

Course Name: Concrete structures II				
Course Code	Course Status	Semester	ECTS Credits	Number of classes
	Compulsory	VI	5	2L+1E+1L
Study programmes: Undergraduate academic studies - study programme Civil Engineering; 6 semesters and 180 ECTS credits.				
Conditioned by other courses: Not conditioned				
Aims of the course: Acquiring knowledge in the field of application, design and construction of concrete and reinforced concrete and prestressed structures.				
Learning outcomes: After passing this course, the student will be able to: 1. Understand the behaviour of concrete and reinforced concrete and prestressed structures. 2. Apply knowledge, i.e. performs the design of RC elements and structures according to the ultimate limit states (ULS) (columns, frames, thick cantilever beams, joints, deep beams) 3. Apply knowledge, i.e. performs the design of RC cross sections for serviceability limit states. 4. Creatively apply the acquired knowledge in the field of reinforced concrete structures on less complex buildings - individual residential buildings				
Teacher and assistant: Nebojša Đuranović, Full professor PhD - lecturer Nina Serdar – Teaching Associate, PhD Maja Lausević-Odalović- Teaching Associate, MSc				
Methods of teaching and learning: Lectures, exercises/tutorials, learning, consultations and independent work				
Course content:				
I teaching week	Calculation of AB cross-section according to ultimate limit states - RC cross-section without crack. Interaction diagrams for designing RC cross sections			
II teaching week	Design and calculation of columns and walls			
III teaching week	Design of slender RC elements - Part I			
IV teaching week	Design of slender RC elements - Part II			
V teaching week	Strut and tie method			
VI teaching week	Design and calculation of RC frame structures, Local compressive stresses			
VII teaching week	Joints in RC structures, thick Short cantilever beams			
VIII teaching week	Design and calculation of RC deep beams			
IX teaching week	Design of RC cross sections and elements according to Serviceability Limit State – Introduction			
X teaching week	Design of RC cross sections and elements according to Serviceability Limit State – Calculation of stresses and strains - Part I			
XI teaching week	Design of RC cross sections and elements according to Serviceability Limit State – Calculation of stresses and strains - Part II			
XII teaching week	Design of RC cross sections and elements according to Serviceability Limit State– Cracking LS control			
XIII teaching week	Design of RC cross sections and elements according to Serviceability Limit State– Deformation LS control			
XIV teaching week	Prestress structures- basic concept, materials, types, prestressing systems, detailing, designing.			
XV teaching week	Non reinforced structures.			
Student's obligations: Attending of lectures and exercises, elaboration of semester project, passing of pre-exams.				
STUDENTS LOAD				
Per week: 5 credits x 40/30 = 6.67 hours Structure: 2 hours lectures 2 hours exercises 2.67 hours individual work, including consultations	In semester Teaching and final exam: (6.67 hours) x 16 = 106.67 hours Necessary preparations before semester (administration, enrolment etc) 2 x (6.67 hours) = 13.33 hours Total load for the course: 5x30 = 150 hours Additional work for exam preparation in the additional exam session, including passing of correctional exam between 0 and 30 hours (remaining time from the previous issues to the final load for the course of 150 hours) Load structure: 106.67 hours (teaching) + 13.33 hours (preparation) + 30 hours (additional work)			
Literature: Đuranović N.: "Izvod iz predavanja na predmetu Betonske konstrukcije II", februar 2021. godine. Grupa autora: BETON I ARMIRANI BETON PREMA BAB 87, knjiga 1 i 2, Građevinska knjiga Beograd 1991. Radosavljević Ž., Bajić D.: ARMIRANI BETON, knjiga 3, Građevinska knjiga, 1988. F.K. Kong and R.H. Evans: "REINFORCED AND PRESTRESSED CONCRETE" Van Nostrand Reinhold UK, 1987 Ačić M., Pakvor A., Perišić Ž.: TEORIJA ARMIRANOBETONSKIH I PRETHODNO NAPREGNUTIH KONSTRUKCIJA, Građevinski fakultet Beograd, Građevinska knjiga, 1986.7. MEST/JUS standards				
Examining system and grading: Examining is continuous during the semester and in the final exam. Maximum number of points in semester: 100. Maximum number of points at final exam: 50. The structure of examination and points is as follows: - classes attendance: from 0 to 5 points (100% attendance= 5 points, less than 30% attendance= 0 points) - semester project: from 3 to 15 points (min positively marked part of semester project = 3 points); - pre-exams: 20+10 = 30 points - final exam: up to 50 points Pre-exams and final exam are in written form. Positive grade is obtained for min 50 points.				
Special notes for the course:				
Data prepared by Lecturer				
Note: Further information on the subject can be obtained from the subject Lecturer, teaching associate, head of the study programme and vice-dean for teaching.				