

Study program / course: Mechanical Engineering			
Type and level of study: Master academic studies			
Course: Calculation of Mechanical Constructions			
Lecturers: Ruzica Nikolic, Ph.D., full professor			
Status of course: Obligatory for module M₂, III semester			
Number of ECTS: 6			
Precondition: none			
The objective of course Introducing students with use of analytic as well as modern numerical methods and software tools in analysis of mechanical construction. Qualification of students for independent solving of problems from industry praxis.			
The outcome of course After passing the exam, the students are expected to know and understand basic analytic and numerical methods of analysis of real mechanical structures			
Syllabus Theoretical study: Introduction Analytical Methods: Linear Theory of Elasticity, Approximate Methods, Definite Methods; Numerical Methods: Finite difference methods, Finite elements method Practical Studies: Application of finite difference method as well as finite elements method in engineering practice using modern program packages. In the framework of studies research work, the students will be qualified for basic research in course area.			
Recommended reading 1. Nikolic V.: Calculation of Mechanical Constructions, scripts(lectures), Faculty of Mechanical Engineering in Kragujevac 2. Nikolic V.: Mechanical Analysis of Elements of – monograph, Faculty of Mechanical Engineering in Kragujevac 3. Kojic M., Slavkovic R., Zivkovic M., Grujovic N.: ”The Finite Element Method I – Linear Analysis”, (in Serbian), Faculty of Mechanical Engineering, Kragujevac, 1998			
The number of hours of active teaching:			Other classes: 1
Theory: 3	Practical classes: 1.4	Other forms of teaching: 0.6	Research study: 0
Methods of teaching Teaching consists of lectures, exercises and independent work of students. Within the lectures, theoretical basics and information on analytical and numerical methods of calculation of mechanical construction. Within the exercises, calculation problems are solved from specific areas.			
Evaluation of knowledge			
Pre-final exam obligations	points	Final exam	points
Activities during the classes:	10	Written exam	30
Practical classes:			
Colloquiums(s) :	40 (2x20)		
Seminar(s) :	20 (2x10)		