



**Discrete mathematics and logic (SE-024)**  
(DISKREETNE MATEMAATIKA JA LOOGIKA)

**SUBJECT DESCRIPTION**

<b>Credits (ECTS)</b>	5.00 ECTS
<b>Assessment</b>	grading
<b>Aim of the subject and short description</b>	
Number systems. Binary hexadecimal system. Classical logics. Propositional calculus. Predicate calculus. Derivative systems. Mathematical logic. Mathematical induction. Undecidable problems. Non-completeness of arithmetic. Non-classical logic. Application of logic. Set theory. Basic operations of set theory and their properties. Set theory as analogue for mathematical logic. Basics of graph theory. Complexity. Combinatorics. Automata.	
<b>Learning outcomes:</b>	
Student: <ol style="list-style-type: none"><li>1. Knows basic laws of mathematical logic and can apply them in formula manipulations</li><li>2. Can represent functions of mathematical logic in standard form</li><li>3. Knows algorithms of minimization of standard forms</li><li>4. Can apply functions of mathematical logic in analysis of digital circuits</li><li>5. Knows basic laws of set theory and can apply them in transformation of set theory expressions</li><li>6. Is able to handle set theory as an analogue of mathematical logic</li><li>7. Knows fundamental concepts of graph theory and can apply them in solving of basic tasks in the field of graph theory</li></ol>	