Course Unit Descriptor

Study Programme: Civil Engineering

Course Unit Title: Concrete Structures - Roads

Course Unit Code: GP406

Name of Lecturer(s): Vukobratović Vladimir, Starčev-Ćurčin Anka, Brujić Zoran

Type and Level of Studies: bachelor

Course Status (compulsory/elective): elective

Semester (winter/ summer): winter

Language of instruction: english

Mode of course unit delivery (face-to-face/distance learning): face-to-face

Number of ECTS Allocated: 7

Prerequisites: none

Course Aims:.

Acquiring advanced academic and professional knowledge in the field of the design, detailing and construction of reinforced concrete road civil engineering structures and enabling students for their comprehensive treatment in engineering practice.

Learning Outcomes:

Students possess advanced academic and professional knowledge in the field of the design, detailing and construction of reinforced concrete road civil engineering 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.

Syllabus.

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, arches, 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. Retaining walls. Culverts. Pipes. Manholes.

Required Reading:

Relevant literature in English, tbd

Weekly Contact Hours:2	**Lectures: 4**	**Practical work: 3**

Teaching Methods:

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.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Attendance			
Computer exercises			
Tests (4x)			