

**UNIVERSITY „DŽEMAL BIJEDIĆ“ OF MOSTAR  
FACULTY OF CIVIL ENGINEERING**

<b>Naziv predmeta:</b>	<b>STRUCTURAL ANALISYS II</b>	<b>Subject code: 0000</b>
<b>Study cycle</b>	Undergraduate	Semester: IV
<b>Professor:</b>	Assistant Professor PhD Suad Zalihić	
<b>Contact details:</b>	E-mail: <a href="mailto:suad.zalihic@unmo.ba">suad.zalihic@unmo.ba</a>	
<b>Contact hours:</b>	Lectures per week: 3	Practicals/tutorials per week: 3
<b>ECTS</b>	<b>6 ECTS</b>	
<b>Unit Status:</b>	Core	
<b>Prerequisites:</b>	-	
<b>Synopsis:</b>	<p>Linear theory of bar. Bar deformations induced by bending. Deformation dependence from internal forces and temperature changes. Deflection lines. Method of Mohr's Analogy.</p> <p>General theorems of elastic systems (generalized displacements and generalized forces, work of external forces - deformation energy, work of internal forces, virtual work of elastic systems, potential energy, Betti's theorem of reciprocal works, Maxwell's theorem of reciprocal displacements, Maxwell-Mohr general equation for displacements, numerical determination of displacements, Vereschagin's rule, Castigliano's theorems, Principle of energy minimum). Solving of static indeterminated systems.</p> <p>Force Method (choosing of base system, expressions for internal forces and displacements, determining of free vector members, simplifying of Force Method system equations, influence lines).</p> <p>Continuous beams (choosing of base system, three-moment equation, determining of internal forces and support reactions, influence lines of continuous beams, most unfavorable load, determining of limit value diagrams for internal forces and supports).</p> <p>One-side and both sides fixed beam</p> <p>Slope deflection method (Takabeya equation, frames without side-sway, Frames with side-sway)</p>	
<b>Aims:</b>	<p>Increasing of student's knowledge about analysis methods of lineal static undetermined structures (trusses, beams and frames) which most commonly occur in practice.</p> <p>Understanding the basics of software using in analysis of structures.</p>	
<b>Outcomes</b>	On successful completion of the course, students should comprehend basic concepts and methods of analysis of static undetermined lineal structures and be capable of solving related simpler practical problems.	
<b>Teaching methods:</b>	Lectures, practicals/tutorials/self-directed learning exercises	
<b>Assessment:</b>	Three tests (1 hour each) 20%, 15% and 15%; Final examination (3 hours): 50%;	
<b>Prescribed literature:</b>	<ol style="list-style-type: none"> <li>1. Internal tutorials</li> <li>2. Aslam Kassimali, <i>Structural Analysis, Fourth Edition</i>, Southern Illinois University, Carbondale, 2011.</li> <li>3. R. C. Hibbeler, <i>Structural Analysis, Nine Edition</i>, Pearson Education Ltd., London, 2015.</li> <li>4. O.Jokanović, <i>Metoda deformacija</i>, Svjetlost Sarajevo</li> <li>5. Đ. Solovjev: <i>Statika konstrukcija 1. knjiga, I i II dio</i>, University of Sarajevo</li> <li>6. <i>Software Application Guide – Tower</i>, Radimpex Software Ltd, Belgrade, 2016.</li> </ol>	