



<b>TITLE OF THE COURSE:</b>	DISCRETE MATHEMATICS
<b>Course code:</b>	MAT2004
<b>Course group:</b>	C
<b>Faculty:</b>	Faculty of Informatics
<b>Study program:</b>	Mathematics and its Application
<b>Level:</b>	<u>Bachelor's</u>
<b>Semester:</b>	<u>Autumn</u>
<b>ECTS credits:</b>	6
<b>Language of instruction</b>	English
<b>Course lecturer/s:</b>	Simona Staskevičiūtė
<b>Short course description:</b>	<p>This course includes fundamentals of discrete mathematics: countable sets, principle of mathematical induction, combinatorial analysis, binomial coefficient identities, principle of sieve, number of surjections, Stirling, Bell and Fibonacci numbers, forward difference operator, ordinary and exponential generating functions, theory of recurrence relations, Taylor coefficients of composite functions, basic concept of graph theory and mathematical logic.</p>
<b>Course content:</b>	<ol style="list-style-type: none"><li>1. Countable sets</li><li>2. Principle of mathematical induction</li><li>3. Combinatorial analysis</li><li>4. Binomial coefficient identities</li><li>5. Principle of sieve</li><li>6. Number of surjections</li><li>7. Stirling and Bell numbers</li><li>8. Forward difference operator</li><li>9. Ordinary generating function</li><li>10. Exponential generating function</li><li>11. Theory of recurrence relations</li><li>12. Fibonacci numbers</li><li>13. Taylor coefficients of composite functions</li><li>14. Basic concept of graph theory</li><li>15. Mathematical logic</li></ol>



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<b><i>Grading and evaluating student work in class and/or at the final exam:</i></b>	Final written exam (50%), mid-term written exam (25%), assessment of practical work (25%).
<b><i>Required reading and additional study material</i></b>	<ol style="list-style-type: none"><li>1. Cameron P.J., Combinatorics: Topics, Techniques, Algorithms, 1996, Cambridge University Press.</li><li>2. Rosen, Kenneth H., Discrete mathematics and its applications, 2007, Boston.</li></ol>
<b><i>Additional information (if applicable)</i></b>	