COURSE			DISCRETE MATHEMATICS		
LECTURER			Assoc. Prof. Emil Ilić-Georgijević Ph.D.		
STUDY	STATUS	SEMESTER	NUMBER OF LESSONS L+E		ECTS
B – G	Compulsory	2	2+2		5

OBJECTIVES
❏   To obtain knowledge of basics in discrete mathematics relevant to geoinformatics..

LEARNING OUTCOMES
❏   Student should have basic knowledge in various fields of discrete mathematics: counting techniques, diference equations, graphs.

COURSE CONTENT
❏   **FOUNDATIONS OF MATHEMATICAL LOGIC AND SET THEORY** Basic notions of mathematical logic. Basic notions of set theory. Ordered pair, Cartesian product, relation. Function and inverse function. ❏   **FOUNDATIONS OF COMBINATORICS** Mathematical induction. Binomial coefficient. Permutations, combinations, variations (with and without repetition). ❏   **FOUNDATIONS OF GRAPH THEORY** Introduction to graph theory. Euler's paths and cycles. Hamiltonian paths and cycles. Graphs and colorings. Algorithms of shortest paths.

RECOMMENDED LITERATURE

1. M. Pepić: UVOD U MATEMATIKU drugo izmjenjeno i dopunjeno izdanje, Prirodno-matematički fakultetu Sarajevu, Sarajevo, 2008
2. D. Veljan: Kombinatorika s teorijom grafova, Školska knjiga Zagreb, Zagreb, 1989
3. D. Stevanović, M. Milošević, V. Baltić: DISKRETNA MATEMATIKA zbirka rešenih zadataka, Društvo matematičara Srbije, Beograd, 2008, 1991
4. Z. Udovičić: Skripta iz Dikretne matematike, www.gf.unsa.ba

Examination:
1. Two in-class written exams, each of which worths 50 points.
2. If in total student obtains at least 55 points, the final mark is formed in accordance with the Law of higher education.
3. Otherwise, student takes an integral written exam (50 points) and the mark is formed in the following way: 50% of points obtained on in-class exams + points obtaned on an integral exam.