Course Unit Descriptor

Study Programme: Civil Engineering		
Course Unit Title: Concrete Technology		
Course Unit Code: GG21		
Name of Lecturer(s): Prof. dr Vlastimir Radonjanin, Prof. dr Mirjana Malešev		
Type and Level of Studies: Bachelor Level		
Course Status (compulsory/elective): compulsory		
Semester (winter/summer): Summer		
Language of instruction: English		
Mode of course unit delivery (face-to-face/distance learning): Face-to-face		
Number of ECTS Allocated: 5		
Prerequisites: None		
Course Aims: Obtaining knowledge on the specificities of component materials, properties and methods for examining fresh and hardened concrete, designing content and designing concrete, traditional and contemporary technologies for concrete production and performing concrete works.		
Learning Outcomes: Acquired knowledge is used in professional courses and in engineering practice. Students are competent to select the adequate type of "normal" concretes and design its content, the technology for constructing concrete structures, to monitor and examine the concrete quality during the building process and to elaborate the concrete project. Acquired competencies can be used in designing and building concrete structures.		
Syllabus: Component materials for concrete. Structure and properties of fresh concrete (rheological properties, technological properties, other properties). Structure and properties of hardened concrete (micro and macro structure, basic strength laws, strength under pressure, resistance to compression and shearing, module of elasticity and Poisson`s coefficient). Rheological properties of hardened concrete. Special properties of concrete (resistance to frost action, resistance to frost action and melting salts, resistance to wear, water-resistant concrete). Designing content for diverse concrete types. Mixing concrete, transporting concrete, building-in concrete and protecting concrete. Building basic concrete structures. Special procedures for concrete works and building-in concrete. Accelerating the concrete hardening. Concrete works in extreme climate conditions. Concrete quality control. Project on concrete.		
Required Reading: Relevant literature in English TBD		
Weekly Contact Hours: 4	**Lectures:** 2	**Practical work:** 0
Teaching Methods: During lectures, presentations with photographs, tables, diagrams, formulas and emphasised text – definitions are used to explain the students the course content predicted by the curriculum. There are also short thematic films. In laboratory practice, students can observe the procedures for mixing concrete and examining basic properties of fresh and hardened concrete. A part of the practice is computing, where students use tasks to connect the presented course content with the construction practice. Professional excursion (a concrete factory and interesting structures under construction with concrete works) is obligatory for all students. The examination comprises theoretical and practical – written part, where the written part is eliminatory. Written part of the examination includes computing tasks. During the semester, the first course field can be taken in one partial examination, and the other field in the examination. Theoretical part of the examination can be taken during the examination terms, on passing the written part		

of the examination.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Active class participation		written exam	
Practical work		oral exam	
Preliminary exam(s)		…….	
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			