

Study program: Mechanical engineering			
Type and level of study: Master academic studies			
Subject: Continuum mechanics			
Teacher: Milan Mićunović			
Status of course: Obligatory for module M ₅ , II semester			
Number of ESPB: 6			
Preliminary conditions: none			
The objective of course Contents: Continuum mechanics has as a goal a development of student understanding that by this subject they could cover a series of engineering disciplines in general mechanics as well as thermodynamics.			
The outcome of course At the end of lecturing students are able to know: (a) basics of continuum mechanics and thermodynamics and (b) solving of practical problems by means of MATLAB symbolic programming.			
Syllabus <ol style="list-style-type: none"> 1. Tensor algebra and analysis – curvilinear coordinates, invariants, direct notation, eigen directions 2-tensors, differentiation and integration 2. Deformation geometry and kinematics – material derivative and geometric interpretation, compatibility conditions 3. Dynamics and thermodynamics of deformable bodies-mass conservation, stress, balance equations, first and second law of thermodynamics 4. Constitutive equations-elementary approach: principles, 5. Elective field: nonlinear and linear elasticity, visco-elasticity, plasticity, damage, residual stresses, fracture and coupling. Anisotropy and composites. Polymers and tissues 6. Numerical problem solving-virtual work and finite elements 			
Recommended reading <ol style="list-style-type: none"> 1. M. Mićunović: <i>Continuum mechanics fundamentals</i>, Scientific book (Naučna knjiga) Beograd, 1983. 2. MATLAB manual. 3. Some scientific papers at moderate level oriented to applications. 			
Active teaching hours			Other hours 1
Lectures: 2	Exercices: 1.6	Other teaching forms: 0.4	
Research work: 0			
Teaching methods Lectures and auditory training and independent work.			
Evaluation of knowledge			
Pre-final exam obligations	points	Final exam	points
Activity during lecturing	10		
Two independent projects accomplished	60	oral	30