

Study program: Road Traffic			
Subject name: Mathematics			
Teacher: dr Stanoje D. Cvetković			
Subject status: Compulsory			
Number of ECTS: 6			
Conditions: None			
Subject objective Acquisition of mathematical knowledge necessary for understanding the laws in nature and society, especially in the field of education, their application in vocational education, as well as in everyday practice.			
Subject outcome Students should independently create and solve problems in practice using mathematical apparatus.			
Subject content			
<i>Theory classes</i>			
Elements of mathematical logic. Real number field, induction, binomial pattern. A field of complex numbers. Matrices. Determinants and systems of linear equations. Scalar and vector quantities, scalar, vector and mixed product. Elements of analytical geometry in space; straight and flat. Functions of one variable, convergence and continuity. Function derivative, function differential, Taylor formula. Indefinite and definite integral. First and second order differential equations.			
<i>Practice classes</i>			
Mathematical logic, automata, minimization of functions of logic algebra. Sets and Venn diagrams in proof. Mathematical induction and application in everyday life. Complex numbers and computer mappings. Systems of linear equations and inequalities in motion optimization. Computer-aided vector mapping. Functions in space and their presentation using different software packages. Methods for approximate solution of equations. Geometric and mechanical interpretation of excerpts. Average speed, speed and acceleration when moving. Application of integral calculus in the description of motion behavior. Calculation of surfaces, body volume as well as path length if described by a function. Lagrange's method in the application of management problem solving.			
Literature:			
1. С. Цветковић, Д. Цветковић, „Математика“, Виша техничка технолошка школа, Врање, 2006.			
2. З. Шами, „Збирка задатака из математике“, Саобраћајни факултет, Београд, 2001.			
3. С. Цветковић, Д. Цветковић, „Збирка задатака из математике“, Виша техничка технолошка школа, Врање, 2000.			
Number of active classes	Theory classes: 30	Practice classes: 30	
Teaching methods Method of presentation, method of dialogue and illustrative-demonstrative method.			
Knowledge assessment (maximum number of points 100)			
Pre-exam obligations	points	Final exam	points
activity during the lectures	10	written exam	30
practice classes	5	oral exam	-
colloquium/s	55		
seminar/s	-		