

DISCRETE MATHEMATICS

Title of Study Programme and Code		Type (compulsory/optional)	Cycle	Year of study when the component is delivered (if applicable)
Information Systems Engineering 6531EX043		Compulsory	1 st	1 st year
Semester/trimester when the component is delivered		Number of ECTS credits allocated	Language of instruction	Mode of delivery (face-to-face/e-learning/...)
2 nd		4 ECTS	English	
Learning outcomes			Study methods	Assessment methods
After completion of the study subject, a student should be able to:			Lectures; Explanation of concepts; Analysis of problems solved; Individual solution of problems; Group tasks.	Written Exam; Tests; Defence of individual homework.
LO 1	Select, install and apply software to solve classical discrete mathematics problems.			
LO 2	Apply graph theory to analyzing and modeling computer networks.			
LO 3	Apply classical graph theory algorithms, selecting the optimum data transmission Routes.			
LO 4	Define the logical relationships between algorithms variables developing software.			
LO 5	Describe the logic diagrams using Boolean algebra expressions and truth tables.			
LO 6	Analyze various electronic circuits and their processes.			
Prerequisites (these courses must be successfully completed prior to taking this particular course)				
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Course content				
1. Mathematical logic and Boolean algebra. 2. Graph theory. 3. Basics of Digital Circuits.				
Recommended or required reading and other learning resources/tools				
1. V. Bartkutė-Norkūnienė (2014). Discrete Mathematics. Distance learning course: https://moodle.utenos-kolegija.lt/course/view.php?id=89				
2. Keijo Ruohonen (2013) Graph theory: http://math.tut.fi/~ruohonen/GT_English.pdf				
3. Mordechai Ben-Ari (2012). Mathematical Logic for Computer Science: https://www.win.tue.nl/~keesh/ow/2if85/Ben-Ari3rd.pdf				

4. Anand Kumar A. (2010). Fundamentals of Digital Circuits: https://books.google.lt/books?id=P0Q66U_LKNR0C&printsec=frontcover&hl=lt#v=onepage&q&f=false).