



### **1. Course number and name**

RB-S1-19-W10-5, Concrete Structures II

### **2. Credits and contact hours\***

4 ECTS, lectures: 30hours\*\*, classes: 5 hours\*\*, project: 25 hours\*\*

### **3. Instructor's or course coordinator's name**

Aneta Żmij, CEng, MSc, PhD

### **4. Text book, title, author, and year**

- Limbrunner G. F., Aghayere A. O: Reinforced concrete design, Pearson, 2017.
- Mosley W. H., Bungey J. H., Hulse R.: Reinforced concrete design to Eurocode 2, Macmillan Education, 2012.
- O'Brien E., Dixon A., Sheils E.: Reinforced and Prestressed Concrete Design to EC2, CRC Press, 2012

### **5. Specific course information**

#### **a. brief description of the content of the course (catalog description)**

##### Lectures:

Definition, classification, design rules and procedures for the following reinforced concrete structural members: one-way and two-way slabs, beams, columns, foundations, beam-slab floors, flat floors, stairs, retaining walls, wall-beams.

##### Classes:

Introduction to the design of the structural members of the beam-slab floor.

##### Project:

Preliminary project of beam-slab floor with the drawing in scale 1:100; calculation and drawing (scale 1:10) of one-way slab, calculation and drawing (scale 1:10) of rib, calculation of binder, calculation and drawing (scale 1:10) of column and spot foundation.

#### **b. prerequisites or co-requisites**

Engineering course of Mechanics and Concrete Structures sem. 3. **c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program**

Required.

### **6. Specific goals for the course**

#### **a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic**

The student knows and understands:



- principles of construction, dimensioning, of construction reinforced concrete elements,
- standards and guidelines for the design of selected general buildings.

The student can:

- size selected structural elements and design simple reinforced concrete structures, as well as simple foundations,
- define computational models of computer analysis of structures, simulate various construction variants, perform static analysis, as well as critically evaluate the results of these analyzes give classifications of building actions, enumerate ultimate and serviceability limit states and combination of actions according to Eurocodes,
- prepare a load statement for various types of structures and actions,
- perform the combination of actions according to selected Eurocodes.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

K1A\_W05, K1A\_W06, K2A\_U04, K2A\_U02

#### **7. Brief list of topics to be covered**

1. Beam and slab floors.
2. One-way slabs.
3. Beams.
4. Columns.
5. Foundations. footing, wall footing, combined footing, mat footing), details of reinforcement.
6. Two-way slabs.
7. Flat floors.
8. RC stairs.
9. Retaining walls.
10. Wall beams.

\*- Consultations were not included in the contact hours

\*\* -per semester