

<b>COURSE</b>		<b>MASONRY STRUCTURES</b>		
<b>LECTURER</b>		Prof. Mustafa Hrasnica Ph.D.		
<b>CYCLE OF STUDIES</b>	<b>STATUS</b>	<b>TERM</b>	<b>LECTURES L+E</b>	<b>ECTS</b>
B - CE	compulsory	4	2+1	4
<b>LEARNING OBJECTIVES</b>				
<ul style="list-style-type: none"> <li>□ Introduce students in the field of Masonry structures, construction method with several millenniums of tradition. Explain specifics of the most heterogeneous among traditional building materials; adopt basic design criteria for masonry structures, especially for the walls made of bricks or blocks, as well as construction rules for masonry buildings.</li> </ul>				
<b>LEARNING OUTCOMES</b>				
<ul style="list-style-type: none"> <li>□ Understanding of the behaviour of masonry structures, exposed to common loads and to severe loads as well, explain especially specifics of composites, built of bricks and mortar.</li> <li>□ Mastering the design procedures for vertical loads, horizontal loads in the wall plane and wall bending according to contemporary codes, focusing on Eurocode 6.</li> <li>□ Competences to perform load analysis, static calculations, design and detailing of masonry buildings, including application of simplified analytical procedures.</li> </ul>				
<b>COURSE CONTENT</b>				
<ul style="list-style-type: none"> <li>□ Introduction. The importance of masonry structures. Historical way of construction. Combination of two mechanically different materials, advantages and defects. Design concept according to EC6, loads, design checks for capacity and serviceability.</li> <li>□ Materials of masonry buildings. Brick elements, mortar and masonry structure. Basic mechanical properties, experimental methods. Compressive strength, shear strength, bending, elastic modulus, referent tension strength. Specifics of shear strength at masonry buildings. Characteristic strength. Idealized and design stress-strain diagrams.</li> <li>□ Unreinforced masonry structures. Assumptions, analysis, design strengths. Wall exposed to vertical loads, design strength, influence of slenderness, eccentricity, restraints. Concentric loads on the wall. Wall exposed to horizontal forces in its plane, design conditions, shear, tension strength, design eccentricity. Wall exposed to lateral load-wind, bending moments, design and capacity level.</li> <li>□ Structural details of masonry buildings. Reinforced concrete confinements, built in instructions, niches, the rules of brickworks, categories of brickworks control.</li> <li>□ Masonry exposed to earthquake, behaviour, damages, structural demands, failure types.</li> <li>□ Simple design rules for masonry buildings, conditions for implementation. Simplified analysis and design. Retrofit and rehabilitation of masonry buildings.</li> </ul>				
<b>RECOMMENDED LITERATURE</b>				
<ol style="list-style-type: none"> <li>1. Notes and slides from Lectures</li> <li>2. Sorić Z., <i>Zidane konstrukcije I</i>, Građevinski fakultet Sveučilišta u Zagrebu, 1999-2004</li> </ol>				
<b>Examination procedure:</b>				
Tests during the term, continual monitoring nad evaluation of semester project .				
Evaluation: Work during the term, min. 50%, final exam max. 50 % of the final grade.				