

Study program / course: Mechanical Engineering				
Type and level of study: Bachelor academic studies				
Course: Mathematics 2				
Lecturers: Petrovic Miroslav				
Status of course: Obligatory, joint for all modules, II semester				
Number of ECTS: 7				
Precondition: Mathematics 1				
The objective of course Introducing the students with basic concepts of mathematical analysis (definite and indefinite integrals, differential equations, real functions of several independent variables). Qualifying the students for solving problems and tasks from the mentioned areas using scientific procedures and methods. Qualifying the students for attending other courses at the studies.				
The outcome of course Acquiring necessary theoretical knowledge and understanding the problems related to elements of mathematical analysis. Mastering the skills and methods of solving the tasks and problems from mentioned areas.				
Syllabus Theoretical study Integrals. Primitive function and indefinite integral. Basic integration methods. Integration of rational functions. Integral sums and definite integral. Properties of definite integral. Relation between definite and indefinite integrals. Applications of definite integrals. Alien integral. Differential equations. Basic concepts. Koshi problem and the existence of solutions. Fist order differential equations. Equation which separates the variables. Homogenous differential equation. Linear differential equation. Bernoulli's differential equation. A total differential equation. Higher order differential equations. Higher order differential equations which order may be lowered. Higher-order linear differential equations. Real functions of several independent variables. Metric spaces. Boundary value and continuity. Partial derivatives. Total differential. Higher order derivatives and differentials. Extreme values of functions of several independent variables. Practical classes. Program of practical classes is identical to the program of theoretical study.				
Recommended reading 1. Uscumlic, M., Trifunovic, M., Milicic, P.: "Elements of higher mathematics", Naucna knjiga, Belgrade, 1990 2. Petrovic-Torgasev, M., Lazic, M.: "Collection of solved problems from Mathematics 1", Faculty of Mechanical Engineering, Kragujevac, 2003 3. Uscumlic, M., Milicic, P.: "Collection of solutions from higher mathematics", Naucna knjiga, Belgrade, 1979				
The number of hours of active teaching:				Other classes: 1
Theory: 2	Practical classes: 2	Other forms of teaching: 0	Research study: 0	
Methods of teaching Lectures, exercises				
Evaluation of knowledge				
Pre-final exam obligations	points	Final exam	points	
Activities during the classes:	6	oral exam	46	
Practical classes:				
Colloquiums(s) :	48			
Seminar(s) :				