Identification	**Subject**	Math 224, Mathematics for elementary teachers-2, 6 ECTS
	Department	Mathematics
	Program	Undergraduate
	Term	Fall, 2025
	Instructor	Ph.D. Aida Asgarova
	E-mail:	aidaasgarova@gmail.com aida.asgarova@khazar.org
	Phone:	
	Classroom/hours	Friday: 14:10-15:40, 15:50-17:20
Prerequisites	Math-223, Mathematics for elementary teachers-1	
Language	English	
Compulsory/Elective	Required	
Required textbooks and course materials	***Core Textbooks:*** **1. International Mathematics for Middle year 4 --- Alan McSeveny, Rob Conway, Steve Wilkes, Michael Smith 2009** **2. Complete math for Cambridge IGCSE--- David Rayner, Ian Bettison, Mathew Taylor 2018**	
Course website		
Course outline	This course provides a foundational understanding of essential mathematical concepts including sets, equations, geometry, and introductory statistics. Students will explore the principles of algebra through linear and quadratic equations, ratios, and proportions, while gaining geometric intuition through the study of angles, triangles, and coordinate geometry. The course also introduces fundamental vector operations and data analysis techniques.	
Course objectives	By the end of the course, students will: o Develop a solid understanding of algebraic operations and equation solving techniques. o Apply geometric concepts involving angles, triangles, and coordinate planes. o Work with ratios, proportions, and percentages in practical contexts. o Analyze and interpret data using basic statistical tools. o Perform basic operations with vectors in two dimensions. o Strengthen logical thinking and mathematical communication skills.	
Learning outcomes	Upon successful completion of this course, students will be able to: o Define and perform operations on sets, and apply set theory to solve basic problems. o Solve linear and quadratic equations using various algebraic techniques. o Apply knowledge of ratios, proportions, and percentages to real-life problems. o Identify and analyze angle relationships formed by parallel lines and transversals. o Classify triangles and apply triangle theorems to solve geometric problems. o Formulate and solve equations with one variable, and interpret their solutions. o Solve systems of linear equations using substitution, elimination, and graphical methods. o Plot points, lines, and vectors in the coordinate plane; compute vector magnitudes and directions. o Summarize data using measures of central tendency and variability. o Interpret basic statistical graphs and make informed decisions based on data.	

<table>
<tr><td rowspan="8">Teaching methods</td><td colspan="2">Lecture</td><td>x</td></tr>
<tr><td colspan="2">Group discussion</td><td>x</td></tr>
<tr><td colspan="2">Experiential exercise</td><td>x</td></tr>
<tr><td colspan="2">Simulation</td><td></td></tr>
<tr><td colspan="2">Case analysis</td><td></td></tr>
<tr><td colspan="2">Course paper</td><td>x</td></tr>
<tr><td colspan="2">Others</td><td></td></tr>
<tr><td rowspan="10">Evaluation</td><td>Methods</td><td>Date/deadlines</td><td>Percentage (%)</td></tr>
<tr><td>Midterm Exam</td><td></td><td>30</td></tr>
<tr><td>Case studies</td><td></td><td></td></tr>
<tr><td>Class Participation</td><td></td><td>5</td></tr>
<tr><td>Quizzes</td><td></td><td>20 (3 quizzes)</td></tr>
<tr><td>Activity</td><td></td><td>5</td></tr>
<tr><td>Laboratory work</td><td></td><td></td></tr>
<tr><td>Final Exam</td><td></td><td>40</td></tr>
<tr><td>Others</td><td></td><td></td></tr>
<tr><td>Total</td><td></td><td>100</td></tr>
<tr><td>Policy</td><td colspan="3">

Preparation for class

The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions.
Throughout the semester we will also have a large number of review sessions. These review sessions will take place during the regularly scheduled class periods.

Quizzes and examinations

Quizzes may be given unannounced throughout the term. There will be no make-up quizzes.

Withdrawal (pass/fail)

This course strictly follows grading policy of the School of Engineering and Applied Science. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year.

Cheating/plagiarism

Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations.

Professional behavior guidelines

The students shall behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited.

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	Use of any electronic devices is prohibited in the classroom. All devices should be turned off before entering class. This is a university policy and violators will be reprimanded accordingly! Students should not arrive in late to class!

Tentative Schedule

Week	Date/Day (tentative)	Topics	Textbook/ Assignments
1	19.09.25 19.09.25	• Sets • Operations on sets	**[2] 280-288**
2	26.09.25 26.09.25	• Natural Numbers • Problem solving	**Online resources**
3	03.10.25 03.10.25	• Quadratic Equations • Problems solved by quadratic equations	**[2] 87-93**
4	10.10.25 10.10.25	• Ratio, proportion, percent • Problem solving	**[2] 21-35**
5	17.10.25 17.10.25	• Angles, parallel lines • Problem solving	**Quiz (6 pts)** **[1] 294-299**
6	24.10.25 24.10.25	• Real numbers • Problem solving	**[1] 115-134**
7	31.10.25 31.10.25	• Triangles • Problem solving	**[2] 104-107**
8	07.11.25 07.11.25	• Simplifying expressions, special products • Problem solving	**[1] 175-178**
9	14.11.25 14.11.25	• **Midterm Exam** • Circle; Problem solving	**[2]108-117, 158-165**
10	21.11.25 21.11.25	• Speed, distance and time. Mixed problems • Problem solving	**Quiz (7 pts)** **[2]67-76,115-134**
11	28.11.25 28.11.25	• System of equations • Problem solving	**[1] 244-261**
12	05.12.25 05.12.25	• Quadrilaterals • Problem solving	**[2] 310-324**
13	12.12.25 12.12.25	• Transformations, enlargement • Problem solving	**Quiz (7 pts)** **[1] 200-233**
14	19.12.25 19.12.25	• Coordinate plane. Vectors • Problem solving	**[2] 232-262**
15	26.12.25 26.12.25	• Statistics • Problem solving	**[1] 468-482**
	TBA	**Final Exam**	

This syllabus is a guide for the course and any modifications to it will be announced in advance.