**Course description**

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| **Generic information** |
| Head of Course | PhD Svjetlana Hess |
| Course | Operational Researches |
| Study Programme | Logistic and Management in Maritime Industry and Transport |
| Type of Course | Mandatory |
| Year of Study | 2. |  |
| Estimated Student Workload and Methods of Instruction | ECTS coefficient of Student Workload | 6 |
| Number of Hours (L+E+S) | 45+30+0 |

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| **1. GENERAL COURSE DESCRIPTION** |
| *1.1. Course Objectives*  |
| The main objective is to enable students to apply quantitative methods in business decision making. Acquisition of knowledge and techniques of quantitative methods in transport and logistics. Identifying specific logistical problem, collecting data, selecting and setting up the appropriate model, and obtaining results (manually and using a software package). Comprehensive analysis of the obtained results that will result in application in a real business environment, in the case where quantification and optimization of transport and logistics services is required. |
| *1.2. Prerequisites for Course Registration*  |
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| *1.3. Expected Learning Outcomes*  |
| 1. describe and interpret the basic principles of operational research methods
2. define a specific problem in transport / logistics
3. determine the criteria and way of making business decisions for logistical problems
4. collect data and set up a model for individual real problem and determine an appropriate method for solving and finding the optimal solution
5. solve real problem from traffic / logistics by applying one of the appropriate methods that were learned during the class
6. interpret the solution or perform a post-optimal analysis
7. compare the obtained results and choose the optimal solution with regard to the set criteria and constraints
8. use the obtained results in practice
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| *1.4. Course Outline*  |
| Application of quantitative methods in business decision making. Linear programming. Transport problems. Assignment problem. Application of the mentioned methods on specific practical problems in transport / logistics. |
| *1.5. Modes of* *Instruction*  | [x] Lectures[ ]  Seminars and workshops [x]  Exercises [ ]  E-learning[ ]  Field work | [x]  Practical work [ ]  Multimedia and Network [x]  Laboratory[ ]  Mentorship[ ]  Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| *1.6. Comments*  |       |
| *1.7. Student Obligations*  |
| Colloquia and assignments, continuous assessment during classes and final exam. |
| *1.8. Assessment1 of Learning Outcomes*  |
| Course attendance | 2.5 | Class participation | 0.5 | Seminar paper |     | Experiment |     |
| Written exam | 1 | Oral exam |     | Essay |     | Research |     |
| Project |     | Continuous Assessment | 2 | Presentation |     | Practical work |  |
| Portfolio |     |  |     |  |     |  |     |
| *1.9. Assessment of Learning Outcomes and Examples of Evaluation during Classes and on the Final Exam*  |
| *Evaluation procedure*: 70% of the grade through exams for students' continuous monitoring/assessment and 30% of the grade through final exam, ie continuous assessment through 2 exams and 4 test assignments and final exam (written): checking the understanding of total acquired knowledge in the field of quantitative methods and their application to specific transport or logistics problems.*Valuation examples*:1. list and define each of the studied methods of operational research
2. define any arbitrary traffic problem that could be solved using one of the quantitative methods
3. determine the appropriate criteria for the specified problem
4. set one practical problem, describe how you will collect the data, set up a model and determine the appropriate method of solving and finding the optimal solution
5. solve the problem applying the appropriate methods learned during class
6. interpret the solution and perform a post-optimal analysis
7. compare the obtained results and choose the optimal solution according to the set and constraints
8. explain the way in which the obtained results can be used in practice
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| *1.10. Main Reading*  |  |  |
| * Brajdić, I., Matematički modeli i metode poslovnog odlučivanja, Fakultet za menadžment u turizmu i ugostiteljstvu, Opatija, 2013.
* Barković, D., Operacijska istraživanja, Ekonomski fakultet, Osijek, 2001.
* Zenzerović, Z., Operacijska istraživanja, Zbirka zadataka, Fakultet za pomorstvo i saobraćaj, Rijeka, 1983
 |
| *1.11. Recommended Reading*  |  |  |
| * Pašagić, H., Matematičke metode u prometu, Fakultet prometnih znanosti, Zagreb, 2003.
* Babić, Z., Linearno programiranje, Ekonomski fakultet u Splitu, Split, 2010.
* Kalpić, D., Mornar, V., Operacijska istraživanja, Fakultet elektrotehnike i računarstva, Zagreb, 1996.
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| *1.12. Number of Main Reading Examples*  |  |  |
| *Title*  | *Number of examples*  | *Number of students*  |
| Barković, D., Operacijska istraživanja, Ekonomski fakultet, Osijek, 2001. | 5 | 70 |
| Brajdić, I., Matematički modeli i metode poslovnog odlučivanja, FMTU, Opatija, 2013. | 5 | 70 |
| Zenzerović, Z., Operacijska istraživanja, Zbirka zadataka, Fakultet za pomorstvo i saobraćaj, Rijeka, 1983. | 5 | 70 |
| *1.13. Quality Assurance*  |
| The studying quality is monitored following the ISO 9001 system, as well as European standards and guidelines for quality assurance, carried out at the Faculty of Maritime Studies, University of Rijeka. Analysis of exam passing is done once a year, and once a semester a survey is conducted among students. |

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.