**Course description**

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| **Generic information** | | | |
| Head of Course | Goran Vukelić | | |
| Course | Corrosion and protection of materials | | |
| Study Programme | Marine engineering | | |
| Type of Course | Elective | | |
| Year of Study | 3 |  | |
| Estimated Student Workload and Methods of Instruction | ECTS coefficient of Student Workload | | 4 |
| Number of Hours (L+E+S) | | 2+1+0 |

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| **1. GENERAL COURSE DESCRIPTION** | | | | | | | | |
| *1.1. Course Objectives* | | | | | | | | |
| To provide the student with the appropriate knowledge of corrosion and protection of materials prescribed by STCW and IMO Model Courses. | | | | | | | | |
| *1.2. Prerequisites for Course Registration* | | | | | | | | |
| None. | | | | | | | | |
| *1.3. Expected Learning Outcomes* | | | | | | | | |
| 1. Understanding the principles of corrosion.  2. Defining the forms of corrosion.  3. Understanding the consequences of the corrosion.  4. Recognizing different corrosion protection methods.  5. Applying adequate corrosion protection methods. | | | | | | | | |
| *1.4. Course Outline* | | | | | | | | |
| Introduction to material degradation and corrosion. Forms of corrosion: uniform, localized (pitting, crevice, filiform), galvanic, fretting, flow-assisted, intergranular, high-temperature, stress corrosion. Corrosion of different materials. Corrosion rate. Means of protection against corrosion: surface treatments, coatings, cathodic and anodic protection. Applications in maritime industry. | | | | | | | | |
| *1.5. Modes of*  *Instruction* | | Lectures  Seminars and workshops  Exercises  E-learning  Field work | | | Practical work  Multimedia and Network  Laboratory  Mentorship  Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| *1.6. Comments* | |  | | | | | | |
| *1.7. Student Obligations* | | | | | | | | |
| Attending the lectures and exercises (min. 70%), attending the assessment and exams, submitting results of assignments. | | | | | | | | |
| *1.8. Assessment1 of Learning Outcomes* | | | | | | | | |
| Course attendance | 0,5 | Class participation | 0,5 | Seminar paper | | 1 | Experiment |  |
| Written exam | 1 | Oral exam |  | Essay | |  | Research |  |
| Project |  | Continuous Assessment | 0,5 | Presentation | | 0,5 | Practical work |  |
| Portfolio |  |  |  |  | |  |  |  |

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

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| *1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam* | | | | |
| *According to the study rulebooks of University of Rijeka and Faculty of Maritime Studies:*   * *through continuous assessment during the semester (70% of learning outcomes)* * *through final exam (30% of learning outcomes (5-6)) with passing rate set at min. 50% of final exam points.*   *Examples of evaluation in correlation to learning outcomes:*  *1. Explain the principles of corrosion.*  *2. Define different forms of corrosion.*  *3. Explain the consequences of the corrosion.*  *4. State corrosion protection methods according to the material, corrosion form and application.*  *5. Apply adequate corrosion protection method.* | | | | |
| *1.10. Main Reading* |  | |  | |
| R.W. Revie, H.H. Uhlig: Corrosion and Corrosion Control, 4th Ed., Wiley, 2008 | | | | |
| *1.11. Recommended Reading* |  | |  | |
| B.N. Popov: Corrosion Engineering, Elsevier, 2015 | | | | |
| *1.12. Number of Main Reading Examples* |  | |  | |
| *Title* | *Number of examples* | | *Number of students* | |
| R.W. Revie, H.H. Uhlig: Corrosion and Corrosion Control | | 1 | | 10 |
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| *1.13. Quality Assurance* | | | | |
| According to ISO 9001 system set at Faculty of Maritime Studies, Rijeka. Once a year analysis of passing exam rate. Once a semester anonymous students online survey. | | | | |