

Study program:	Civil Engineering		
Level of study:	Undergraduate academic studies		
Course title:	Fundamentals of concrete structures		
Teacher:	Kukaras Danijel		
Course Status:	Compulsory		
Credits (ECTS):	6		
Prerequisite:	Strength of Materials 1 and 2, Theory of line structures 1		
Course objective(s):	Introduction to basic and occasional loads of constructions, fundamentals of design of linear and surface elements in concrete constructions according to limit state theory, and characteristics of materials from which concrete is made.		
Course outcome(s):	Realization of planned objectives.		
Course Content:			
1 st week	Material properties, composite action of concrete and steel. Reinforcement role in concrete cross section.		
2 nd week	Stress stages for bending of RC beam. Loads and actions on structures.		
3 rd week	Coefficient of safety for combined load actions. Centrally loaded linear elements.		
4 th week	First colloquium.		
5 th week	Eccentrically loaded linear elements without buckling. Small and large eccentricity.		
6 th week	Bended linear elements with rectangle cross section and with T cross section.		
7 th week	Single and double reinforcement. Anchoring of reinforcement bars.		
8 th week	Second colloquium.		
9 th week	Reinforcement design for RC plates with main reinforcement in one direction (cantilever slab, free slab and slab with overhangs).		
10 th week	Slab across multiple supports (continuous slab).		
11 th week	Reinforcement design for RC plates with main reinforcement in two orthogonal direction (individual slabs).		
12 th week	Floor prefabricated ceilings (FERT, TM3 TM5), stairs.		
13 th week	Main tensile stresses. Design of reinforcement for receiving shear stress.		
14 th week	Introduction to prestressed constructions. Steel for prestressing. Types of prestressing. The impact on the loss of the prestressing force.		
15 th week	Third colloquium.		
	Week by week practice is following lectures		
Literature:	<ol style="list-style-type: none"> Group of authors: Priručnik za primenu PBAB '87. JUDIMK, Beograd, 1989. D. Najdanović: Betonske konstrukcije, Grosknjiga, Beograd, 1995. Ž. Radosavljević: Armirani beton 2, Građevinska knjiga, Beograd, 1988. Ž. Radosavljević, D. Bajić: Armirani beton 3, Građevinska knjiga, Beograd, 1988. I. Tomičić: Betonske konstrukcije, Školska knjiga, Zagreb, 1988. 		
Number of hours:			Other classes: 0
Lectures: 3	Exercises: 2	Other forms of teaching: 0	Individual research work: 0
Teaching methods: Lectures, exercises, seminars, consultations			
Evaluation of knowledge (maximum 100 points)			
Pre-exam activities	points	Final exam	points
Activity during the lectures	5	Written exam	30
Practical work	5	Oral exam	30
Seminar paper (Graphic work, Term paper...), Colloquia	30	-	-