

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Mathematics				
Head of course	MSc Mirta Mataija, Senior Lecturer				
Study programme	Professional undergraduate study Road Transport				
Status of a course	Obligatory				
Year of study	1.	Semester	I	ECTS credits	8
Teaching plan (L + E + S+ Pr)	4+3+0+0				
Goals of a course					
Introduce students to the basic concepts of linear algebra and mathematical analysis: the function of a single variable and an infinitesimal calculus, and to prepare students for their practical application. Develop an analytical way for students to solve problems.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
Outcome 1: Use mathematical and statistical methods in traffic engineering and traffic research.					
Expected learning outcomes on a level of a course					
1. Apply the basics of mathematical analysis to a single variable function. 2. Explain concepts from the basics of mathematical analysis. 3. Solve problems from infinitesimal calculus. 4. Solve problems from the area of the basics of linear algebra. 5. Explain concepts from the basics of linear algebra.					
Content of a course					
Sets and number sets N, Z, Q, R, C. Notion of a matrix and some special forms of matrices. Mathematical operations with matrices determinants. Linear equations systems. Presentation of the system in the matrix form. Methods of system solving and conditions of solubility. Definition of vectors. Addition and subtraction of vectors. Multiplying of vectors by a scalar. Vectors in rectangular co-ordinate system. Scalar, vector and mixed product of multiplication of vectors. Notion of a function. Composition of functions. Inversion function. Basic functions and their graphic presentation. Notion of a series. Boundary value of a series. Convergence and divergence. Boundary value and continuity of a function. Definition of derivation. Geometric and kinematical meaning of derivation. Differential of a function. Rules of derivation. Derivations of basic functions. Derivations of higher level. L'Hospital's Rule. Extreme values of a function and application. Definition and features of undefined integral. Integration methods. The notion of a defined integral. Connection between defined and undefined integral. Application of defined integral.					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
Comments					
Students' obligations					
Grading, evaluation and monitoring of students' work continuously during lectures and exams					

Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.

Continuous check-up:

Outcomes	Pre-exam I	Pre-exam 2	Oral exam 1	Oral exam 2	Home assignment	Threshold	Max
Outcome 1	7		8		5	10	20
Outcome 2			6	4	5	8	15
Outcome 3	12	8	3	2	5	15	30
Outcome 4		10			10	10	20
Outcome 5				10	5	7	15
Percentage of ECTS	1,52	1,44	1,36	1,28	2,4		
Total	19%	18%	17%	16%	30%	50 %	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Oral exam	Max
Outcome 1	10	5	15
Outcome 2	10	20	30
Outcome 3	15	5	20
Outcome 4	15	5	20
Outcome 5	5	10	15
Percentage of ECTS	4.4	3.6	
Total	55%	45%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

Obligatory literature

1. Štambuk Ljubica, Matematika, Veleučilište u Rijeci, Rijeka, 2007.
2. Štambuk, Lj., Peranić, Z., Mataija M., Matematika zbirka zadataka s riješenim primjerima, Veleučilište u Rijeci, Rijeka, 2008.
3. Mataija, M., Gligora Marković, M., Rakamarić Grlica, M., Zbirka ispitnih zadataka, Veleučilište u Rijeci, Rijeka 2014.

Additional literature

1. Štambuk Ljubica, Elementarna matematika kroz formule, primjere i zadatke, Veleučilište u Rijeci, Rijeka, 2008.
2. Minorski V.P., Zbirka zadataka više matematike, Tehnička knjiga, Zagreb, sva izdanja
3. Demidovič B.P., Zbirka zadataka iz matematičke analize, Tehnička knjiga, Zagreb, sva izdanja

4. Apsen, B. Repetitorij elementarne matematike, Tehnička knjiga, Zagreb, sva izdanja

