

<b>Study Programme: Civil Engineering</b>			
<b>Course Unit Title: Concrete Structures - Hydrotechnics</b>			
<b>Course Unit Code: GH407</b>			
<b>Name of Lecturer(s): Vukobratović Vladimir</b>			
<b>Type and Level of Studies: bachelor</b>			
<b>Course Status (compulsory/elective): elective</b>			
<b>Semester (winter/ summer): winter</b>			
<b>Language of instruction: english</b>			
<b>Mode of course unit delivery (face-to-face/distance learning): face-to-face</b>			
<b>Number of ECTS Allocated: 7</b>			
<b>Prerequisites: none</b>			
<b>Course Aims:</b> Acquiring advanced academic and professional knowledge in the field of the design, detailing and construction of reinforced concrete hydraulic structures and enabling students for their comprehensive treatment in engineering practice.			
<b>Learning Outcomes:</b> Students possess advanced academic and professional knowledge in the field of the design, detailing and construction of reinforced concrete hydraulic structures. They are able to solve problems of different levels of complexity on their own, as well as in communication and interaction with others. They are entrepreneurial and can lead projects of different complexity by respecting the ethical standards of their profession. They have a positive attitude towards lifelong learning and personal and professional development.			
<b>Syllabus.</b> General characteristics of reinforced concrete structures. Ultimate and serviceability limit states in reinforced concrete structures. Basics of design of reinforced concrete structures. Ductility of reinforced concrete cross-sections. Spans, supports, rigid joints, hinges and pin ended columns. Expansion joints. Beams, columns, frames, beam grills, corbels, circular ring beams. One- and two-way solid slabs. Flat slabs. Punching of slabs. Circular and ring slabs. Openings in slabs. Other inter-storey slabs. Staircases. Shallow foundations. Culverts. Pipes. Manholes. Pumping stations. Pools. Tanks. Gravity and arch dams. Spillways. Water towers.			
<b>Required Reading:</b> Relevant literature in English, tbd			
<b>Weekly Contact Hours:2</b>	<b>Lectures: 4</b>	<b>Practical work: 3</b>	
<b>Teaching Methods:</b> Lectures, practical classes, consultations. The theoretical part of the study material is presented at lectures through presentations of individual thematic units, followed by the appropriate examples from engineering practice for the sake of easier perceiving and understanding. At practical classes, the study material is processed through the solving of practical problems with the active participation of students. In addition to lectures and exercises, consultations are held regularly in order to provide students with answers to additional questions related to the study material.			
<b>Knowledge Assessment (maximum of 100 points):</b>			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Attendance			
Computer exercises			
Tests (4x)			

