

Study program : Mechanical Engineering			
Type and level of studies: Master academic studies			
Course unit: Theory of Elasticity			
Teacher in charge : Ivan M. Miletić			
Language of instruction: English			
ECTS: 6			
Prerequisites: None			
Semester: Winter Semester			
Course unit objective Enabling student for solving problems from the area of the elasticity theory and for applying the acquired knowledge in practice in solving problems of the non-circular cross-sections torsion and basic problems from the plates and from the shell theory.			
Learning outcomes of Course unit After passing the final exam from this course students will: - Have a knowledge of the higher theoretical notions from the area of stresses, strains and planar problems; - Be able to determine the sizes and load carrying capacity of the non-circular columns loaded in torsion; - Know the principles of the calculations of plates and shells.			
Course unit contents <i>Theoretical classes</i> Introduction - Stresses and strains. Generalized Hooke's law. Plane stress and plane strains states. Planar problems in Cartesian frame. The strain energy method. 3-D problems in Elasticity theory. Basic theory of plates. Basic theory of shells. <i>Practical classes</i> Problems solving, homeworks, tests and colloquia. (Same areas as for theoretical lecturing)			
Literature Timoshenko, S, and J.N. Goodier, "The Theory of Elasticity", McGRAW-HILL BOOK COMPANY, Inc, 1951, Timoshenko, S, and S. Woinowsky-Krieger, "Theory of plates and shells" McGRAW-HILL BOOK COMPANY, Inc, 1959, Landau, L. D., and E. M. Lifshitz, "The Theory of Elasticity", Pergamon Press, 1970, Starovoitov, E., and F.B. Naghiyev, "Foundations of the Theory of Elasticity, Plasticity, and Viscoelasticity", CRC PRESS, 2012, Seaburg , P.A., and C.J. Carter, "Torsional Analysis of Structural Steel Members", American Institute of Steel Construction, Inc. 2003.			
Number of active teaching hours 75			Other classes
Lectures: 15	Practice: 15	Other forms of classes: <i>mentoring system 20</i>	
Independent work: 25			
Teaching methods Lecturing, Practical work, consultations			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures	5	oral examination	30
practical classes/tests	20	written examination	
Seminars/homework	45		
Project			
Other			
Grading system			
Grade	No. of points	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	< 51	Failing	