**Course description**

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| **Generic information** |
| Head of Course | Assoc. prof. Irena Jurdana, PhD |
| Course | Computer network and protocols |
| Study Programme | Marine Electronic Engineering and Information Technology |
| Type of Course | elective |
| Year of Study | 2. |  |
| Estimated Student Workload and Methods of Instruction | ECTS coefficient of Student Workload | 4 |
| Number of Hours (L+E+S) | 30+15+0 |

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| **1. GENERAL COURSE DESCRIPTION** |
| *1.1. Course Objectives*  |
| The aim of this course is to acquire knowledge from the subject matter prescribed by the STCW Convention in the area of data transfer and computer networks. Special attention is paid to the understanding of local communication and computer networks and the application and maintenance of SW and HW local networks on ships. |
| *1.2. Prerequisites for Course Registration*  |
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| *1.3. Expected Learning Outcomes*  |
| 1. Describe the model of the communication system and information network model2. Explain the data processing systems 3. Describe the types and application of codes, analyse coding methods and line codes4. Understand the information network architecture5. Describe LAN, WLAN and VLAN6. Analyse access technology on the Internet Network7. List and compare the OSI model, TCP / IP and Internet, Ethernet and NMEA protocols8. Understand and explain the automatic telephone system on board |
| *1.4. Course Outline*  |
| History of digital communication. Introduction to computer networks, communication models, data transfer, types and applications of computer networks, network standards, the OSI architecture, the architecture of the Internet, transmission media, local area networks, TCP / IP model, NMEA protocol, data protection, monitoring and network management. Automatic telephone system on board. |
| *1.5. Modes of* *Instruction*  | [x] Lectures[ ]  Seminars and workshops [x]  Exercises [ ]  E-learning[ ]  Field work | [x]  Practical work [ ]  Multimedia and Network [ ]  Laboratory[ ]  Mentorship[ ]  Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *1.6. Comments*  | - |
| *1.7. Student Obligations*  |
| Regular attendance to lectures, to 1st and 2nd mid-term exam, presentation of exercises in the practical work session, final exam. |
| *1.8. Assessment1 of Learning Outcomes*  |
| Course attendance | 1,5 | Class participation |  | Seminar paper |     | Experiment |     |
| Written exam | 1 | Oral exam | 0,5 | Essay |     | Research |     |
| Project |     | Continuous Assessment | 1 | Presentation |     | 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*  |
| *The process of evaluating acquired learning outcomes is based on the regulation on University of Rijeka Studies and the regulation on Studying at the Faculty of Maritime Studies in Rijeka as follows:*• Through continuous assessment of knowledge during the course, 70% of the learning outcomes gained through the 1st mid-term exam - learning outcomes 1-4 (25%), 2nd mid-term exam - learning outcomes 5-8 (25%) are valued, including presentation of the practical task - learning outcomes 1-8 (10% in each mid-term exam); the student must achieve at least 50% points for each mid-term exam.• 30% of the learning outcomes (1-8) are evaluated in the final part of the exam (oral), with the student passing the final exam at least 50% of the points.Examples of learning outcomes in relation to the set learning outcomes are:1. Define and properly interpret and graphically show the communication system model2. Explain the advantages and disadvantages of analogue and digital communications3. Define the information network and specify the application of such networks in maritime industry4. Explain and describe the work principle of the data processing system 5. Summarise the types and application of codes, analyse coding methods and line codes6. Understand the information network architecture7. Compare and find the similarities of LAN, WLAN and VLAN8. Analyse Access Technology on the Internet Network9. Explain the application and compare OSI model, TCP / IP and Internet, Ethernet and NMEA protocols10. Explain the application and operation of the automatic telephone system on board. |
| *1.10. Main Reading*  |  |  |
| 1. Turk S.: Računarske mreže, Školska knjiga, Zagreb, 1991.
2. Bažant A. i ost., Osnovne arhitekture mreža, Element, Zagreb, 2004.
3. Pandžić I.S. i ost., Uvod u teoriju informacije i kodiranje, Element, Zagreb, 2007.
4. Srbljić S.: Uvod u teoriju računarstva, Element, Zagreb, 2007.
5. Reading material available on e – learning system - Merlin - (https://moodle.srce.hr)
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| *1.11. Recommended Reading*  |  |  |
| 1. Duck M., Read R.: Communication and Computer Networks, Pearson Education Limited, 2003.
2. Bažant A. i ost., Telekomunikacije-tehnologija i tržište, Element, Zagreb, 2007.
3. Reading material available on e – learning system - Merlin (https://moodle.srce.hr)
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| *1.12. Number of Main Reading Examples*  |  |  |
| *Title*  | *Number of examples*  | *Number of students*  |
| Turk S.: Računarske mreže, Školska knjiga, Zagreb, 1991. | 4 | 55 |
| Bažant A. i ost., Osnovne arhitekture mreža, Element, Zagreb, 2004. | 4 | 55 |
| Pandžić I.S. i ost., Uvod u teoriju informacije i kodiranje, Element, Zagreb, 2007. | 4 | 55 |
| Srbljić S.: Uvod u teoriju računarstva, Element, Zagreb, 2007. | 2 | 55 |
| Reading material available on e – learning system - Merlin (https://moodle.srce.hr) | - | 55 |
| *1.13. Quality Assurance*  |
| The quality of the study is constantly monitored in accordance with the ISO 9001 system implemented at the Faculty of Maritime Studies in Rijeka. An analysis of exams is made annually, and once in semester is conducted by anonymous student evaluation of teaching. |