Study program: Modern computer technologies

Course title: Mathematics 1

Professor/assistant: Nataša Savić

Type of course: compulsory

ECTS credits: 6

Pre-requisites: none

Aims of the course:
Acquiring the necessary knowledge to successfully follow vocational subjects.

Learning outcomes:
-practical application of knowledge;
- making difference between methods for solving systems of linear equations and applying appropriate methods for solving a particular system;
-students should define and explain the matrices and determinants, enumerate their properties and uses in the matrix calculus;
-students should make difference between scalar and vector quantities and use the technique of calculus.

Syllabus

Theoretical part

Basic concepts of mathematical logics and theory of sets. Sets of numbers. Binomial formula. Polynomials and rational functions. Matrices and operations with them. Determinants. Inverse matrix. Systems of linear equations. Matrix equations. Vectors. Scalar, vector and mixed product of the vector. Basics of analytical geometry in space. Straight line and plane.

Practical part

Introduction to higher mathematics (exponentiation, inverse exponentiation, equations, inequalities, logarithms, trigonometry). Mathematical induction. Binomial formula. Complex numbers. Polynomials. Matrix account. Linear equation systems. Vector algebra. Straight line and plane in space.

Literature

1. S. Minčić, Viša matematika I sa rešenim primerima i zadacima za vežbu, Univerzitet u Nišu, 2014
2. Grupa autora, Matematika za Više tehničke škole, Zajednica viših škola, 1989.
3. Grupa autora, Zbirka zadataka iz matematike za više tehničke škole, Zajednica viših škola, 1989.
4. Ušćumlić, M., P., Miličić, P., M., Zbirka zadataka iz više matematike, Naučna knjiga, Beograd, 1990.

Number of active classes			Other forms of teaching:
Lectures: 60	Practical classes: 30	Research work:30	

Teaching methods
Theoretical and practical teaching in combination with interactive teaching with practical problem solving.

Grading system (maximum 100 points), **grading scale** from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.

Pre-exam obligations	**points**	**Final exam**	**points**
activity during theoretical lectures	**10**	written exam	**30**
practical training	**20**	oral exam	
colloquium(s)/seminar papers	**40**		
Sum	**70**	**Sum**	**30**