



## SYLLABUS

<b>Basic information of the course</b>	
<b>University:</b>	<b>University “Ukshin Hoti” - Prizren</b>
<b>Academic unit:</b>	<b>Faculty of Computer Science</b>
<b>Study program:</b>	<b>Information and Telecommunication Technologies</b>
<b>Course:</b>	<b>Mathematics I</b>
<b>Study level:</b>	<b>Bachelor</b>
<b>Course status:</b>	<b>Mandatory</b>
<b>Study year:</b>	<b>1</b>
<b>Number of hours per week:</b>	<b>2+2</b>
<b>Credit value - ECTS:</b>	<b>6</b>
<b>Time / location:</b>	<b>It will be published in the university web site!</b>
<b>Lecturers:</b>	<b>Assoc. Prof. Dr. Ismet Temaj Ass. Rigon Sallauka, Ph. D. c.</b>
<b>Contact details:</b>	<b>ismet.temaj@uni-prizren.com rigonsallauka@gmail.com</b>
<b>Course description:</b>	<p>This course contains basic mathematics and it enables students to better understand elementary mathematical notions so they can easily apply them to other courses.</p> <p>This course consists of the following topics: Sets and operations on sets, numerical sets (the set of real numbers). Mapings and their properties (the composition of two mappings and its properties), some characteristic functions. Linear equations (linear inequalities) in one variable, and their applications. Quadratic equation and quadratic mapping; quadratic inequalities and their applications to business and economics. Exponential mappings, exponential equations and inequalities and their applications. Logarithms and their properties. Logarithmic functions and their graphs. Logarithmic equations and inequalities and their applications. Plane trigonometry.</p>
<b>Course objectives:</b>	The main goal of this course is to introduce some basic mathematics to students of first year of study,

	so they can be able to easily apply these basic mathematical tools to solving real life problems and to other mathematics courses.		
<b>Learning outcomes:</b>	<p>After successfully completing this course students will be able to:</p> <ul style="list-style-type: none"> <li>- Easily use the mathematics notions from this course to other courses and in solving real life problems.</li> <li>- Apply the notions from this course to convert different economics or financial problems into a mathematical problem (model), solve them mathematically, and economically or financially interpret the obtained solutions.</li> <li>- Apply the mathematical tools form this course to analyzing the complexity of a given algorithm.</li> <li>- Analyze different cases of a given real life problem, so they can find an optimal solution to it.</li> <li>- Clearly express their mathematical ideas orally and in a written form.</li> </ul>		
<b>Contribution on student load (must correspond with learning outcomes)</b>			
<b>Activity</b>	<b>Hours</b>	<b>Days/week</b>	<b>Total/hours</b>
Lectures	2	15	30
Exercise theoretical/laboratory	2	15	30
Practice work	-	-	-
Contact with lecturer/consultations	1	4	4
Field exercises	-	-	-
Midterms	6	2	12
Laboratory exercises	5	1	5
Individual time spent studying (at the library or home)			50
Final preparation for the exam	15	1	15
Time spent in evaluation (tests, quiz, final exam)	2	2	4
Projects, presentations, etc.	-	-	-
<b>Total</b>			<b>150</b>
Notice: 1 ECTS credits = 25 hours commitment, e.g. if the course has 6 ECTS credits student must have 150 hours during the semester.			
<b>Teaching methods:</b>	The course is a combination of lectures, discussions, numerical and laboratory exercises, while the		

	<p>assignments are presented by the laboratory course lecturers!</p>
<p><b>Assessment methods:</b></p>	<ul style="list-style-type: none"> <li>- A Periodic tests.</li> <li>- Homework and seminar work.</li> <li>- Activity.</li> <li>- Final exam.</li> </ul> <p><b>Periodic tests</b> Two tests, each with maximum points 60; Exams are in writing.</p> <p><b>Homework and seminar work</b> There will be two homework problems (which will be evaluated), one in the period before the first test and one before the second test. They will be problems of the same type as those to be done in exercises. The deadline for submission will be one week. The maximum number of points for each problem is 10 points. Problems are not mandatory. Those who do not choose will have zero points.</p> <p><b>Activity</b> During exercises regularly, and in lectures occasionally will be given problems to solve independently. Students who are successful in solving these problems receive 5 points for each problem. The maximum number of points that can be collected in this section is 20. With 10 points collected, students will have the option of exemption from the final exam.</p> <p><b>Final exam</b> The exam is oral; verifies the understanding of the content discussed in the lectures. The requirement to enter the final exam is a total of at least 50 points collected in two tests, homework and classroom activities. The maximum number of points possible to get to the final exam is 40 points. Students who through classroom activities collect at least 10 points are not required to enter the final exam, but can take grades based on two periodic</p>

	tests, tasks and classroom activity.	
	<p><b>Improvement Exam</b> Improvement of points can be done mostly in one of the tests or the final exam. After the second test, students can choose which test they want to improve their score.</p> <p>Students who are not satisfied with the outcome of the final exam and who have not been subjected to the corrective test as above may enter the final exam test. This test will be at the same time the final exam for students who have requested an upgrade test in one of the two periodic tests.</p>	
	<p><b>Final grade</b> Points will be collected from the first test (max 60 points), the second test (max 60 points), the homework (max 20 points), the classroom activity (max 20 points) and the final exam (max 40 points). (Students who are exempt from the final exam will only collect points from the first four components.</p>	
<b>Assessment and grading:</b>	<b>Vlerësimi në %</b>	<b>Nota përfundimtare</b>
	91% - 100%	10
	81% - 90%	9
	71% - 80%	8
	61% - 70%	7
	51% - 60%	6
	0% - 50%	5
<b>Literature</b>		
<b>Basic literature:</b>	<ol style="list-style-type: none"> <li>1. K.H. Bllaca: Matematika I (shënimet e ligjëratave).</li> <li>2. R. Limani: Kursi i matematikës elementare (dispencë).</li> </ol>	
<b>Additional literature:</b>	<ol style="list-style-type: none"> <li>1. Terry H. Wesner, Harry L. Nustad: Intermediate Algebra with applications, WCB Group 1991.</li> <li>2. Dr. M. Efendija, dr. Q. Haxhibeqiri, R. Limani: Matematika 11 për gjimnazet e drejtimit Matematikë-Informatikë.</li> </ol>	
<b>Study plan</b>		
<b>Week</b>	<b>Lectures</b>	
<i>First week:</i>	<ul style="list-style-type: none"> <li>• Introducing the syllabus of the course to the students and informing them for all academic procedures.</li> </ul>	

<b>Second week:</b>	<ul style="list-style-type: none"> <li>• Sets and set operations.</li> </ul>
<b>Third week:</b>	<ul style="list-style-type: none"> <li>• Mappings and their application to computer science.</li> </ul>
<b>Fourth week:</b>	<ul style="list-style-type: none"> <li>• Mapping composition and its properties. Some characteristic mappings (absolute value, sgn function, floor and ceiling functions).</li> </ul>
<b>Fifth week:</b>	<ul style="list-style-type: none"> <li>• Linear equations and inequalities in one variable.</li> </ul>
<b>Sixth week:</b>	<ul style="list-style-type: none"> <li>• Quadratic and biquadratic equations in one variable.</li> </ul>
<b>Seventh week:</b>	<ul style="list-style-type: none"> <li>• Quadratic functions in one variable.</li> </ul>
<b>Eighth week:</b>	<ul style="list-style-type: none"> <li>• Applications of quadratic functions.</li> </ul>
<b>Ninth week:</b>	<ul style="list-style-type: none"> <li>• The first midterm</li> </ul>
<b>Tenth week:</b>	<ul style="list-style-type: none"> <li>• Quadratic inequalities in one variable.</li> </ul>
<b>Eleventh week:</b>	<ul style="list-style-type: none"> <li>• Exponential functions. Exponential equations and inequalities.</li> </ul>
<b>Twelfth week:</b>	<ul style="list-style-type: none"> <li>• Logarithms and their properties. Logarithmic equations and inequalities Logarithmic functions..</li> </ul>
<b>Thirteenth week:</b>	<ul style="list-style-type: none"> <li>• Units for measuring angles. Trigonometric functions of an acute angle to a rightangle triangle.</li> </ul>
<b>Fourteenth week:</b>	<ul style="list-style-type: none"> <li>• Trigonometric circle and trigonometric functions of an arbitrary angle. Main trigonometric formulae and their applications to solving different problems.</li> </ul>
<b>Fifteenth week:</b>	<ul style="list-style-type: none"> <li>• The second midterm</li> </ul>

## Exercises

Study plan	
Java	Exercises
<b>First week:</b>	<ul style="list-style-type: none"> <li>• Introducing the syllabus of the course to the students and informing them for all academic procedures.</li> </ul>
<b>Second week:</b>	<ul style="list-style-type: none"> <li>• Sets and set operations.</li> </ul>
<b>Third week:</b>	<ul style="list-style-type: none"> <li>• Mappings and their application to computer science.</li> </ul>
<b>Fourth week:</b>	<ul style="list-style-type: none"> <li>• Mapping composition and its properties. Some characteristic mappings (absolute value, sgn function, floor and ceiling functions).</li> </ul>
<b>Fifth week:</b>	<ul style="list-style-type: none"> <li>• Linear equations and inequalities in one variable.</li> </ul>
<b>Sixth week:</b>	<ul style="list-style-type: none"> <li>• Quadratic and biquadratic equations in one variable.</li> </ul>
<b>Seventh week:</b>	<ul style="list-style-type: none"> <li>• Quadratic functions in one variable.</li> </ul>
<b>Eighth week:</b>	<ul style="list-style-type: none"> <li>• Applications of quadratic functions.</li> </ul>
<b>Ninth week:</b>	<ul style="list-style-type: none"> <li>• The first midterm</li> </ul>
<b>Tenth week:</b>	<ul style="list-style-type: none"> <li>• Quadratic inequalities in one variable.</li> </ul>
<b>Eleventh week:</b>	<ul style="list-style-type: none"> <li>• Exponential functions. Exponential equations and inequalities.</li> </ul>
<b>Twelfth week:</b>	<ul style="list-style-type: none"> <li>• Logarithms and their properties. Logarithmic equations and inequalities Logarithmic functions..</li> </ul>
<b>Thirteenth week:</b>	<ul style="list-style-type: none"> <li>• Units for measuring angles. Trigonometric functions</li> </ul>

	of an acute angle to a rightangle triangle.
<i>Fourteenth week:</i>	<ul style="list-style-type: none"> <li>• Trigonometric circle and trigonometric functions of an arbitrary angle. Main trigonometric formulae and their applications to solving different problems.</li> </ul>
<i>Fifteenth week:</i>	<ul style="list-style-type: none"> <li>• The second test</li> </ul>

<b>Academic policies and rules of conduct</b>	
<ul style="list-style-type: none"> <li>• Generally lecture presentations will be made through MS PowerPoint, tables, material usage, computer programs and numeric exercises.</li> <li>• Additional resources (scientific papers, publications, national bulletins, as well as recent discoveries and research) will be provided by professors.</li> <li>• In the absence of the opportunity for practical work to be organized weekly, in cooperation with the management of the university, this activity will be organized on certain days in: organizations, companies, etc.</li> <li>• During each session will be organized the conversation and co-participation with the students!</li> <li>• Students are required to be regular in lectures and exercises!</li> <li>• It will be evaluated when the students collaborate and participate in the lectures and course exercises!</li> <li>• Timely arrival in lectures and exercises is mandatory!</li> </ul>	