5. NATO edition(workshop) „Complexity of National Security: Security Challenges and Opportunities“ |

| Professional, science and artistic projects carried out in the last five years (5 at most) | The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?-pedagoške kompetencije? |

<p>| PRIZES AND AWARDS, STUDENT EVALUATION | Prizes and awards for teaching and scholarly/artistic work | Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) | Croatian Defence Academy - average 4,6 (maximum 5) |</p>
<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Petar Matić, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Automation of Marine Engine Systems</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Križaničeva 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>098 735 196</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:pmatic@pfst.hr">pmatic@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1981.</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>291716</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Research associate, 19th April 2017</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Assistant Professor, 10th October 2018</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Research associate in the area of technical sciences, field of electrical engineering, branch automatics and robotics</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Faculty of Maritime Studies in Split, University of Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1st January 2007</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Electrical engineering, Automatics</td>
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<td>Function</td>
<td>Head of Maritime Electrical Engineering and Information Technologies Studies</td>
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**INFORMATION ON EDUCATION – Highest degree earned**

<table>
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<tr>
<th>Degree</th>
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<tbody>
<tr>
<td>Institution</td>
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</tr>
<tr>
<td>Place</td>
<td>Split, Hrvatska</td>
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<td>Date</td>
<td>12th December 2014</td>
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**INFORMATION ON ADDITIONAL TRAINING**

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<td>Place</td>
<td>MS Zuiderdam</td>
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<tr>
<td>Institution</td>
<td>Holland-America Line</td>
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<tr>
<td>Field of training</td>
<td>Marine electrical engineering</td>
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</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
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</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language(5)</td>
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</table>

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Ship automation 2, Automation of Marine Engine Systems 1, Marine Propulsion Plant Automation, Automation and Control, Automation in Maritime Transport, Marine Electrical Engineering and Electronics, Ship’s Electrical Machines and Systems, Marine Electric Power Systems, Marine Electrical Devices, Marine Automatic Control Systems, Discrete Control Systems, Power Electronics, Micro and Personal Computers, Modelling and simulation in Electrical Engineering (Matlab/Simulink), Basics of Automation, |

443
<table>
<thead>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
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</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</td>
<td></td>
</tr>
<tr>
<td>PRIZES AND AWARDS, STUDENT EVALUATION</td>
<td></td>
</tr>
</tbody>
</table>

**First and last name and title of teacher** | Dario Medić, Ph.D. |
---|---|
**The course he/she teaches in the proposed study programme** | Passage Planning  Ship Handling Technique |

### GENERAL INFORMATION ON COURSE TEACHER

<table>
<thead>
<tr>
<th>Address</th>
<th>Put Jakova Rotonda 21, 21218 Seget Donji</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>091/5288113</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:dmedic@pfst.hr">dmedic@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1979</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>346923</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Research associate, 4th December 2019</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Assistant Professor, 5th March 2020</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Area of technical sciences, filed of traffic and transport technology, branch maritime and river transport</td>
</tr>
</tbody>
</table>

### INFORMATION ON CURRENT EMPLOYMENT

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>1st December 2014</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Teaching/research assistant</td>
</tr>
<tr>
<td><strong>Field of research</strong></td>
<td>Voyage planning, technique of operating a vessel, safety of maritime navigation</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Teaching/research assistant</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th><strong>Degree</strong></th>
<th>PhD</th>
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</thead>
<tbody>
<tr>
<td><strong>Institution</strong></td>
<td>University of Zagreb, Faculty of Transport and Traffic Sciences</td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>Zagreb</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>7th October 2019</td>
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**INFORMATION ON ADDITIONAL TRAINING**

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<th><strong>Year</strong></th>
<th>2017</th>
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<tr>
<td><strong>Place</strong></td>
<td>Borre, Norway</td>
</tr>
<tr>
<td><strong>Institution</strong></td>
<td>Buskerud and Vestfold University College</td>
</tr>
<tr>
<td><strong>Field of training</strong></td>
<td>Application of navigation simulator in teaching</td>
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</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th><strong>Mother tongue</strong></th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td>English language 5</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th><strong>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</strong></th>
<th>University of Split Faculty of Maritime Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Electronic Navigation, Nautical Studies undergraduate level</td>
</tr>
<tr>
<td></td>
<td>• Electronic Navigation Instruments, Nautical Studies undergraduate level</td>
</tr>
<tr>
<td></td>
<td>• Techniques of Operating a Vessel, Nautical Studies, undergraduate level</td>
</tr>
<tr>
<td></td>
<td>• Passage Planning, Nautical Studies, undergraduate level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Authorship of university/faculty textbooks in the field of the course</strong></th>
<th>1. Rino Bošnjak, Mihaela Bukljaš, Dario Medić, Srdan Vukša; “Optimization of ship’s crew change schedule”, Scientific Journals of the Maritime University of Szczecin, ISSN 1733-8670 (Printed), ISSN 2392-0378 (Online), DOI: 10.17402/349 Vol.59(2019), 131, p. 29-33</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3. Dario Medić, Zvonimir Lušić, Rino Bošnjak; “Comparative Analysis of the Maritime Venture Risk and the Cost of Averting a Fatality in the Republic of Croatia”, Naše more : znanstveni časopis za more i pomorstvo, ISSN 1848-6320 (Online), ISSN 0469-6255 (Tisak), DOI: 10.17818/NM/2019/2.3, Vol.1, No.2, p. 62-69, Midterm notes /scientific</td>
</tr>
<tr>
<td></td>
<td>4. Natalija Kavran, Anita Gudelj, Dario Medić; “Petri Net Model for Drone Search and Rescue Actions at Sea”, Advances in Decision Technology and Intelligent Information Systems,</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</td>
</tr>
<tr>
<td>Participated in the training entitled “Nastavni procesi i kompetencije nastavnika u visokom školstvu” (“Teaching processes and competencies of teachers in higher education”)</td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

- **Prizes and awards for teaching and scholarly/artistic work**

**First and last name and title of teacher**

**Luka Mihanović, Ph.D.**

<table>
<thead>
<tr>
<th>The course he/she teaches in the proposed study programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Militaray leaderships</td>
</tr>
<tr>
<td>Military management</td>
</tr>
<tr>
<td>Ship construction and combat resilience</td>
</tr>
<tr>
<td>Ship maintenance</td>
</tr>
<tr>
<td>Naval combat systems</td>
</tr>
<tr>
<td>Navy propulsion systems</td>
</tr>
<tr>
<td>Military logistic systems management</td>
</tr>
<tr>
<td>Maintenance Management</td>
</tr>
<tr>
<td>Breakdown and Failure Diagnosis</td>
</tr>
<tr>
<td>Fules, lubricat and water</td>
</tr>
<tr>
<td>Graphical Drawing in Marine Engineering</td>
</tr>
<tr>
<td>Military Logistic System Management</td>
</tr>
<tr>
<td>Military Training I and II</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

- **Address**
  - Mosorska 29, 21251 Žrnovnica
- **Telephone number**
  - 098 581565
- **E-mail address**
  - mlmihanovic@gmail.com
- **Personal web page**
- **Year of birth**
  - 1969.
- **Scientist ID**
  - 362052
- **Research or art rank, and date of last rank appointment**
- **Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment**
  - Assistant professor, January 2017.
- **Area and field of election into research or art rank**
  - The area of technical sciences, field traffic and transport technology, branch of maritime and river traffic.
INFORMATION ON CURRENT EMPLOYMENT

| Institution where employed | Ministry of Defence of the Republic of Croatia 
Croatian Defence Academy "Dr. Franjo Tudman" |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>05.01.1998.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Ship system construction, maintenance management</td>
</tr>
<tr>
<td>Function</td>
<td>Head of department</td>
</tr>
</tbody>
</table>

INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>Doctoral degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Rijeka, Faculty of Maritime Studies</td>
</tr>
<tr>
<td>Place</td>
<td>Rijeka</td>
</tr>
<tr>
<td>Date</td>
<td>09.07.2015.</td>
</tr>
</tbody>
</table>

INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
<th>Place</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</th>
<th>English, (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

COMPETENCES FOR THE COURSE

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | University of Split, Faculty of Maritime Studies 
Maritime Economy/Marine Engineering/undergraduate 
Maritime Management/Marine Engineering/undergraduate 
Modeling and Simulating of the Processes (assistant) 
Management Information Systems (assistant) 
Maintenance Management (teacher) 
Breakdown and Failure Diagnosis (teacher) 
Marine Propulsion System Optimization (teacher) 
Management and Logistic Processes (teacher) |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Authorship of university/faculty textbooks in the field of the course | Luka Mihanović, Dario Matika, Dean Bernečić: "High speed radial marine diesel engine suitability maintenance model" 
Pomorstvo: Scientific Journal of Maritime Research, Vol. 29, 2015 No. 2; 133-142, 
Luka Mihanović, Ivan Komar, Marijan Gržan: " Methodology analysisis using exploation reliability with use of the main diesel engine" 
Luka Mihanović, Pančo Ristov, Goran Belamarić: "Use of new information technologies in the maintenance of ship systems" 
<table>
<thead>
<tr>
<th>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</th>
<th>Sunko, Tomislav; Komadina, Pavao; Mihanović, Luka Organisational structure and analysis of the contribution of the Coast Guard of the Republic of Croatia to maritime safety on the Adriatic Sea // Pomorstvo : scientific journal of maritime research, 32 (2018), 2; 312-319 doi:10.31217/p.32.2.16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences</td>
<td></td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
<td>University of Split students questionnaire - average 4.8 (maximum 5)</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Jakša Mišković, M.Eng.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Seamanship I, Seamanship II, Safety at Sea, Work Organisation and Management on Board, On-board training I, On-board training III, On-board training IV, Hydrografic engineering, Naval combat system I, Naval combat System, Naval combat systems</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Address</th>
<th>Odeska 17, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>+385913329949</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:jaksa.miskovic@morph.hr">jaksa.miskovic@morph.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1979</td>
</tr>
<tr>
<td>Scientist ID</td>
<td></td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Lecturer, March 11&lt;sup&gt;th&lt;/sup&gt; 2020</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Technical science, Marine Engineering and Maritime Transport Technology</td>
</tr>
</tbody>
</table>

448
<table>
<thead>
<tr>
<th><strong>Institution where employed</strong></th>
<th>Croatian Defence Academy “Dr. Franjo Tudman”, MoD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of employment</strong></td>
<td>01.05.2019.</td>
</tr>
<tr>
<td><strong>Name of position (professor, researcher, associate teacher, etc.)</strong></td>
<td>Lecturer</td>
</tr>
<tr>
<td><strong>Field of research</strong></td>
<td>Maritime &amp; Hydrographic Research</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Lecturer</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

- **Degree**: Master degree in nautical engineering
- **Institution**: University of Split, Faculty of Maritime Studies
- **Place**: Split
- **Date**: July 8th 2003.

**INFORMATION ON ADDITIONAL TRAINING**

- **Year**
  - 1) 2019
  - 2) 2020
- **Place**: Split
- **Institution**
  - 1) Maritime training centre Atlantis
  - 2) University of Zagreb University Computing Centre (SRCE)
  - 3) CAE London Gatwick Centre
- **Field of training**
  - 1) Training under the terms of the STCW Convention 95
  - 2) E-learning Centre (CEU)
  - 3) Maritime Crew Resource Management

**MOTHER TONGUE AND FOREIGN LANGUAGES**

- **Mother tongue**: Croatian language
- **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)**: English language, (4)

**COMPETENCES FOR THE COURSE**

- **Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)**: Hydrographic engineering, Nautical Studies, Master degree
- **Authorship of university/faculty textbooks in the field of the course**
- **Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)**

1. Kasum, J., Mišković, J., Pavić, I.: The role and importance of Regional electronic navigational charts coordinating centers in the provision of ENC services, 18th International Conference on Transport Science - ICTS 18, Portorož, Slovenija, 2018.
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)

Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)

1. Project of development of new Coastal Patrol Vessel, as member of Project Team, 2016. – 2018.
2. Project of infrastructure development and implementation of electronic navigational charts into MoD, as Project Coordinator, 2016. – 2020.

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

Workshop of pedagogical and didactical competences (Faculty of Humanities and Social Sciences)

PRIZES AND AWARDS, STUDENT EVALUATION

Prizes and awards for teaching and scholarly/artistic work

Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)

2018./2019. - University of Split students questionnaire - average grade 4,9  (maximum 5) - Hydrographic engineering
2019./2020. - University of Split students questionnaire - average grade 4,9  (maximum 5) - Hydrographic engineering
2019./2020. - University of Split students questionnaire - average grade 5,0  (maximum 5) – Pomorstvo I

First and last name and title of teacher Željko Mršić, Ph.D.

The course he/she teaches in the proposed study programme Police Powers and Their Application

GENERAL INFORMATION ON COURSE TEACHER

Address Korčulanska 3 Zagreb
Telephone number 01/2426-361, 098 230-109
E-mail address zmrsic@fkz.hr
Year of birth 1963.
Scientist ID 250801
Research or art rank, and date of last rank appointment Doctor of Science
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment College profesor, 08.2.2017.
Area and field of election into research or art rank Security and Defense Sciences (5.13.)

INFORMATION ON CURRENT EMPLOYMENT

Institution where employed Ministry of the Interior, Zagreb
Police College
Date of employment September 12, 1983.
Name of position (professor, researcher, associate teacher, etc.) Professor
Field of research Security and Defense Sciences (5.13.)
Function Professor

INFORMATION ON EDUCATION – Highest degree earned

Degree Doctoral degree
<table>
<thead>
<tr>
<th>Institution</th>
<th>University of Zagreb, Faculty of Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>April 11, 2015.</td>
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</tbody>
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**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th>2005.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Institution</td>
<td>Ministry of Finance, Association of Experts of the Republic of Croatia</td>
</tr>
</tbody>
</table>

**Field of training**

- training for acquiring professional certification of internal auditor in the public sector, which, after a sufficient number of audits, was completed in 2008,
- Appointed at the Zagreb County Court in 2005 and re-appointed as a permanent court expert for road traffic and vehicle evaluation in 2009, 2013 and 2018, after two years of training under the mentorship of Dr. Sc. Krunoslav Franjkovic
- more professional courses, seminars and symposia in the field of sweep safety, internal control, human resources management, etc.

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

**Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)**

- from 2008 until today at the Police Police College, the professional study of Criminology leads the course "Police Powers and Human Rights", and at the specialist study Criminology "Supervision of Police Work".
- since 1996 he has been working as a contract lecturer for professional subjects in specialist courses at the Police Academy, and has taught or taught the following subjects and subjects: traffic accident test, removal of participants from the scene of the accident, traceology, expert witness, police communication, criminal law, criminal law procedural law, misdemeanor law, manner and tact of stopping the vehicle, etc.

|---------------|----------------------------------|

|---------------|----------------------------------|

<table>
<thead>
<tr>
<th>Subjects of teaching methodology and teaching quality (5 works at most)</th>
<th>Željko Mršić, Misdemeanor Criminal Investigation or Methodology of Criminal Investigation of Misdemeanors? // Police and Security, 23 (2014), 3</th>
</tr>
</thead>
</table>
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | - Leader of the MUP Task Force on Developing Police Occupational Standards  
- Leader of the working group for the development of career standards and ways of filling the positions of police officers  
- Member of the Commission for the Drafting of the National Security Strategy Proposal  
- Member of the Commission for the Drafting of the Draft Law on the Homeland Security System  
- Member of several working groups for drafting regulations |
<p>| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? pedagoške kompetencije? | 1996. Program of pedagogical-psychological education at the Faculty of Philosophy in Zagreb - Pedagogical Sciences |
| Prizes and awards for teaching and scholarly/artistic work |  |
| Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) | Excellent 5 |</p>
<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Rosanda Mulić, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Maritime Medicine, Seamanship I</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Put Ričvice 25, 21217 Kaštel Novi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>091 380 70 19</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:rosanda@pfst.hr">rosanda@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1954</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>203 393</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Scientific advisor in a permanent position 2015.</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Full professor 30.06. 2016.</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Biomedicine and health, public health and health care</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Faculty of Maritime Studies, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>6/1/ 2005</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Full professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Maritime medicine</td>
</tr>
<tr>
<td>Function</td>
<td>Full professor, Dean's adviser for Bilingual Studies</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

| Degree | PhD |
| Institution | School of Medicine, University of Sarajevo |
| Place | Sarajevo, Bosnia and Herzegovina |
| Date | 3/12/1991 |

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 2012. |
| Place | Edinburgh, UK |
| Institution | Institute for Public Health |
| Field of training | Public health |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English(4) |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | French (2) |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | Bosnian (5) |

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Teaching leader: Social Medicine, Epidemiology, Public Health – School of Medicine, Split University, University Department of Health Studies: teaching leader: Paliative Care, Gerontology Graduate Nursing study: teaching leader of Health promotion, University Department of Health Studies, Split University.</th>
</tr>
</thead>
</table>
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 1. Mulić R, Sumić D. Request for professional medical aid on board ocean-going ships in the Republic of Croatia. IMHA. 2019;70(1):42-46.  
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | 1. Internationalization of Navy and Sea Fisheries. Croatian Science Foundation. Team member.  
3. Ministry of Sciences and Education: „Maritime management for 21st Century“.Faculty of Maritime Studies, Split. Team member |
| The name of the programme and the volume in which the main teacher | Regular education and continuous lifelong training. |
passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences

**PRIZES AND AWARDS, STUDENT EVALUATION**

| Prizes and awards for teaching and scholarly/artist work | 1. Diploma of the Croatian Medical Association on the occasion of the 125th anniversary for a special contribution to nurturing the honorable tradition of the Croatian Medical Association, medical science and health in the Republic of Croatia, 1999;  
2. University of Split. Award for outstanding contribution to scientific and professional work, 2015 |
| Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) | University questionnaire (University of Split). Average mark: 4.8 (maximum 5.0). |

| First and last name and title of teacher | Ivica Pavić, Ph.D. |
| The course he/she teaches in the proposed study programme | Safety at sea, Hydrographic Engineering, Crisis Management at Sea, Maritime Integrated Safety and Control Systems |

**GENERAL INFORMATION ON COURSE TEACHER**

| Address | Rudera Boškovića 37, Split |
| Telephone number | 0915914048 |
| E-mail address | ipavic71@pfst.hr |
| Personal web page |  |
| Year of birth | 1971 |
| Scientist ID | 307130 |
| Research or art rank, and date of last rank appointment | research associate, 15th June 2016 |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Assistant Professor 28th February 2017 |
| Area and field of election into research or art rank | Area of technical sciences, field of traffic and transport technology, maritime and river transport |

**INFORMATION ON CURRENT EMPLOYMENT**

| Institution where employed | University of Split, Faculty of Maritime Studies |
| Date of employment | 3rd July 2017 |
| Name of position (professor, researcher, associate teacher, etc.) | Professor |
| Field of research | Technical sciences, traffic and transport technology, Nautical Studies Department |
| Function | Professor |

**INFORMATION ON EDUCATION – Highest degree earned**

| Degree | PhD |
| Institution | University of Rijeka, Faculty of Maritime Studies |
| Place | Split |
| Date | 1st June 2012 |

**INFORMATION ON ADDITIONAL TRAINING**
<table>
<thead>
<tr>
<th>Year</th>
<th>Place</th>
<th>Institution</th>
<th>Field of training</th>
<th>MOTHER TONGUE AND FOREIGN LANGUAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mother tongue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPETENCES FOR THE COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</td>
</tr>
<tr>
<td>Organization of Passenger Transport, Nautical Studies (undergraduate study programme)</td>
</tr>
<tr>
<td>Hydrographic Engineering I and II, Maritime Yacht and Marine Technologies (graduate study programme)</td>
</tr>
<tr>
<td>Cargo in Maritime Transport, Nautical Studies and Maritime Management (undergraduate study programme)</td>
</tr>
<tr>
<td>Electronic Navigation, Nautical Studies Department, University of Zadar (undergraduate study programme)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Authorship of university/faculty textbooks in the field of the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
</tr>
<tr>
<td>4. Ruščić, P., Pavić, I., Analiza IHO-ove sheme za zaštitu ENC podataka, Kapetanov glasnik, no. 33, Split, 2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIZES AND AWARDS, STUDENT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
</tr>
<tr>
<td>&quot;Nastavni proces i kompetencije nastavnika u visokom školstvu&quot; (&quot;Teaching process and teacher competences in higher education&quot;), Edukacija, Faculty of Humanities and Social Sciences, University of Split, 2019.</td>
</tr>
<tr>
<td><strong>First and last name and title of teacher</strong></td>
</tr>
<tr>
<td>---------------------------------------------</td>
</tr>
</tbody>
</table>
| **The course he/she teaches in the proposed study programme** | Graphic Drawing in Marine Engineering  
Military Communications and Information System  
Maritime Communications |

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Put Duiłova 23, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>0989861208</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:tomislav_peric@net.hr">tomislav_peric@net.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td>-</td>
</tr>
<tr>
<td>Year of birth</td>
<td>1969</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>-</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>/</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>/</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>/</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Croatian Defence Academy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>July 1st 2012.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate teacher</td>
</tr>
<tr>
<td>Field of research</td>
<td>Military defence and security-intelligence; Electrical engineering</td>
</tr>
<tr>
<td>Function</td>
<td>Assistant</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Master’s degree in Electrical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture (FESB)</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>October 4th 2001.</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 1) 2012  
|      | 2) 2018 |
| Place | 1) Zagreb |
| Institution | 1) HVU  
|            | 2) CARNet |
| Field of training | 1) Staff Command School - „Blago Zadro”  
|                  | 2) E-learning Tutoring Academy (SRCE) |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, (3)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of) |                          |

---

457
<table>
<thead>
<tr>
<th>Course, study programme where it is/was offered, and level of study programme</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td></td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>E-learning Tutoring Academy – University e-learning platform Merlin (SRCE)</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</td>
<td></td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

*Prizes and awards for teaching and scholarly/artistic work*

*Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)*

- University of Split students questionnaire 2019. Computer Applications
  Global Index: average: 4.7 / maximum 5

**GENERAL INFORMATION ON COURSE TEACHER**

| First and last name and title of teacher | Ranka Petrinović, Ph.D. |
| The course he/she teaches in the proposed study programme | Maritime Law |

| Address | Split, Rudera Boškovića 37 |
| Telephone number | 021619472 |
| E-mail address | ranka@pfst.hr |
| Personal web page | - |
| Year of birth | 1960 |
| Scientist ID | 261204 |
| Research or art rank, and date of last rank appointment | scientific advisor, 14th March 2013 |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Distinguished Professor, 21st December 2017 |
### INFORMATION ON CURRENT EMPLOYMENT

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>University of Split, Faculty of Maritime Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>6th September 2002</td>
</tr>
<tr>
<td>Name of position</td>
<td>Distinguished Professor</td>
</tr>
<tr>
<td>Field of research</td>
<td>Maritime law</td>
</tr>
<tr>
<td>Function</td>
<td>-</td>
</tr>
</tbody>
</table>

### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Law</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>19th September 2005</td>
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</table>

### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>-</td>
</tr>
<tr>
<td>Institution</td>
<td>-</td>
</tr>
<tr>
<td>Field of training</td>
<td>-</td>
</tr>
</tbody>
</table>

### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
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</thead>
<tbody>
<tr>
<td>English language</td>
<td>(4)</td>
</tr>
</tbody>
</table>

### COMPETENCES FOR THE COURSE

Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)

- Maritime Law I, Maritime Law II, Maritime Law and Averages, Traffic Law and Transport Insurance, undergraduate and graduate study programmes Nautical Studies, Marine Engineering, Maritime Management and Maritime Yacht and Marine Technologies

Authorship of university/faculty textbooks in the field of the course


Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)

1. Petrinović, R.; Mandić, N.; Siriščević, E.: The Importance of Maritime Law in Seafarer Training Pursuant to Amendments to the STCW Convention, Transactions on Maritime Science, god. 5, br. 1, Split, 2016., p. 53-64.
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) | - |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) | Developing a Modern Legal and Insurance Regime for Croatian Marinas – Enhancing Competitiveness, Safety, Security and Marine Environmental Standards, coordinator: Croatian Academy of Sciences and Arts – Adriatic Institute, financed by Croatian Science Foundation (2016 – 2019) |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? | - |

**PRIZES AND AWARDS, STUDENT EVALUATION**

Prizes and awards for teaching and scholarly/artistic work -

**GENERAL INFORMATION ON COURSE TEACHER**

First and last name and title of teacher **Danijel Pušić, M.Eng.**

The course he/she teaches in the proposed study programme

- Seamanship I
- Seamanship II

Address A.G. Matoša 14, 21000 Split

Telephone number 021619482

E-mail address daniel.pusic@pfst.hr

Personal web page

Year of birth 1970

Scientist ID

Research or art rank, and date of last rank appointment

- senior lecturer - 2018.

Area and field of election into research or art rank

- Technical sciences, traffic and transport technology, nautical sciences.

**INFORMATION ON CURRENT EMPLOYMENT**

Institution where employed University of Split, Faculty of Maritime Studies

Date of employment 14.02.2018.

Name of position (professor, researcher, associate teacher, etc.) senior lecturer

Field of research Teaching in the field of nautical sciences, Senior lecturer for courses Elements of navigation, Maritime nautical engineering (dept. PTJM); Senior lecturer in courses, seminars, special education programme for seafarers; Reviewing of handbooks and scientific papers, proceedings of international conferences.

**FUNCTION**

**INFORMATION ON EDUCATION – Highest degree earned**
Degree | Master degree
---|---
Institution | Faculty of Maritime Studies in Split
Place | Split
Date | 2009.

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 2012. |
| Place | Zagreb |
| Institution | Croatian Chamber of Engineers of Traffic and Transport Technology |
| Field of training | Professional division of maritime traffic and engineers of traffic on inland waterways, passed professional competencex examination, certified engineer, licence No. 121. |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English - 4 |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | Italian - 3 |

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Terrestrial navigation, Celestial navigation, undergraduate studies |


5. Lušić, Zvonimir; Bakota, Mario, Pušić, Danijel Use of ECDIS in Astronomical navigation // ICTS 2018, Maritime, Transport And Logistics Science Conference proceedings / Portorož: Faculty of Maritime Studies and Transport,
Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)


Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)


The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

Project “Internationalisation of the study programmes of Marine fisheries and Naval maritime affairs at the University of Split”, pedagogical-didactic education “Teaching process and competences of teachers in higher education” Split, PFST, from 18/02 to 22/02/2019.

PRIZES AND AWARDS

Prizes and awards for teaching and scholarly/artistic work

First and last name and title of teacher | Nikola Račić, Ph.D.
---|---
The course he/she teaches in the proposed study programme | Marine Power Systems
| Marine Engines
| Navy Propulsion System

GENERAL INFORMATION ON COURSE TEACHER

<table>
<thead>
<tr>
<th>Address</th>
<th>Slavonska 4, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>091 370 1007</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:nikola.racic@pfst.hr">nikola.racic@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>23/02/1968</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>188444</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Tenured scientific advisor - 04/07/2018.</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Full Professor, 1st election 27/09/2018</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Technical sciences, mechanical engineering</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

| Institution where employed | Faculty of Maritime Studies in Split |
| Date of employment | 01/11/1991 |
| Name of position (professor, researcher, associate teacher, etc.) | Full Professor |
| Field of research | Marine engineering |

**INFORMATION ON EDUCATION – Highest degree earned**

| Degree | Ph.D. |
| Institution | University of Rijeka, Faculty of Engineering |
| Place | Rijeka |
| Date | 10/10/2008 |

**INFORMATION ON ADDITIONAL TRAINING**

| Year | 2008 |
| Place | Split |
| Institution | Brodosplit, Tvornica dizel motora d.o.o. |
| Field of training | Marine engineering, marine engines, engine testing |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English – 4 |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | Italian – 3 |

**COMPETENCES FOR THE COURSE**

<p>| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Undergraduate Marine engineering: Marine steam generators and heat turbines, Undergraduate Nautical studies: Marine power systems, Undergraduate Marine engineering: Marine transshipment systems; Graduate Marine engineering: Propulsion systems, Power systems in maritime affairs |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 2. Vukičević M., Račić N., Ivošević Š.: Piston ring material in a Two-stroke engine which sustains wear due to catalyst fines, Teorija i praksa brodogradnje i pomorske tehnike, volume 70/2, pp. 155-169, 2019. |
|---|
| Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) |
| Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) |
| - 2013. - Researcher on Croatian-Montenigrin project of the scientific branch of marine engineering: Possibility of reduction of polluting emissions from ships in the Montenigrin and Croatian parts of the Adriatic by implementation of Marpol Convention Annex VI. |
| - 2014. – Researcher on project No. 544257-TEMPUS-1-2013-1-ME-TEMPUS-JPCR “Mared”. |
| The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? |
| PRIZES AND AWARDS |
| Prizes and awards for teaching and scholarly/artistic work |
| First and last name and title of teacher: Gojmir Radica, Ph.D. |
| The course he/she teaches in the proposed study programme: Marine Engines, Marine Auxiliary Engines and Machinery, Navy Porpuslion System |
| GENERAL INFORMATION ON COURSE TEACHER |
| Address: Tolstojeva 43 |
| Telephone number: 091 430 5955 |
| E-mail address: <a href="mailto:gojmir.radica@pfst.hr">gojmir.radica@pfst.hr</a> |
| Personal web page: <a href="https://nastava.fesb.hr/nastava/nastavnici/detalji/goradica">https://nastava.fesb.hr/nastava/nastavnici/detalji/goradica</a> |
| Year of birth: 1962 |
| Scientist ID: 245370 |
| Research or art rank, and date of last rank appointment: Senior research associate, 15/09/2010 |
| Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment: Full professor with tenure, 28/06/2018 |
| Area and field of election into research or art rank: Technical sciences – Marine engineering |
| INSTITUTIONS ON CURRENT EMPLOYMENT |
| Institution where employed: Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture – University of Split |
| Date of employment: 01/10/2011 |
| Name of position (professor, researcher, associate teacher, etc.): Full professor |</p>
<table>
<thead>
<tr>
<th>Field of research</th>
<th>Heat and hydraulic engines. Marine power systems, marine plant optimisation, management and control of marine engines, energy efficiency of modern marine power systems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Chair for Heat Engines, Head of Laboratory for Heat Engines at Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture – University of Split</td>
</tr>
<tr>
<td><strong>INFORMATION ON EDUCATION</strong></td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Institution</td>
<td>Faculty of Mechanical Engineering and Naval Architecture – University of Zagreb</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>21/06/2004</td>
</tr>
<tr>
<td><strong>INFORMATION ON ADDITIONAL TRAINING</strong></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1993 – 2010</td>
</tr>
<tr>
<td>Place</td>
<td>Malaga, Spain; Mossville-Lafayet, USA, Larne, U.K., C.G.T.- Italy, Winterthur - Switzerland, Augsburg – Germany</td>
</tr>
<tr>
<td>Institution</td>
<td>CATERPILLAR, PERKINS, Wartsila-Sulzer, MAN-B&amp;W, project and research dept.</td>
</tr>
<tr>
<td>Field of training</td>
<td>New technologies applied to diesel and gas engines and generators; Development projects in the field of marine engine monitoring; System design, vibration and testing of diesel engines; Development and testing of fuel injection systems.</td>
</tr>
<tr>
<td><strong>MOTHER TONGUE AND FOREIGN LANGUAGES</strong></td>
<td></td>
</tr>
<tr>
<td>Mother tongue</td>
<td>Croatian</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English (5)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>German (4)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian (3)</td>
</tr>
<tr>
<td><strong>COMPETENCES FOR THE COURSE</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | - Expert systems for diagnostics and engine optimization, 2009-2011, Lectures, Postgraduate interuniversity scientific doctoral study, (Faculty of Maritime Studies, University of Rijeka), Introduction of a new course;  
  - Heat engines, 2010-present, Lectures, Undergraduate study Mechanical Engineering - Faculty of Electrical Engineering and Naval Architecture, University of Split, 45 hours, Innovated content;  
  - Thermal Machines, 2010-present, Lectures, Graduate Study of Industrial Engineering - Faculty of Electrical Engineering and Naval Architecture, University of Split, 30 hours, Innovated content;  
  - Small boat plant, 2011-present, Lectures, Undergraduate Study-Naval Architecture - Faculty of Electrical Engineering and Naval Architecture, University of Split, 30 hours, Innovated content;  
  - Ship machines and devices, 2013-today, Lectures, Undergraduate Study- Naval Architecture - Faculty of Electrical Engineering and Naval Architecture, University of Split, 30 hours;  
  - Ship propulsion, 2011-today, Lectures, Professional study of Naval Architecture - Faculty of Electrical Engineering and Naval Architecture, University of Split, 30 hours, Innovated content; |
- Expert systems for diagnostics and optimization, 2010-present, Lectures, Postgraduate University Scientific Doctoral Study, (Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split), 30 hours, Introduction of a new course.
- Fault diagnosis, 1995-2018, Lectures, auditory exercises, Undergraduate study - Faculty of Maritime Studies, University of Split (30 + 15 hours), introduction of new innovative methods recognized and positively evaluated by the expert committee at the Faculty of Maritime Studies, Split.
- Maintenance systems, 2009-2013, Lectures, auditory exercises, Graduate study - Faculty of Maritime Studies, University of Split (30 + 15 hours), Introduction of a new course and introduction of new innovative methods recognized and positively evaluated by the expert committee at the Faculty of Maritime Studies, University of Split.
- Intelligent engines, 2009-present, Lectures, auditory exercises, Graduate study - Faculty of Maritime Studies, University of Split (30 + 15 hours), Introduction of a new course.
- Plant maintenance and management, 1995-2008. Lectures, auditory exercises, Undergraduate study - Faculty of Maritime Studies, University of Split (30 + 15 hours), Introduction of new units.
- Marine engines, 2009-present, Lectures, Undergraduate study - Faculty of Maritime Studies, University of Split (30 hours), Innovated content, introduction of new chapters.
- Ship steam generators, 2010-2011, Lectures, auditory exercises, Undergraduate study Naval Engineering and Maritime Technology, University of Zadar, Maritime Department (45 + 15 hours), Innovated content, introduction of new chapters.
- Ship heat turbines, 2010-2011, Lectures, auditory exercises, Undergraduate study Naval Engineering and Maritime Technology, University of Zadar, Department of Maritime Studies (45 + 15 hours), Innovated content, introduction of new chapters.
- Heat engines I and II, 1985-1992, Exercises, Graduate study of Mechanical Engineering-Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University of Split (30 hours);

**Authorship of university/faculty textbooks in the field of the course**

Diagnosis of malfunctions of the four-stroke engine and The Maintenance System were positively assessed by the expert committee of the Faculty of Maritime Studies, University of Split.

**Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)**

Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)

<table>
<thead>
<tr>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
</tr>
</thead>
</table>
| 1. AUTORE; EC FCH-JU Horizon2020; 2015-2018  
2. Giantleap; EC FCH-JU Horizon2020; 2016-2019  
3. Hydride 4Mobility; EU RISE Horizon 2019:2017-2020  
4. Research and development of the hydrogen energy system in conjunction with renewable energy sources, EU Structural Funds, 2014-2016 |

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

Training: Implementation of learning outcomes in the development of study programs and curricula; Linking learning outcomes and teaching methods-Prof. dr. sc. Izabela Sorić, Department of Psychology, University of Zadar, and Doc. dr. sc. Slavica Šimić Šasić, Department of Teacher Education, University of Zadar, total 24 hours; within the IPA IV project: "ME4CataLOGue - Croatian catalog of knowledge, skills and competencies for mechanical engineering studies based on learning outcomes (for undergraduate, graduate and doctoral studies)", active participant in the project from 9.2013-2.2015.

PRIZES AND AWARDS, STUDENT EVALUATION

Prizes and awards for teaching and scholarly/artistic work

Gold medal for a patent at the 8th Innovation Fair INVENTUM 2014.

Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)

The grade from student evaluation is always higher than average.

First and last name and title of teacher

Pančo Ristov, Ph.D.

The course he/she teaches in the proposed study programme

Process Modelling and Simulation

GENERAL INFORMATION ON COURSE TEACHER

Address

Zrinsko – Frankopanska 38

Telephone number

E-mail address

panco.ristov@pfst.hr

Personal web page

Year of birth

23.06.1954.

Scientist ID

309891

Research or art rank, and date of last rank appointment

Assistant professor, February 6th, 2014.

Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment

Area and field of election into research or art rank

Area of technical sciences, field of traffic and transport technology
**INFORMATION ON CURRENT EMPLOYMENT**

| Institution where employed | Faculty of Maritime Studies Split |
| Date of employment         | 1.9.2007. |
| Name of position (professor, researcher, associate teacher, etc.) | professor |
| Field of research          | Research, development, application and maintenance of information resources in the field of maritime industry |

**INFORMATION ON EDUCATION – Highest degree earned**

| Degree                                      | Doctoral degree – technical sciences, field of maritime transport - applied IT in maritime transport |
| Institution                                 | Faculty of Maritime Studies Rijeka |
| Place                                       | Rijeka |

**INFORMATION ON ADDITIONAL TRAINING**

| Place           | Stockholm; Odense |
| Institution     | Philips Elektronikindustrier AB – Defence Electronics - Sweden ; Project „CARD 2003 – Modern Approach towards Application Competencies / (Odense - Denmark) |
| Field of training | Surveillance, tracking and organisation of maritime traffic assisted by computer systems Modern control technologies and innovation processes |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue          | Croatian/Macedonian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | English 3/4 |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | Russian 2 |

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Applied Computer Sciences I and II (BS and PEIT) Computer System Design in Maritime Transport Process Modelling and Simulation (PN, PEIT, PM) Marine Integrated Computer Systems (PM and PEIT) |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | Pančo, Ristov; Ante, Mrvica; Pavao, Komadina, Sigurnost podataka i informacija u sustavima nadzora i upravljanja pomorskim prometom, Naše more, Znanstveno-stručni časopis za more i pomorstvo, Vol 63, “, broj 1/2016. ISSN 0469-6255, str.1-8.
Pančo, Ristov; Ante, Mrvica; Pavao, Komadina; Vinko, Tomas, Informacijski sustav podržan RFID tehnologijom u procesu prodaje i kontrole karata u brodskom putničkom prometu, Naše more, Znanstveno-stručni časopis za more i pomorstvo, Vol 62., broj 1/2015. ISSN 0469-6255, str.8 – 15.


Pančo, Ristov; Pavao, Komadina; Vinko, Tomas, Model for reliability, availability and safety of the control centers of vessel traffic management and information systems, PROMET – Traffic & Transportation Scientific Journal on Traffic and Transportation Research .


Munitić, Ante; Ristov, Pančo; Ivona Milić Beran, Dinamika procesa učenja uz pomoć kibernetičkih sustava, „Naše more“, broj 3-4/2009, Godište 56. ISSN 0469-6255, str.118-129.

**Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)**


**Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)**

Digital Electronic Logistic Maritime Cluster, Process Orchestration Information and communication technologies (ICT) in intelligent maritime systems

**The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences**

Project „CARD 2003 – Modern Approach towards Application Competencies / (Modern control technologies and innovation processes)

Model VET Centar Odense – Danska (Department for innovation and internationalization)

Supplementary teacher education programme (Faculty of Science, Split)

**PRIZES AND AWARDS, STUDENT EVALUATION**

**Prizes and awards for teaching and scholarly/artistic work**

**Results of student evaluation taken in the last five years for the course that is comparable to the course described in**
<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Damir Sedlar, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Technical Mechanics 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENERAL INFORMATION ON COURSE TEACHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Telephone number</td>
</tr>
<tr>
<td>E-mail address</td>
</tr>
<tr>
<td>Personal web page</td>
</tr>
<tr>
<td>Year of birth</td>
</tr>
<tr>
<td>Scientist ID</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INFORMATION ON CURRENT EMPLOYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution where employed</td>
</tr>
<tr>
<td>Date of employment</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
</tr>
<tr>
<td>Field of research</td>
</tr>
<tr>
<td>Function</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INFORMATION ON EDUCATION – Highest degree earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
</tr>
<tr>
<td>Institution</td>
</tr>
<tr>
<td>Place</td>
</tr>
<tr>
<td>Date</td>
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</tbody>
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<table>
<thead>
<tr>
<th>INFORMATION ON ADDITIONAL TRAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>Place</td>
</tr>
<tr>
<td>Institution</td>
</tr>
<tr>
<td>Field of training</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MOTHER TONGUE AND FOREIGN LANGUAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother tongue</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPETENCES FOR THE COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>authorship of university/faculty textbooks in the field of the course</td>
</tr>
</tbody>
</table>
| professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | - Tomac, Ivan; Lozina, Željan; Sedlar, Damir: Extended Morlet-Wave damping identification method, International Journal of Mechanical Sciences, 2017  
- Sedlar, Damir; Lozina, Zeljan; Bartulovic, Andjela: Nonlinear static isogeometric analysis of cable structures, Archive of Applied Mechanics, 89, 2019  
- Lozina, Željan; Sedlar, Damir; Tomac, Ivan: Isogeometric approach to the dynamics of the catenary exposed to large displacements, Acta mechanica, 230, 2019  
- Lozina, Željan; Sedlar, Damir; Tomac, Ivan: An Identification of the unbalanced magnetic pull in generator at excitation and the hydropower machine model validation, MATEC Web of Conferences, 211, 2018.  
- Boban, Bruno; Sedlar, Damir: Control of Electric Power Steering System – OpenModelica Simulation, SpliTech 2019, 2019  |
| professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) |  |
| professional, science and artistic projects in the field of the course carried out in the last five years (5 at most) |  |
| the name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? - pedagoške kompetencije? | Me4CataLOgue  |
| prizes and awards, student evaluation |  |
| prizes and awards for teaching and scholarly/artistic work |  |
| results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) |  |

| first and last name and title of teacher | Dean Sumić, M.Eng.  |
| the course he/she teaches in the proposed study programme | Marine Electrical Engineering and Electronics I  
Marine Electrical Engineering and Electronics II  
Maritime Communications  |
<p>| general information on course teacher |  |
| address | Berislavićeva 6, Split  |
| telephone number | 091 380 7003  |</p>
<table>
<thead>
<tr>
<th><strong>E-mail address</strong></th>
<th><a href="mailto:suma@pfst.hr">suma@pfst.hr</a></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal web page</strong></td>
<td><a href="http://www.pfst.hr/~suma">www.pfst.hr/~suma</a></td>
</tr>
<tr>
<td><strong>Year of birth</strong></td>
<td>1972</td>
</tr>
<tr>
<td><strong>Scientist ID</strong></td>
<td>314580</td>
</tr>
<tr>
<td><strong>Research or art rank, and date of last rank appointment</strong></td>
<td>Lecturer 1st February 2016</td>
</tr>
<tr>
<td><strong>Area and field of election into research or art rank</strong></td>
<td>area of technical sciences, filed of traffic and transport technology</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th><strong>Institution where employed</strong></th>
<th>University of Split, Faculty of Maritime Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of employment</strong></td>
<td>1st January 2003</td>
</tr>
<tr>
<td><strong>Name of position (professor, researcher, associate teacher, etc.)</strong></td>
<td>Lecturer</td>
</tr>
<tr>
<td><strong>Field of research</strong></td>
<td>Maritime Communications</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Lecturer</td>
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</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th><strong>Degree</strong></th>
<th>Master degree in Engineering</th>
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</thead>
<tbody>
<tr>
<td><strong>Institution</strong></td>
<td>University of Split, Faculty of Maritime Studies</td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>Split</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>15th June 2007</td>
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</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

| **Year** | |
| **Place** | |
| **Institution** | |
| **Field of training** | |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| **Mother tongue** | Croatian language |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** | English language 5 |
| **Italian language** | 2 |

**COMPETENCES FOR THE COURSE**

<p>| <strong>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</strong> | Maritime Communications; Maritime Communications 1 and 2, Nautical Studies, Maritime Systems and Processes, Maritime Yacht and Marine Technologies, Maritime Management; university study programme, university undergraduate study programme |
| <strong>Authorship of university/faculty textbooks in the field of the course</strong> | |
| <strong>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</strong> | 1. Sumić, Dean; Peraković, Dragan; Jurčević, Marinko. Contribution to ECDIS Reliability using Markov Model. // Transactions on Maritime Science ToMS. 3 (2014) , 2; 149-157. 2. Sumić, Dean; Peraković, Dragan; Jurčević, Marinko Optimizing Data Traffic Route for Maritime Vessels Communications // Procedia Engineering (1877-7058) 100 (2015); 1286-1293 3. Sumić, Dean; Rosić, Marko; Škorput, Pero. Decision Making Example for On-Board Distress Situation Based on Agents // |</p>
<table>
<thead>
<tr>
<th>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</th>
</tr>
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<tbody>
<tr>
<td>VIF-application of radiolocation in SAR operations, project manager: Assoc. Prof. Zvonimir Lušić, PhD, 09th March 2018 – 09th March 2020</td>
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<table>
<thead>
<tr>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
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<tbody>
<tr>
<td>Project entitled Internacionalizacije studijskih programa Morskog ribarstva i Vojnog pomorstva na Sveučilištu u Splitu, Pedagogical and didactic education, from 11th February until 15th February 2019</td>
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<table>
<thead>
<tr>
<th>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</th>
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</thead>
<tbody>
<tr>
<td>Merica Slišković, Ph.D. Scientific Research Methodology Sea and Marine Environment Protection</td>
</tr>
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**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
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**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
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<tbody>
<tr>
<td>Cesta mira 18 b, Split</td>
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<tr>
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<table>
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<tr>
<th>E-mail address</th>
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<tbody>
<tr>
<td><a href="mailto:merica.sliskovic@pfst.hr">merica.sliskovic@pfst.hr</a></td>
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<tbody>
<tr>
<td>1973</td>
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<thead>
<tr>
<th>Scientist ID</th>
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<tbody>
<tr>
<td>252443</td>
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</table>

<table>
<thead>
<tr>
<th>Research or art rank, and date of last rank appointment</th>
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<tbody>
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</table>

<table>
<thead>
<tr>
<th>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</th>
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<tbody>
<tr>
<td>Full professor, November 28th 2019.</td>
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</table>

<table>
<thead>
<tr>
<th>Area and field of election into research or art rank</th>
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<tbody>
<tr>
<td>Biotechnology, Ecology and environmental protection</td>
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</table>

**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
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<tbody>
<tr>
<td>University of Split, Faculty of Maritime Studies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of employment</th>
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<tbody>
<tr>
<td>01.11.1998.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of position (professor, researcher, associate teacher, etc.)</th>
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<tbody>
<tr>
<td>Associate professor</td>
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<table>
<thead>
<tr>
<th>Field of research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology and environmental protection of sea</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of the chair</td>
</tr>
<tr>
<td>INFORMATION ON EDUCATION – Highest degree earned</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Degree</td>
</tr>
<tr>
<td>Institution</td>
</tr>
<tr>
<td>Place</td>
</tr>
<tr>
<td>Date</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INFORMATION ON ADDITIONAL TRAINING</th>
</tr>
</thead>
</table>
| Year                               | 1) 2016  
2) 2005 i 2012  
3) 2007 |
| Place                              | |
| Institution                       | 1) LLoyds Maritime Academy, London (United Kingdom)  
2) Universitat Politecnica de Catalunya (UPC) – online  
3) CARNet |
| Field of training                 | 1) Marine Pollution Prevention and Management Course  
2) Modelling of ecological systems and Management of renewable resources; Advanced Course in System Dynamics  
3) E-learning Tutoring Akademiju (SRCE) |

<table>
<thead>
<tr>
<th>MOTHER TONGUE AND FOREIGN LANGUAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother tongue</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
</tr>
<tr>
<td>Italian language, (3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPETENCES FOR THE COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</td>
</tr>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
</tr>
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</table>
### Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)

<table>
<thead>
<tr>
<th>No.</th>
<th>Authors</th>
<th>Title</th>
<th>Journal/Conference Details</th>
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<tbody>
<tr>
<td>2.</td>
<td>Slišković, M.; Povž, M.; Jakšić, G.; Piria, M.; Jelić Mrčelić, G.</td>
<td>Biometric traits and ecology of sichel, Pelecus cultratus (Linnaeus, 1758) with notes on its recent status in the middle flow of the Danube river tributaries (Slovenia and Croatia)</td>
<td><em>Pakistan J. Zool.</em>, vol. 50(0), (2018), DOI: <a href="http://dx.doi.org/10.17582/journal.pjz/2018.50">http://dx.doi.org/10.17582/journal.pjz/2018.50</a></td>
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### Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Journal/Conference Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Internationalisation of Higher Education in Croatia, Internationalisation of Study Programmes of Marine Fisheries and Military Nautical Studies at the University of Split as Leader of 3rd project element</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Maritime education standard in shipping and ship management (MEDUSA) as Project Coordinator</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Maritime management for the 21st century – sustainable and intelligent development of the coastal zone through the development of professions and qualification standards in the field of Maritime management and the development of the relative university graduate study as Expert Project Manager</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Development of qualification and innovative methods of competence acquisition in Logistics and Maritime transport (KIKLOP) as Project Coordinator</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>TEMPUS “Modernizing and harmonizing maritime education in Montenegro and Albania” MarED, Applicant University of Montenegro, Partner University of Split as researcher</td>
<td></td>
</tr>
</tbody>
</table>

### Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)

<table>
<thead>
<tr>
<th>No.</th>
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<th>Details</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Internationalisation of Higher Education in Croatia, Internationalisation of Study Programmes of Marine Fisheries and Military Nautical Studies at the University of Split as Leader of 3rd project element</td>
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<tr>
<td>2.</td>
<td>Maritime education standard in shipping and ship management (MEDUSA) as Project Coordinator</td>
<td></td>
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<tr>
<td>3.</td>
<td>Maritime management for the 21st century – sustainable and intelligent development of the coastal zone through the development of professions and qualification standards in the field of Maritime management and the development of the relative university graduate study as Expert Project Manager</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Development of qualification and innovative methods of competence acquisition in Logistics and Maritime transport (KIKLOP) as Project Coordinator</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>TEMPUS “Modernizing and harmonizing maritime education in Montenegro and Albania” MarED, Applicant University of Montenegro, Partner University of Split as researcher</td>
<td></td>
</tr>
</tbody>
</table>

### The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences/ pedagoške kompetencije?

<table>
<thead>
<tr>
<th>Title</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>CARNet E-learning Tutoring Akademiju (SRCE)</td>
<td></td>
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<tr>
<td>Active learning in STEM education (University of Split Faculty of Science and Penn State University)</td>
<td></td>
</tr>
<tr>
<td>Workshops of pedagogical and didactical competences (Faculty of Humanities and Social Sciences)</td>
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### PRIZES AND AWARDS, STUDENT EVALUATION

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
<td>2019. University of Split Award for the scientific contribution in the area of biotechnology</td>
</tr>
<tr>
<td>Results of student evaluation taken in the last five years for the course that</td>
<td>University of Split students questionnaire - average 4.5 (maximum 5)</td>
</tr>
</tbody>
</table>
is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)

<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Tomislav Sunko, M.Eng.</th>
</tr>
</thead>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

<table>
<thead>
<tr>
<th>Address</th>
<th>Karamanova 4, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>+385 91 506 16 89</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:tomosunko@gmail.com">tomosunko@gmail.com</a></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1973</td>
</tr>
<tr>
<td>Scientist ID</td>
<td></td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
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**INFORMATION ON CURRENT EMPLOYMENT**

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Croatian Defence Academy “Dr Franjo Tudman”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>July 2012. Croatian Defense Academy “Dr Franjo Tudman”</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Seamanship lecturer</td>
</tr>
<tr>
<td>Field of research</td>
<td>Naval systems</td>
</tr>
<tr>
<td>Function</td>
<td>Lecturer</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Master degree in maritime transport, maritime nautical department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Maritime Studies</td>
</tr>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>8th July 2008.</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Institution</td>
<td>Harbour Master's Office Split (Republic of Croatia - Ministry of Maritime Affairs, Transport and Communications)</td>
</tr>
<tr>
<td>Field of training</td>
<td>Merchant Navy Lieutenant (Passed the State Maritime Exam)</td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language,(2)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language,(2)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**
| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | Seamanship I (Naval studies) - Master degree  
Seamanship II (Naval studies) - Master degree  
Seamanship III (Naval studies) - Master degree  
Safety at sea (Naval studies) - Master degree |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?-pedagoške kompetencije?</td>
<td></td>
</tr>
</tbody>
</table>
| PRIZES AND AWARDS, STUDENT EVALUATION | University of Split students questionnaire 2018/2019 - average 4.9 (maximum 5)  
University of Split students questionnaire 2019/2020 - average 5.0 (maximum 5) | |
<p>| Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated) |  | |
| First and last name and title of teacher | Tino Sumić, M.Eng. |  |  |</p>
<table>
<thead>
<tr>
<th>Section</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL INFORMATION ON COURSE TEACHER</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Mišina 13, Split</td>
</tr>
<tr>
<td>Telephone number</td>
<td>0917518990</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:tinosumic@net.hr">tinosumic@net.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1968.</td>
</tr>
<tr>
<td>Scientist ID</td>
<td></td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td></td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Scientific field of technical sciences, field of mechanical engineering, branch of marine engineering</td>
</tr>
<tr>
<td>INFORMATION ON CURRENT EMPLOYMENT</td>
<td></td>
</tr>
<tr>
<td>Institution where employed</td>
<td>MORH</td>
</tr>
<tr>
<td>Date of employment</td>
<td>07.01.1998.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Associate teacher</td>
</tr>
<tr>
<td>Field of research</td>
<td>Chair of Naval Operations - Naval Operations Division</td>
</tr>
<tr>
<td>Function</td>
<td>Technical teacher</td>
</tr>
<tr>
<td>INFORMATION ON EDUCATION – Highest degree earned</td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>Master’s degree in Marine Engineering</td>
</tr>
<tr>
<td>Institution</td>
<td>University of Dubrovnik, Faculty of Maritime Studies</td>
</tr>
<tr>
<td>Place</td>
<td>Dubrovnik</td>
</tr>
<tr>
<td>Date</td>
<td>09.05.1994.</td>
</tr>
<tr>
<td>INFORMATION ON ADDITIONAL TRAINING</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1)1995.</td>
</tr>
<tr>
<td>Place</td>
<td>1)Split</td>
</tr>
<tr>
<td>Institution</td>
<td>1) Harbour master’s office</td>
</tr>
<tr>
<td>Field of training</td>
<td>1) Marine engineer</td>
</tr>
<tr>
<td>MOTHER TONGUE AND FOREIGN LANGUAGES</td>
<td></td>
</tr>
<tr>
<td>Mother tongue</td>
<td>Croatian language</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, (4)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language, (3)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
<tr>
<td>COMPETENCES FOR THE COURSE</td>
<td></td>
</tr>
<tr>
<td>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was)</td>
<td></td>
</tr>
</tbody>
</table>

<p>| 478 |</p>
<table>
<thead>
<tr>
<th>offered, and level of study programme</th>
<th>&quot;Marine propulsion machinery&quot;,  &quot;Marine auxiliary systems&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td>&quot;Workshops of pedagogical and didactical competences (Faculty of Humanities and Social Sciences - Split), &quot;Training for teachers and administrative staff” within the EU project ME4CataLOgue (Mechanical Engineering for Catalog) - Croatian catalog of knowledge, skills and competences for mechanical engineering studies based on learning outcomes (for undergraduate, graduate and doctoral studies).</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? - pedagoške kompetencije?</td>
<td></td>
</tr>
<tr>
<td>PRIZES AND AWARDS, STUDENT EVALUATION</td>
<td></td>
</tr>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
<td>University of Split students questionnaire - average 5 (maximum 5)</td>
</tr>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
<td></td>
</tr>
<tr>
<td>First and last name and title of teacher</td>
<td>Full professor, Antonio Šarolić, Ph.D.</td>
</tr>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Military communication-information systems</td>
</tr>
<tr>
<td>GENERAL INFORMATION ON COURSE TEACHER</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>FESB, Ruđera Boškovića 32, 21000 Split</td>
</tr>
<tr>
<td>Telephone number</td>
<td>021 305 700</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:antonio.sarolic@fesb.hr">antonio.sarolic@fesb.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td><a href="https://nastava.fesb.hr/nastava/nastavnici/detalji/asarolic">https://nastava.fesb.hr/nastava/nastavnici/detalji/asarolic</a></td>
</tr>
<tr>
<td>Year of birth</td>
<td>1971.</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>223430</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>Scientific Advisor, 2016.</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Full Professor, 2016.</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Area: Technical Sciences, Field: Electrical Engineering</td>
</tr>
<tr>
<td>INSTITUTION ON CURRENT EMPLOYMENT</td>
<td></td>
</tr>
<tr>
<td>Institution where employed</td>
<td>Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td>Date of employment</td>
<td>1.1.2006.</td>
</tr>
<tr>
<td>Name of position (professor, researcher, associate teacher, etc.)</td>
<td>Full Professor</td>
</tr>
</tbody>
</table>
**Field of research** | Applied electromagnetics, wireless communications  
**Function** | Head of Chair for Applied Electromagnetic Fields  
**INFORMATION ON EDUCATION – Highest degree earned**  
**Degree** | PhD  
**Institution** | FER, University of Zagreb  
**Place** | Zagreb  
**Date** | 2004.  
**INFORMATION ON ADDITIONAL TRAINING**  
**Year** |  
**Place** |  
**Institution** |  
**Field of training** |  
**MOTHER TONGUE AND FOREIGN LANGUAGES**  
**Mother tongue** | Croatian  
**Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** |  
**English, 5**  
**Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** |  
**Italian, 2**  
**COMPETENCES FOR THE COURSE**  
**Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)** | Wireless communications *(graduate study Electronics and computer engineering)*  
| Antenna systems *(graduate study Communication-information technologies)*  
| Antennas, Maritime radiocommunications *(graduate study Communication-information technologies, undergraduate professional study Electronics)*  
| Electromagnetic compatibility *(graduate study Communication-information technologies, graduate study Electronics and computer engineering)*  
|  
**Authorship of university/faculty textbooks in the field of the course** |  
**Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)** | Šarolić, Antonio: Wind Turbine Radar Cross Section for Air Traffic Control Secondary Surveillance Radar // Proceedings of European Microwave Conference in Central Europe - EuMCE 2019, Prag, 2019. pp. 1-4  
**Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)** |  
**Professional, science and artistic projects in the field of the course** | EU COST Action CA15104 “Inclusive Radio Communication Networks for 5G and beyond (IRACON)”, Management Committee Member
Šarolić, Antonio: Study on analysis of wind power plant "Opor" effects on the functionality of SSR radar at the location of radar station Kozjak, professional project, FESB Split

Šarolić, Antonio: Study on electromagnetic compatibility analysis of wind power plant Bila Ploča (Pelješac) with PSR and SSR radars at the location Rota (Pelješac), professional project, FESB Split

Šarolić, Antonio: Non-ionizing radiation measurements with human exposure analysis at the HRM coastal surveillance stations, professional project, FESB Split

Šarolić, Antonio; Modlic, Borivoj: Electromagnetic compatibility of MORH radar system with "Odašilja i veze" radio systems and devices at locations Rota and Učka, professional project, FER Zagreb

<table>
<thead>
<tr>
<th>PRIZES AND AWARDS, STUDENT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
</tr>
<tr>
<td>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</td>
</tr>
</tbody>
</table>

Student evaluations in academic year 2019/20, University of Split:
- "Wireless communications": average grade 4.7 out of 5
- "Antenna systems": average grade 4.9 out of 5
- "Electromagnetic compatibility": average grade 5 out of 5

**First and last name and title of teacher**

Maja Škiljo, Ph.D.

**The course he/she teaches in the proposed study programme**

HYDROACoustics AND SHIP PHYSICAL FIELDS

**GENERAL INFORMATION ON COURSE TEACHER**

Address R. Boškovića 32, 21000 Split
Telephone number 0038521305675
E-mail address msekelja@fesb.hr
Personal web page https://nastava.fesb.unist.hr/nastava/nastavnici/detalji/msekelja
Year of birth 1982.
Scientist ID 296694
Research or art rank, and date of last rank appointment scientific assistant, 31. 03. 2017.
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment assistant professor, 01. 03. 2019.
Area and field of election into research or art rank Technical Sciences, Electrical Engineering

**INFORMATION ON CURRENT EMPLOYMENT**

Institution where employed University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Date of employment 01. 06. 2007.
Name of position (professor, researcher, associate teacher, etc.) assistant professor
<table>
<thead>
<tr>
<th>Field of research</th>
<th>Electrical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>High education and research</td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture</td>
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<tr>
<td>Place</td>
<td>Split</td>
</tr>
<tr>
<td>Date</td>
<td>19.05.2014</td>
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**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th>Year</th>
<th>Place</th>
<th>Institution</th>
<th>Field of training</th>
</tr>
</thead>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English, 4/5</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>German, 2</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th>Radiocommunications (coarse teacher, under graduate study, first year), Radar (graduate study, first year), Measurements in wireless systems (assistant, graduate study, second year), Systems of wireless energy transfer (assistant, graduate study, second year), Mobile communications (assistant, graduate study, second year).</th>
</tr>
</thead>
</table>
| Authorship of university/faculty textbooks in the field of the course                                           | Skiljo, Maja; Blažević, Zoran; Poljak, Dragan  
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | Škiljo, Maja; Blažević, Zoran; Poljak, Dragan  
Škiljo, Maja; Konša, Toni; Blažević, Zoran; Poljak, Dragan  
Split, 2018. str. 1-4 (predavanje, međunarodna recenzija, cjeloviti rad (inextenso), znanstveni)  
Škiljo, Maja; Sanader, Željko; Blažević, Zoran |
<table>
<thead>
<tr>
<th>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? - pedagoške kompetencije?</td>
</tr>
</tbody>
</table>

**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</th>
</tr>
</thead>
</table>
| University of Split, The office for quality: Radiocommunications  
2020: 5.0 (+-0.0)  
2019: 4.9 (+-0.1)  
2018: 5.0 (+- 0.2)  
2017: 5.0 (+-0.1)  
2016: 5.0 (+- 0.2)  

Radars:  
-  
2019 5.0 (+-0.1)  
2018: 4.9 (+- 0.2)  
2017: 4.8 (+-0.1)  
2016: 5.0 (+- 0.1)  |

**First and last name and title of teacher** | Hrvoje Šimleša  
**The course he/she teaches in the proposed study programme** | Military training I , Military training II  
**GENERAL INFORMATION ON COURSE TEACHER**  
| Address | Ilica 256 b Zagreb  
| Telephone number | 095 913 1360  
| E-mail address | hrvoje.simlesa@gmail.com  
| Personal web page |  
| Year of birth | 1983  |
### INFORMATION ON CURRENT EMPLOYMENT

<table>
<thead>
<tr>
<th>Institution where employed</th>
<th>Croatia Defense Academy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of employment</td>
<td>2010</td>
</tr>
<tr>
<td>Name of position</td>
<td>Battalion Commander</td>
</tr>
<tr>
<td>Field of research</td>
<td>Infantry</td>
</tr>
<tr>
<td>Function</td>
<td>Battalion Commander</td>
</tr>
</tbody>
</table>

### INFORMATION ON EDUCATION – Highest degree earned

<table>
<thead>
<tr>
<th>Degree</th>
<th>Kinesiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Faculty of Kinesiology Zagreb</td>
</tr>
<tr>
<td>Place</td>
<td>Zagreb</td>
</tr>
<tr>
<td>Date</td>
<td>2005</td>
</tr>
</tbody>
</table>

### INFORMATION ON ADDITIONAL TRAINING

<table>
<thead>
<tr>
<th>Year</th>
<th>Place</th>
<th>Institution</th>
<th>Field of training</th>
</tr>
</thead>
</table>

### MOTHER TONGUE AND FOREIGN LANGUAGES

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</th>
<th>English</th>
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<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
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</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td></td>
</tr>
</tbody>
</table>

### COMPETENCES FOR THE COURSE

<table>
<thead>
<tr>
<th>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td></td>
</tr>
<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
<td></td>
</tr>
<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
</tbody>
</table>
**The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences**

**PRIZES AND AWARDS, STUDENT EVALUATION**

Prizes and awards for teaching and scholarly/artistic work

Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)

| First and last name and title of teacher | Joško Šoda, PhD, assistant professor |
| The course he/she teaches in the proposed study programme | AUTOMATION OF MARINE ENGINE SYSTEMS |

**GENERAL INFORMATION ON COURSE TEACHER**

Address | Liveja II 28 |
Telephone number | |
E-mail address | jsoda@pfst.hr |
Personal web page | |
Year of birth | 1974 |
Scientist ID | 248935 |
Research or art rank, and date of last rank appointment | |
Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment | Asocciate professor, 2020. |
Area and field of election into research or art rank | Područje tehničkih znanosti, polje elektrotehnika |

**INFORMATION ON CURRENT EMPLOYMENT**

Institution where employed | University of Split, Faculty of Maritime Studies |
Date of employment | October 2012. |
Name of position (professor, researcher, associate teacher, etc.) | Asocciate professor, 2020. |
Field of research | Process automation, signal processing, automation |
Function | |

**INFORMATION ON EDUCATION – Highest degree earned**

Degree | Doctoral degree |
Institution | Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture |
Place | Split |

**INFORMATION ON ADDITIONAL TRAINING**

| Year | |
| Place | |
| Institution | |
| Field of training | |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

| Mother tongue | Croatian |
| Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent) | Engleski, 5 |
| **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)** |  |
| **COMPETENCES FOR THE COURSE** |  |
| At the Faculty of Maritime Studies he was the lecturer of the following courses: a. Undergraduate study: Digital Electronics, Electronic Maritime Safety Systems, Automation of Ship Mechanical Systems II, Automation in Maritime Traffic, Ship Automatic Control. graduate study: Process measurements and instrumentation, Automatic control of vessels, Automation of ship propulsion. |  |
| **Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)** |  |
| At the Faculty of Maritime Studies he was the lecturer of the following courses: a. Undergraduate study: Digital Electronics, Electronic Maritime Safety Systems, Automation of Ship Mechanical Systems II, Automation in Maritime Traffic, Ship Automatic Control. graduate study: Process measurements and instrumentation, Automatic control of vessels, Automation of ship propulsion. |  |
| **Authorship of university/faculty textbooks in the field of the course** |  |
| Process measurements and instrumentation (presentation), graduate study |  |
| **Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)** |  |
| **Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)** |  |
|  |  |
| **Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)** |  |
|  |  |
| **The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences** |  |
|  |  |
| **PRIZES AND AWARDS, STUDENT EVALUATION** |  |
|  |  |
| **Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)** |  |
| **First and last name and title of teacher** | Marko Vukasović, Ph. D., Assistant Professor |
| **The course he/she teaches in the proposed study programme** | Strength of materials |

**GENERAL INFORMATION ON COURSE TEACHER**
- **Address**: Rudera Boškovića 32, 21000 Split, Hrvatska
- **Telephone number**: +385 (0)21 305 975
- **E-mail address**: mvukasov@fesb.hr
- **Year of birth**: 1983.
- **Scientist ID**: 308524
- **Research or art rank, and date of last rank appointment**: Scientific Associate, 18/10/2017
- **Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment**: Assistant Professor, 17/10/2018
- **Area and field of election into research or art rank**: Technical Sciences, Basic Technical Sciences

**INFORMATION ON CURRENT EMPLOYMENT**
- **Institution where employed**: Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
- **Date of employment**: 01/11/2018
- **Name of position (professor, researcher, associate teacher, etc.)**: Assistant Professor
- **Field of research**: Mechanics of deformable solids
- **Function**: Teaching and scientific research

**INFORMATION ON EDUCATION – Highest degree earned**
- **Degree**: PhD
- **Institution**: Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
- **Place**: Split
- **Date**: 27/11/2014

**INFORMATION ON ADDITIONAL TRAINING**
- **Year**
- **Place**
- **Institution**
- **Field of training**

**MOTHER TONGUE AND FOREIGN LANGUAGES**
- **Mother tongue**: Croatian
- **Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)**: English (4)

**COMPETENCES FOR THE COURSE**
- **Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)**
- **Authorship of university/faculty textbooks in the field of the course**

- Technical mechanics 1, Mechanics of materials: Professional studies of mechanical engineering and naval architecture, Undergraduate study programme
- Mechanics of materials and 2: University studies of mechanical engineering, naval architecture and industrial engineering, Undergraduate study programme
<table>
<thead>
<tr>
<th>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Pavazza, Radoslav; Matoković, Ado; Vukasović, Marko. Bending of thin-walled beams of open section with influence of shear—Part II: Application. // Thin-walled structures (0263-8231) 116 (2017); 369-386 (Scientific article).</td>
</tr>
<tr>
<td>7. Vukasović, Marko; Pavazza, Radoslav; Vlak, Fran. An analytic solution for bending of thin-walled laminated composite beams of symmetrical open sections with influence of shear. // Journal of strain analysis for engineering design (0309-3247) 52 (2017), 3; 190-203 (Scientific article)</td>
</tr>
<tr>
<td>8. Vukasović, Marko; Pavazza, Radoslav; Vlak, Fran. Analytic solution for torsion of thin-walled laminated composite beams of symmetrical open cross sections with influence of shear. // Archive of applied mechanics (0939-1533) 87 (2017), 8; 1371-1384 (Scientific article)</td>
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</table>

<table>
<thead>
<tr>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
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</table>

<table>
<thead>
<tr>
<th>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences</th>
</tr>
</thead>
</table>

| ME4CataL0gue (Mechanical Engineering for Catalogue) Croatian Catalogue of knowledge, skills and competences for Mechanical Engineering studies (Bachelor, Master and Doctoral study programmes) based on learning outcomes. |

**PRIZES AND AWARDS, STUDENT EVALUATION**

<table>
<thead>
<tr>
<th>Prizes and awards for teaching and scholarly/artistic work</th>
</tr>
</thead>
</table>

| Science reward – University of Split 01/02/2019 |

<table>
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<tr>
<th>Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)</th>
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| First and last name and title of teacher | Luka Vukić, Ph.D. |

<table>
<thead>
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<th>The course he/she teaches in the proposed study programme</th>
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| Academic writing |
**GENERAL INFORMATION ON COURSE TEACHER**

<table>
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<tr>
<th>Address</th>
<th>Papandopulova 29, Split</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone number</td>
<td>/</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:luka.vukic@pfst.hr">luka.vukic@pfst.hr</a></td>
</tr>
<tr>
<td>Personal web page</td>
<td>/</td>
</tr>
<tr>
<td>Year of birth</td>
<td>1989</td>
</tr>
<tr>
<td>Scientist ID</td>
<td>354292</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment</td>
<td>/</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>/</td>
</tr>
<tr>
<td>Area and field of election into research or art rank</td>
<td>Area of technical sciences, filed of traffic and transport technology</td>
</tr>
</tbody>
</table>

**INFORMATION ON CURRENT EMPLOYMENT**

| Institution where employed | University of Split, Faculty of Maritime Studies |
| Date of employment         | 1st April 2016 |
| Name of position (professor, researcher, associate teacher, etc.) | Teaching/research assistant |
| Field of research          | Logistics and Transport Technology |

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th>Degree</th>
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<tbody>
<tr>
<td>Institution</td>
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<tr>
<td>Place</td>
<td>Rijeka</td>
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<tr>
<td>Date</td>
<td>31st May 2019</td>
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</table>

**INFORMATION ON ADDITIONAL TRAINING**

| Year | / |
| Place | / |
| Institution | / |
| Field of training | / |

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th>Mother tongue</th>
<th>Croatian language</th>
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</thead>
<tbody>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language, excellent (5)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language, very good (4)</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>/</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

| Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme) | / |
| Authorship of university/faculty textbooks in the field of the course | / |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) | 1. Poletan Jugović, T., Vukić, L. (2016), Competencies of logistics operators for optimisation the external costs within freight logistics solution. *Pomorstvo*, 30(2), 120-127.  


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Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most) /

Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)

Project funded by the Ministry of Sea, Transport and Infrastructure - “Nacionalni plan razvoja luka otvorenih za javni promet od županijskog i lokalnog značaja”; EU Project - “SIROCCO- Održivi međuregionalni obalni i kruzing turizam kroz suradnju i zajedničko planiranje”; programme of transnational cooperation entitled Mediteran MED; Scientific project of the Faculty of Maritime Studies in Rijeka with the support of the University of Rijeka – ECSQTransRoute (“Utjecaj i efekti eksternih troškova i kvalitete usluge na valorizaciju prometnog pravca”); Project entitled “CHARGE” - Capitalization and Harmonization of the Adriatic Region Gate of Europe, 2019; Project entitled “InteRiv – Internacionalizacija studijskih programa Morskog ribarstva i Vojnog pomorstva na Sveučilištu u Splitu”.

The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?

Project entitled InteRiv – Internacionalizacija studijskih programa Morskog ribarstva i Vojnog pomorstva na Sveučilištu u Splitu – Workshop on pedagogical and didactic competences (30 hours)

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PRIZES AND AWARDS, STUDENT EVALUATION

Prizes and awards for teaching and scholarly/artistic work /

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First and last name and title of teacher

Davor Vodopija, M.Ed.

The course he/she teaches in the proposed study programme

Naval English I

Naval English II

---

GENERAL INFORMATION ON COURSE TEACHER

Address Trščanska 35, Split

Telephone number 0955637508

E-mail address dvvodopija@yahoo.com

Personal web page

Year of birth 1969

Scientist ID

Research or art rank, and date of last rank appointment

Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment

Area and field of election into research or art rank
| INFORMATION ON CURRENT EMPLOYMENT |
|-------------------------------|------------------|
| Institution where employed    | Croatian Defence Academy “Dr. F. Tuđman” |
| Date of employment            | 15 Jan 1997.     |
| Name of position (professor,  | Associate teacher |
| researcher, associate teacher, |                  |
| etc.)                         |                  |
| Field of research             | English language |
| Function                      | Teacher          |

| INFORMATION ON EDUCATION – Highest degree earned |
|-----------------------------------|------------------|
| Degree                            | Master degree in English Language |
| Institution                       | University of Split, Faculty of Humanities and Social Sciences |
| Place                             | Zadar            |
| Date                              | 29 April 1994    |

| INFORMATION ON ADDITIONAL TRAINING |
|----------------------------------|------------------|
| Year                              | 1) 2007          |
|                                  | 2) 2004          |
|                                  | 3) 2001          |
| Place                            | 1) Garmisch-Partenkirchen, Germany. |
|                                  | 2) Newport, USA  |
|                                  | 3) Wien, Austria |
| Institution                      | 1) Partner Language Training Center Europe |
|                                  | 2) Surface Warfare Officers School Command, |
|                                  | 3) National Defence Academy Command, |
| Field of training                | 1) Language Testing Seminar |
|                                  | 2) Maritime Operational Language Seminar |
|                                  | 3) English Teacher Training |

<table>
<thead>
<tr>
<th>MOTHER TONGUE AND FOREIGN LANGUAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother tongue</td>
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<tr>
<td>Foreign language and command of</td>
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<tr>
<td>foreign language on a scale from</td>
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<tr>
<td>2 (sufficient) to 5 (excellent)</td>
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<td>Foreign language and command of</td>
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<td>foreign language on a scale from</td>
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<td>2 (sufficient) to 5 (excellent)</td>
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<td>Foreign language and command of</td>
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<td>foreign language on a scale from</td>
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<tr>
<td>2 (sufficient) to 5 (excellent)</td>
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</tbody>
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<table>
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<th>COMPETENCES FOR THE COURSE</th>
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<tbody>
<tr>
<td>Earlier experience as course</td>
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<tr>
<td>teacher of similar courses</td>
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<tr>
<td>(name title of course,</td>
</tr>
<tr>
<td>study programme where it is/</td>
</tr>
<tr>
<td>was offered, and level of</td>
</tr>
<tr>
<td>study programme)</td>
</tr>
<tr>
<td>Authorship of university/fac</td>
</tr>
<tr>
<td>ulty textbooks in the field</td>
</tr>
<tr>
<td>of the course</td>
</tr>
<tr>
<td>Professional, scholarly and</td>
</tr>
<tr>
<td>artistic articles published</td>
</tr>
<tr>
<td>in the last five years in</td>
</tr>
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<td>the field of the course (5</td>
</tr>
<tr>
<td>works at most)</td>
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<tr>
<td>Professional and scholarly</td>
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<tr>
<td>articles published in the</td>
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<tr>
<td>last five years in subjects</td>
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<td>of teaching methodology and</td>
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<td>teaching quality (5 works at</td>
</tr>
<tr>
<td>most)</td>
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<tr>
<td>Professional, science and</td>
</tr>
<tr>
<td>artistic projects in the</td>
</tr>
<tr>
<td>field of the course</td>
</tr>
</tbody>
</table>
The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences? - pedagoške kompetencije?

**PRIZES AND AWARDS, STUDENT EVALUATION**

- **Prizes and awards for teaching and scholarly/artistic work**: Croatian Defence Academy Award for teaching
- **Results of student evaluation taken in the last five years for the course that is comparable to the course described in the form (evaluation organizer, average grade, note on grading scale and course evaluated)**: University of Split students' questionnaire - average 4.4

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<table>
<thead>
<tr>
<th>First and last name and title of teacher</th>
<th>Lea Vojković, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The course he/she teaches in the proposed study programme</td>
<td>Electronic Navigation Seamanship III Work Organization and Management on Board</td>
</tr>
</tbody>
</table>

**GENERAL INFORMATION ON COURSE TEACHER**

- **Address**: Uvala Milna 4, 21480 Vis
- **Telephone number**: 0918926129
- **E-mail address**: lvojkovic@pfst.hr
- **Year of birth**: 1978
- **Scientist ID**: 377492
- **Research or art rank, and date of last rank appointment**: Assistant Professor, 21st November 2019
- **Area and field of election into research or art rank**: Area of technical sciences, field of traffic and transport technology

**INFORMATION ON CURRENT EMPLOYMENT**

- **Institution where employed**: Faculty of Maritime Studies
- **Date of employment**: 22nd November 2019
- **Name of position (professor, researcher, associate teacher, etc.)**: Assistant Professor
- **Area of technical sciences, field of traffic and transport technology, branch maritime and river transport, Nautical Studies Department, Marine Military Studies**

**INFORMATION ON EDUCATION – Highest degree earned**

- **Degree**: PhD
- **Institution**: University of Rijeka, Faculty of Maritime Studies
- **Place**: Rijeka
- **Date**: 17th January 2019

**INFORMATION ON ADDITIONAL TRAINING**

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<th>Year</th>
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<tbody>
<tr>
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<td>Institution</td>
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<td>-------------</td>
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<tr>
<td>Field of training</td>
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</tr>
<tr>
<td><strong>MOTHER TONGUE AND FOREIGN LANGUAGES</strong></td>
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<tr>
<td>Mother tongue</td>
<td>Croatian language</td>
</tr>
<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>English language 5</td>
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<tr>
<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>Italian language 5</td>
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<td>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</td>
<td>French language 2</td>
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<td><strong>COMPETENCES FOR THE COURSE</strong></td>
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<td>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</td>
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<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
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<tr>
<td>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</td>
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<tr>
<td>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</td>
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<tr>
<td>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</td>
<td></td>
</tr>
<tr>
<td>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</td>
<td></td>
</tr>
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<td><strong>PRIZES AND AWARDS, STUDENT EVALUATION</strong></td>
<td></td>
</tr>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
<td></td>
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</tbody>
</table>

<p>| First and last name and title of teacher | Marijan Zujić, M.Eng. |
| The course he/she teaches in the proposed study programme | Passage Planning Ship Handling Techniques |
| <strong>GENERAL INFORMATION ON COURSE TEACHER</strong> |  |
| Address | Hercegovačka 46, Split |
| Telephone number | 091 380 7015 |
| E-mail address | <a href="mailto:mzujic@pfst.hr">mzujic@pfst.hr</a> |
| Personal web page | / |
| Year of birth | 1962 |</p>
<table>
<thead>
<tr>
<th>Scientist ID</th>
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<tr>
<td>Research or art rank, and date of last rank appointment</td>
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<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment</td>
<td>Senior Lecturer, 30th March 2011</td>
</tr>
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<td>Area and field of election into research or art rank</td>
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<td>INFORMATION ON CURRENT EMPLOYMENT</td>
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<tr>
<td>Institution where employed</td>
<td>Faculty of Maritime Studies in Split</td>
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<tr>
<td>Date of employment</td>
<td>Since 2005 employed as a Lecturer</td>
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<td>Name of position (professor, researcher, associate teacher, etc.)</td>
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<td>Field of research</td>
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<td>Function</td>
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<td>INFORMATION ON EDUCATION – Highest degree earned</td>
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<tr>
<td>Degree</td>
<td>Master’s degree in Maritime Transport</td>
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<tr>
<td>Institution</td>
<td>Faculty of Maritime Studies in Dubrovnik – branch in Split</td>
</tr>
<tr>
<td>Place</td>
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<tr>
<td>Date</td>
<td>1995</td>
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<td>Year</td>
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<td>Place</td>
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<td>Institution</td>
<td>L.K. Split</td>
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<td>Field of training</td>
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<td>COMPETENCES FOR THE COURSE</td>
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<td>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</td>
<td>Undergraduate study programme and graduate study programme, has been teaching the following courses:</td>
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<tr>
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<tr>
<td>2.</td>
<td>Ship Navigation and Manoeuvring II</td>
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<tr>
<td>3.</td>
<td>Ship Navigation and Manoeuvring III</td>
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<td>4.</td>
<td>Cargo in Maritime Transport</td>
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<td>5.</td>
<td>Cargo Handling I</td>
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<td>6.</td>
<td>Cargo Handling II</td>
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<tr>
<td>7.</td>
<td>Technology of Special Cargo Transportation</td>
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<td>8.</td>
<td>Multimodal Transport Systems</td>
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<td>9.</td>
<td>Passage Planning</td>
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<td>10.</td>
<td>Onboard Internship</td>
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<td>11.</td>
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<td>12.</td>
<td>Seamanship</td>
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<td>13.</td>
<td>Techniques of Operating a Vessel</td>
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<td>14.</td>
<td>Skills Needed for Working on a Vessel</td>
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<tr>
<td>15.</td>
<td>Knowledge of Ship and Cargo</td>
</tr>
<tr>
<td>Authorship of university/faculty textbooks in the field of the course</td>
<td>“Sigurnost na moru” Full Prof. Z. Bičanić, PhD and M. Zujić</td>
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494
<table>
<thead>
<tr>
<th>Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most)</th>
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<tbody>
<tr>
<td>1. Dr.sc. Mirko Bilicić, Dr.sc. Zlatimir Bićanić, Kap. Marijan Zujić: MODELIRANJE LUČKOG PREKRCAJNOG PROCESA I VREDNOVANJE PONAŠANJA MODELA NA PRIMJERU LUKE ŠIBENIK. “MOBILITY AND ROAD SAFETY” IV conference with international participation, Travnik-Vlašić Bosnia and Herzegovina 2013.</td>
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<table>
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<th>Professional and scholarly articles published in the last five years in subjects of teaching methodology and teaching quality (5 works at most)</th>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Professional, science and artistic projects in the field of the course carried out in the last five years (5 at most)</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>The name of the programme and the volume in which the main teacher passed exams in/acquired the methodological-psychological-didactic-pedagogical group of competences?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIZES AND AWARDS, STUDENT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prizes and awards for teaching and scholarly/artistic work</td>
</tr>
<tr>
<td>dražen živković, Ph. D</td>
</tr>
<tr>
<td>material technology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENERAL INFORMATION ON COURSE TEACHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address: Rovinjska 4, 21000 SPLIT, CROATIA</td>
</tr>
<tr>
<td>Telephone number: +385 91 4305910</td>
</tr>
<tr>
<td>E-mail address: <a href="mailto:Drazen.Zivkovic@fesb.hr">Drazen.Zivkovic@fesb.hr</a></td>
</tr>
<tr>
<td>Personal web page: /</td>
</tr>
<tr>
<td>Year of birth: 1957</td>
</tr>
<tr>
<td>Scientist ID: 044701</td>
</tr>
<tr>
<td>Research or art rank, and date of last rank appointment: Ph. D.; 04.09.1999.</td>
</tr>
<tr>
<td>Research-and-teaching, art-and-teaching or teaching rank, and date of last rank appointment: Full professor; 20.02.2014.</td>
</tr>
<tr>
<td>Area and field of election into research or art rank: Technical sciences, scientific field of Mechanical engineering,</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INFORMATION ON CURRENT EMPLOYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution where employed: University of Split, Faculty Electrical Engineering, Machanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td><strong>Date of employment</strong></td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td><strong>Name of position (professor, researcher, associate teacher, etc.)</strong></td>
</tr>
<tr>
<td><strong>Field of research</strong></td>
</tr>
<tr>
<td><strong>Function</strong></td>
</tr>
</tbody>
</table>

**INFORMATION ON EDUCATION – Highest degree earned**

<table>
<thead>
<tr>
<th><strong>Degree</strong></th>
<th>Ph.D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institution</strong></td>
<td>University of Split, Faculty Electrical Engineering, Machanical Engineering and Naval Architecture</td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>Split</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>04.09.1999.</td>
</tr>
</tbody>
</table>

**INFORMATION ON ADDITIONAL TRAINING**

<table>
<thead>
<tr>
<th><strong>Year</strong></th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institution</strong></td>
<td>University of Zagreb, Faculty of Mechanical Engineering and Naval architecture</td>
</tr>
<tr>
<td><strong>Place</strong></td>
<td>Zagreb</td>
</tr>
<tr>
<td><strong>Field of training</strong></td>
<td>Mechanical engineering</td>
</tr>
</tbody>
</table>

**MOTHER TONGUE AND FOREIGN LANGUAGES**

<table>
<thead>
<tr>
<th><strong>Mother tongue</strong></th>
<th>Croatian</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foreign language and command of foreign language on a scale from 2 (sufficient) to 5 (excellent)</strong></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>(5)</td>
</tr>
<tr>
<td>Italian</td>
<td>(3)</td>
</tr>
<tr>
<td>German</td>
<td>(2)</td>
</tr>
</tbody>
</table>

**COMPETENCES FOR THE COURSE**

<table>
<thead>
<tr>
<th><strong>Earlier experience as course teacher of similar courses (name title of course, study programme where it is/was offered, and level of study programme)</strong></th>
<th><strong>Undergraduate study of mechanical engineering and shipbuilding:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate study of mechanical engineering and shipbuilding:</td>
<td></td>
</tr>
<tr>
<td>Materials 1, Materials 2, Technology 1</td>
<td></td>
</tr>
<tr>
<td>Graduate study of mechanical engineering:</td>
<td></td>
</tr>
<tr>
<td>Material selection, Tribology, Heat treatment and surface protection, Fuels and lubricants</td>
<td></td>
</tr>
<tr>
<td><strong>Poslijediplomski studij – doktorski studij</strong></td>
<td></td>
</tr>
<tr>
<td>Tribological principles</td>
<td></td>
</tr>
</tbody>
</table>

| Authorship of university/faculty textbooks in the field of the course script "Materials", script "Metal casting", authorized lectures on the Web from: Materials, Heat treatment and surface protection, Selection of materials, Tribology |
| Professional, scholarly and artistic articles published in the last five years in the field of the course (5 works at most) |
| 1. Dadić, Zvonimir; Živković, Dražen; Čatipović, Nikša, Tribological wear mechanisms of molds for high pressure die casting, Metalurgija, 55 (2016), 2; 2016. |
| 2. Živković, Dražen; Mišina, Nedjeljko; Ljumović, Petar „Corrosion damage of seam welded galvanized hot water pipelines“, Tehnički vjesnik, 24, 4, 2017. |
| 3. Čatipović, Nikša; Živković, Dražen; Dadić, Zvonimir, „Influence of austempering temperature and salt bath agitation on microstructure and mechanical properties of austempered ductile iron”, Tehnički vjesnik, 25, 2, 2018. |
| 4. Čatipović, Nikša; Živković, Dražen; Dadić, Zvonimir; Krolo, Jure, „Influence of austempering temperature and salt bath agitation on microstructure and mechanical properties of austempered ductile iron”, Kovové materiály, 56, 3, 2018. |
| 5. Dadić, Zvonimir; Živković, Dražen; Čatipović, Nikša; Marinčić-Kragić, Ivo, „Influence of steel preheat temperature and molten
5.4. **Estimated costs of study per student.**

Estimated costs of study per student per one year amount 12,000 €.

5.5. **Optimal number of students**

Optimal number of students is 30.
### 5.6. Methods of monitoring the quality and success of the study programme delivery

Pursuant to European standards and guidelines for internal quality assurance in the higher education area (pursuant to The Standards and Guidelines for Quality Assurance in the European Higher Education Area), on the grounds of which the University of Split determines quality assurance management, the study programme proponent shall draw a plan of the procedure of assuring quality and study programme

**Documents on which the system of quality assurance of a component is based:**

- **The ordinance on the quality assurance system of a component (enclose if available)**
  [http://www.pfst.hr/images/iso_management/Pravilnik_o_sustavu_osiguravanja_kvalitete_na_PFST_93FV.pdf](http://www.pfst.hr/images/iso_management/Pravilnik_o_sustavu_osiguravanja_kvalitete_na_PFST_93FV.pdf)
- **The manual on the quality assurance system of a component (enclose if available)**
  [http://www.pfst.hr/images/dokumenti/kvaliteta/PRIRUCNIK.pdf](http://www.pfst.hr/images/dokumenti/kvaliteta/PRIRUCNIK.pdf)

**Description of the procedures used for evaluating quality assurance of the study programme:**

- It is necessary to describe a method (most often it is a questionnaire for students or teachers, self-evaluation questionnaire), list the performer (a component, a university office), way of analysing results and informing, and timeline of the execution.
- In case it has been described in an enclosed document, list the name of the document and the article.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Evaluation of teachers’ and teacher associates’ work</strong></td>
<td>Student questionnaire for evaluation of teachers’ work. The survey is carried out once a term. Performer: Centre, Committee for Quality Improvement of the Faculty (hereinafter referred to as the Committee) Results are presented at the Faculty Council and published on the Faculty web-page. Teachers’ self-evaluation form (Article 4.2 of the Manual) Performer: The Committee The procedure is carried out every 2-4 years Results are presented at the Faculty Council and published on the Faculty web-page.</td>
</tr>
<tr>
<td><strong>Monitoring of evaluation and harmonisation with expected learning outcomes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Evaluation of availability of resources (spatial, human, information) for the process of learning and teaching</strong></td>
<td>A form for evaluating expert-administrative services, library and material conditions of studying (Article 5.1 of the Manual) Performer: Centre, The Committee The procedure is carried out periodically Results are presented at the Faculty Council and published on the Faculty web-page.</td>
</tr>
<tr>
<td><strong>Availability and evaluation of a support for students (mentoring, tutoring, counselling)</strong></td>
<td>Article 5.2 of the Manual Performer: the Committee, Commission for students’ issues It is carried out continuously Continuously</td>
</tr>
<tr>
<td><strong>Monitoring of students’ passing rate by subjects and at the study as a whole</strong></td>
<td>The procedure is carried out pursuant to Article 3.2 of the Manual Performer: Heads of the study, Student Service Results are available to all heads of the study and teachers, and to the Committee</td>
</tr>
</tbody>
</table>
| Description of procedures of informing external components on the study programme (students, employers, alumni) | Ensuring support mechanism for students (Article 5.2 of the Manual)  
Performer: the Committee, Commission for students’ issues  
- publishing of the Guide for study enrolment  
- participation in the University Fair  
- updating of the Faculty internet pages  
- inciting teachers to update pages of their courses which are a part of the official Faculty web pages  
- informing about all student mobility programmes  
The procedure is carried out continuously. |
| Students’ satisfaction with the programme in its entirety | Once a year  
Surveying of graduates, Article 2.3 of the Manual  
Performer: Centre, the Committee  
The procedure is carried out every 2-4 years  
The survey is carried out annually. Results are presented at the Faculty Council and published on the Faculty web-page. |
| Procedures for obtaining feedbacks from external components (alumni, employers, job market and other relevant organisations) | Surveying of employers, Article 2.4 of the Manual  
Performer: the Committee  
The survey is carried out every 3-5 years  
Results are published on the Faculty web-page |
| Evaluation of students’ practice, if available (short description of the procedures of performing and evaluating and assuring quality) | |
| Other evaluation procedures carried out by the proponent | |