UNIVERSITY „DžEMAL BIJEDIĆ“ OF MOSTAR FACULTY OF CIVIL ENGINEERING		
Naziv predmeta:	**CONCRETE STRUCTURES II**	**Subject code: GBA32**
Study cycle	Undergraduate	Semester: IV
Professor:	Professor PhD Armin Hadrović	
Contact details:	E-mail: armin.hadrović@unmo.ba	
Contact hours:	Lectures per week: 3	Practicals/tutorials per week: 2
ECTS	**6 ECTS**	
Unit Status:	Core	
Prerequisites:	-	
Synopsis:	Uncracked and cracked behavior of RC elements subjected to combination of shear and bending. Failure types of RC element subjected to shear and combined shear and bending. Shear transfer mechanisms for cracked element. Truss analogy. Shear design of RC slender members without and with shear reinforcement. Relation between shear and bending design. Simplified shear design of elements with concentrated load next to support. Beams with inclined chords shear and bending design. Reinforced concrete one-way and two-way slabs with knife edge supports behavior, transfer of internal forces, simplified elastic analysis and design. Load transfer between slab and knife edge supports. Behavior of flat slabs under increasing load. Simplified, lover bound, method for flat slabs analysis (equivalent frame analysis). Punching resistance of flat slabs with and without shear reinforcement for middle, edge and corner columns. Basics of superstructure-foundation-ground interaction and simplifications. Shallow stip and pad foundation behavior and design for bending, one way shear and punching. Unreinforced strip foundation design. General rules for reinforcement detailing. Cross section bars spacing. Permissible mandrel diameters for bent bars. Longitudinal reinforcement anchorage length, rules for shear reinforcement anchoring. Continuation of reinforcement by laps, welding and mechanical couplers. Curtailment of longitudinal tension reinforcement (bars and net reinforcement). Reinforcement detailing for beams, columns and slabs. Maximum and minimum reinforcement ratios.	
Aims:	Increasing of student's knowledge about design methods of reinforced concrete elements according to EN 1992-1 (beams, columns, slabs, shallow foundations) which most commonly occur in practice. Understanding the basics of software using in design of RC concrete elements.	
Outcomes	On successful completion of the course, students should comprehend design procedures of various RC elements subjected predominantly to static loading and capable of solving related some practical problems.	
Teaching methods:	Lectures, practicals/tutorials/self-directed learning exercises.	
Assessment:	Two tests (2 hour each) two times 25%; Final examination (3 hours): 50%;	
Prescribed literature:	1. A. Hadrović, V. Hasanović: *Concrete structures, first volume (second edition)*; University „Džemal Bijedić“, Mostar, 2020. 2. Internal tutorials (*Worked Examples*). 3. B. Mosley, J. Bungey, R. Hulse: *Reinforced concrete design to Eurocode 2*, Palgrave Macmillan, 2012. 4. L.H. Martin, J.A. Purkiss: *Concrete Design to EN 1992*, Elsevier, 2006. 5. T. Threlfall: *Worked Examples for the Design of Concrete Structures to Eurocode 2*, CRC Press, 2013.	