**3.2. Course description**

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| **Generic information** |
| Head of Course | **Radoslav Radonja, Ph. D., associate professor** |
| Course | **Machinery Control and Crew Management** |
| Study Programme | **Marine Engineering** |
| Level | **Undergraduate** |
| Type of Course | **STCW - obligatory** |
| Year of Study | **2** |  |
| Estimated Student Workload and Methods of Instruction | ECTS coefficient of Student Workload | **4** |
| Number of Hours (L+E+S) | **3 + 0 + 0**  |

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| **1. GENERAL COURSE DESCRIPTION** |
| *1.1. Course Objectives*  |
|  The aim of the course is to acquire knowledge about the principles and laws of machinery control, crew management and Watchkeeping on board, and especially the part related to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention) and the International Safety Management Code (ISM Code) pursuant to A-III-1/2 of the STCW Convention. |
| *1.2. Prerequisites for Course Registration*  |
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| *1.3. Expected Learning Outcomes*  |
| After passing the exam, it is expected that the students will be able to do following:1. Properly interpret the basic concepts of Engine room management (management, supervision, control, decision-making, decision-making in risk situations, correct prioritization) and shipboard crew management (assignment of crew and duties, assignment of tasks, effective communication, assertiveness, awareness of the situation and respect team experience)
2. Explain the concept of Watchkeeping, organization of Engine Watchkeeping, taking over, holding and handing over of the Engine Watch on board
3. State and explain the actions of the Watchkeeping Engineer in special circumstances and emergencies
4. Properly interpret the requirements of the ISM and ISPS codes and the impact of the human factor on their application
5. State and explain the legislative requirements and documentation on board related to Engine room management and crew management (Engine logbook, technical documentation, checklists, working permits, etc.)
6. Explain the method of calculating risk factors and analyse various events with regard to harm or danger
7. State and explain the basic principles of good management, shipboard organization and crew health care
8. Analyze the work performance of the crew member, the role in the team and their contribution to the overall work in the engine room and on board (maintenance of the plant, participation in exercises, participation in joint operations, etc.)
9. Explain how to prepare and conduct ship meetings and write reports
10. State and explain teaching and training methods and requirements with regard to emergency drills, testing and maintenance of emergency equipment and facilities.
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| *1.4. Course Outline*  |
| Definition of management, decision making and control in management, management in a risk situation, places of Engine control. Watchkeeping: the formation of the Watch, travel planning, taking over, performing and handing over the Watch, keeping the Watch in extraordinary circumstances. ISM code (safe management system on board - SMS), crew health and safety, proper safety and risk assessment, ISPS code, safety cases and elements, human factors, work permit system, safe management elements and hazard identification. Principles of crew management, crew attitudes, group behavior, employment conditions. Crew organization: scheduling, work analysis, distribution of duties, organization in case of safety and emergency, crew duties and communication, management of ship administration, meeting technique. Exercise methods and emergency exercises on board. MLC and ILO conventions. |
| *1.5. Modes of* *Instruction*  | [x]  Lectures[ ]  Seminars and workshops [ ]  Exercises [ ]  E-learning[ ]  Field work | [ ]  Practical work [ ]  Multimedia and Network [ ]  Laboratory[ ]  Mentorship[ ]  Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *1.6. Comments*  |  |
| *1.7. Student Obligations*  |
| Active class attendance, 1st colloquium, 2nd colloquium and final oral exam.  |
| *1.8. Assessment1 of Learning Outcomes*  |
| Course attendance | 1,5 | Class participation | 0,5 | Seminar paper |     | Experiment |     |
| Written exam |     | Oral exam | 0,5 | Essay |     | Research |     |
| Project |     | Continuous Assessment | 1,5 | Presentation |     | Practical work |  |
| Portfolio |  |  |  |  |  |  |  |

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| *1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam*  |
| The procedure for evaluating the acquired learning outcomes takes place in accordance with University’s and Faculty’s normative acts as follows:* through continuous testing of knowledge during classes, 70% of the acquired learning outcomes are evaluated through the 1st colloquium - learning outcomes 1-3 (30%), 2nd colloquium - learning outcomes 4-10 (40%), while the student must realize a minimum of each colloquium 50% points
* at the final part of the exam, 30% of the acquired learning outcomes are evaluated (1-10), and the student must realize a minimum of 50% of points in order to pass the final exam.

 *Examples of evaluating learning outcomes in relation to set learning outcomes are:*1. Explain the concept of engine control (regulation)? Explain the difference between the term ‘data’ and the term ‘information’ in control terms? What are the types of management control? State and explain the human reaction to control? List and explain at least two difficulties that may arise on board when making decisions in a risk situation? ...
2. What does the term Engineering Watch mean and what factors influence its structure? Who is responsible for setting up a Watch on the ship and in the engine room? In which cases may a Watch engineer/Officer not hand over the Watch to the Engineer/Officer replacing him? ...
3. List and explain the features of performing Engineering Watch in special circumstances and emergencies? In which cases must the Engineer on duty immediately inform the Chief Engineer? List and explain the features of the collaboration between the Engine officer on duty and the staff working on preventive maintenance in the Engine room? ...
4. State and explain the objectives of the ISM Code / (ISPS Code…)? State and explain the influence of the human factor in the implementation of code requirements?
5. Who is in charge of entering data in the Engine Logbook and what data is entered? For which works in the Engine room must a 'Hot Work Permit' be obtained? Who conducts the verification process and signs the 'Entry into Enclosed Space Permit'? What should a person who is in charge of being at the entrance of an enclosed space have to do at least if he notices that the person in the enclosed space has lost consciousness? ...
6. Explain how the risk assessment for certain events is approached and how the risk factor is calculated?
7. List and explain at least three principles of good leadership? What factors can influence crew attitudes and their performance? Explain the concept of ‘Safety working practice’ and requirements regarding the use of protective work equipment and resources?
8. List and explain at least two elements that include the analysis of the work of the crew on board? Explain why a response such as "I did not receive a report …" or "I did not say because no one asked me …" is considered completely unacceptable in terms of good communication?
9. Explain the basic elements that must be included in the preparation of the meeting? In what ways can a meeting be held? Who should be involved? How is the agenda prepared? How appropriate is the duration of the meeting? How can disagreements be resolved during the meeting? Who keeps the minutes and writes the report of the meeting? How is the conclusion made and what about those points about which it could not be made? What to do in cases where some participants do not agree with the conclusions of the meeting? ...
10. Explain what is the purpose of conducting exercises/drills/trainings on board? What is the name and where should be placed the list of emergency crew responsibilities, what is a 'Personal emergency responsibility card' and where it should be located? How often do exercises have to be conducted on board? Give some examples of exercises on board and explain how they are carried out? What emergency devices do Engine officers check every Saturday? Which devices in the lifeboat are regularly checked by Engine officers? Explain the term ‘quick-closing valves’ what are they for and where is the place of activation? If a CO2 engine fire extinguishing system is used on board, where it should be located, how can it be activated and what should be done before activating it? …
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| *1.10. Main Reading*  |  |  |
| 1. Teacher lectures - available in electronic form2. STCW Convention, (2010),3. SOLAS (ISM Code / ISPS Code) |
| *1.11. Recommended Reading*  |  |  |
| 1. Code of Safe Working Practices for Merchant Seamen, The Stationery Office Publications Center, London, 1998 - available in electronic form |
| *1.12. Number of Main Reading Examples*  |  |  |
| *Title*  | *Number of examples*  | *Number of students*  |
| 1-3 (electronic form) | unlimited | 90 |
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| *1.13. Quality Assurance*  |
| Course quality review carried in accordance with ISO 9001 system and European standards and guidance for quality assurance carried through on Maritime faculty. Student Success is evaluated, and corrective measure implemented yearly. |

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