**Course description**

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| **Generic information** |
| Head of Course | Associate proffesor Biserka Draščić Ban, PhD |
| Course | Statistics |
| Study Programme | Technology and Organization of Transport |
| Level | Undergraduate degree programme |
| Type of Course | Mandatory |
| Year of Study | first |  |
| Estimated Student Workload and Methods of Instruction | ECTS coefficient of Student Workload | 5 |
| Number of Hours (L+E+S) | 2+2 |

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| **1. GENERAL COURSE DESCRIPTION** |
| *1.1. Course Objectives*  |
|  The main course objective is to teach the students how to apply statistical methods to determine the natural laws of the observed traffic phenomena. |
| 1.2. Prerequisites for Course Registration  |
| none |
| *1.3. Expected Learning Outcomes*  |
| 1. To recognize the meaning and the task of statistics and the phases of statistical analysis
2. To recognize and analyze different kinds of data sets and their characteristics
3. To explain the terms of random variables and probability distributions
4. To differe the theoretical probability distributions, and connect them with empirical ones
5. To describe the sampling method and, by using the estimation methods and statistical testing on a random sample, make some conclusions about the population
6. To recognize the Chi-Square Test
7. To interpret the terms of correlation and regression
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| *1.4. Course Outline*  |
| The meaning and the task of statistics. Graphical methods in data analysis. Relative numbers. Numerical data analysis. Random variables. Theoretical distribution functions. Chi-Square Test. Sampling method. Time series analysis. Correlation and regression. |
| *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*  |
| Taking classes regularly and doing homework assignments. |
| *1.8. Assessment1 of Learning Outcomes*  |
| Course attendance | 2 | Class participation | 0,5 | Seminar paper |     | Experiment |     |
| Written exam |     | Oral exam | 1 | Essay |     | Research |     |
| Project |     | Continuous Assessment | 1,5 | 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*  |
| Assessment of learning outcomes is done by conducting three partial written tests and by final exam (oral exam). Examples:Written exam:1. (outcome 2) In period from 2010. until 2017. a certain mass phenomenon has been investigated and the following data was collected:

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| Year |  Y |  |
| 2010 | 5565 |  |
| 2011 | 5334 |  |
| 2012 | 4734 |  |
| 2013 | 4690 |  |
| 2014 | 4497 |  |
| 2015 | 4356 |  |
| 2016 | 4172 |  |
| 2017 | 3359 |  |

* 1. Find the average number of occurences per year?
	2. Determine the curve of the linear trend (with the origin in the center of the time period) and by it calculate the number of occurences that is expected in 2020.
1. (outcome 5) A statistical feature X has mean 9,72 and standard deviation 1,4. A sample of 36 statistical units gave the mean 8,93 . Is the difference between means statistically significant with the risk of 5%?

Oral exam questions:1. (outcome 2) Make an example for attributive, numerical and time series, and for every one of them name the statistical indicators that can be calculated.
2. (outcomes 3 and 4) Say what is the probability of a certain, and of an impossible event. Name a few continuous probability distribution and a few discrete ones, and for every of them write down the DF.
3. (outcome 6) How (meaning by which statistical test) can we determine the correspondence of some empirical PD with a certain theoretical PD? Describe the procedure.
4. (outcome 7) Explain the meaning of the correlation and regression.
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| *1.10. Main Reading*  |  |  |
| 1. Z. Zenzerović, Statistički priručnik, Pomorski fakultet u Rijeci, Rijeka, 2004.
2. I. Šošić-V.Serdar, Uvod u statistiku, Školska knjiga, Zagreb, 2002.
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| *1.11. Recommended Reading*  |  |  |
| 1. Z. Zenzerović, Statističke metode u tehnologiji prometa, Fakultet za pomorstvo i saobraćaj, Rijeka, 1988.
2. T. Pogány-Z. Zenzerović, Statističke tablice s uputama za primjenu, Pomorski fakultet u Rijeci, Rijeka, 1993.
3. J. Čaval, Statističke metode u privrednim i društvenim istraživanjima, Sveučilište u Rijeci, Rijeka, 1981.
4. I.Šošić, Zbirka zadataka iz statistike, Mikrorad, Ekonomski fakultet, Zagreb, 1998.
 |
| *1.12. Number of Main Reading Examples*  |  |  |
| *Title*  | *Number of examples*  | *Number of students*  |
| Z. Zenzerović, Statistički priručnik, Pomorski fakultet u Rijeci, Rijeka, 2004 | 9 | 80 |
| I. Šošić-V.Serdar, Uvod u statistiku, Školska knjiga, Zagreb, 2002. | 5 | 80 |
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| *1.13. Quality Assurance*  |
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