Study Program: Mathematics

Type and level of studies: Bachelor studies, III semester

Course name: Discrete mathematics

Lecturer: Stana D. Cvejić

Status: Compulsory

ECTS: 7

Attendance Prerequisites:

Course aims

Enabling students to apply knowledge about higher mathematics: series, sequences, special sequences; recognition and analysis of computer and information technologies and study of the basics of graphs and networks and their application in mathematical modeling.

Course outcome

Obtaining knowledge about the basics of computer systems, the Internet and computer technologies related to the fields of mathematics: functions, probability, predictions with applications, mathematical models of physical and natural phenomena and mathematical methods used to study them.

Course content

Theoretical part

The concept of discrete structures and their application in mathematics and computer technologies.
Generating functions, recurrent sequence, special number sequences, Stirling, Bell, Euler, Bernoulli, Chebyshev numbers.
Some special classes of matrices. Elements of classical combinatorics, permutation, variation and combination.
Combinatorial configuration, block diagrams, tactical planes, finite planes, Latin rectangle, magic square.
Graphs. Degree of knots. Neighbourhood matrices. Parts and paths in the graph. Graphs isomorphism. Tree and planning graphs. The shortest way. Oriented tree. Graph coloring.

Practical part

Practice is done in accordance with the theoretical part.

Literature

1. И. Миловановић, Е. Миловановић, Технички основи информатике , Електронски факултет у Нишу, Ниш 2000
2. Е. Миловановић, И. Миловановић, Збирка задатака из Дискретних структура Електронски факултет у Нишу, Ниш 2000

Number of active classes				Other classes
Lectures: 2	Practical classes: 2	Other forms of teaching:	Students' research work	

Teaching methods

Lectures, calculation exercises, laboratory exercises, consulting, term papers, homework, written exam.

Assessment (maximum 100 points)

Course assignments	**points**	Final exam	**points**
activity during lectures	**20**	written exam	**20**
practical classes	**20**	oral exam	**10**
term test(s)	**20**	.....	
seminar(s)	**10**		
Total	**70**		**30**