

### DESCRIPTION OF A STUDY COURSE – SYLLABUS

<b>Title of a course</b>	<b>Business Mathematics</b>				
<b>Head of course</b>	<b>MSc Mirjana Rakamarić Grlica, Senior Lecturer</b>				
<b>Study programme</b>	<b>Professional undergraduate study Information Science</b>				
<b>Status of a course</b>	Obligatory				
<b>Year of study</b>	1	<b>Semester</b>	I	<b>ECTS credits</b>	6
<b>Teaching plan (L + E + S+ Pr)</b>	3L+2E				
<b>Goals of a course</b>					
Introduce students to the basic concepts of linear algebra, the function of a single variable, and financial mathematics. Prepare students for their application.					
<b>Conditions for enrolling course</b>					
No conditions					
<b>Learning outcomes on a level of a study programme which includes course</b>					
Outcome 11: Apply mathematical and statistical methods in information science. Outcome 12: Apply engineering methods and principles in information science.					
<b>Expected learning outcomes on a level of a course</b>					
<ol style="list-style-type: none"> <li>1. Apply the basics of mathematical analysis to a single variable function.</li> <li>2. Solve problems from the basics of financial mathematics.</li> <li>3. Solve problems from the basics of linear algebra.</li> <li>4. Explain concepts from the basics of mathematical analysis, the basics of financial mathematics and the basics of linear algebra.</li> </ol>					
<b>Content of a course</b>					
<p>Basic symbols of mathematical logic. Set, operations with set. Set of numbers. Cartesian product of sets. Relations. Binary relations. Concept, mode of defining functions and their characteristics. Elementary functions. Concept of the natural domain of function. Composition of functions. Drawing graphs of certain functions. Repeating-proportionality. Percentage and promille calculi. Percentage calculi of hundred, more than and lower than hundred. Interest calculus: simple and compound; decursive and anticipated. Nominal, relative and equivalent interest rate. Periodic payment and disbursement. Present and final value of periodic payment and disbursement. Loan. Loan conversion. Concept of matrix and some special forms of matrix. Mathematical operations with matrixes. Determinants. Characteristics of determinants. Concept of sub-determinant and algebra complement. Inverse matrix. System of linear equations. Representation of the system in a matrix form. Representation of the system in a matrix form. Methods of calculating linear equations system: matrix method and Gaussian method of elimination. System solution conditions. Kronecker-Capelli theorem.</p>					
<b>Teaching modes</b>	<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 _____		
<b>Comments</b>					
<b>Students' obligations</b>					
<b>Grading, evaluation and monitoring of students' work continuously during lectures and exams</b>					
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	Test 1	Test 2	Threshold	Max
Outcome 1	20 %				10%	20
Outcome 2	14 %	14 %			14%	28
Outcome 3		22 %			11%	22
Outcome 4			10%	20 %	15%	30
Percentage of ECTS	2,04	2,16	0,6	1,2		6
Total	34 %	36 %	10 %	20 %	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	20 %		20 %
Outcome 2	28 %		27 %
Outcome 3	22 %		23 %
Outcome 4		30 %	30 %
Percentage of ECTS	4,2	1,8	6
Total	70 %	30 %	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 Lj.: Poslovna matematika 1, Karlovac, 2006.
2. Mirta Mataija, Maja Gligora M., Mirjana Rakamarić Š.: MATEMATIKA Zbirka ispitnih zadataka

#### Additional literature

1. Šorić K.: Zbirka zadataka iz matematike sa primjenom u ekonomiji
2. Relić B.: Gospodarska matematika, Zagreb 2002.
3. Other textbooks and collections covering the topics covered in the course.



